Compiled By:- Free Students' Union, Lamjung Campus

TRIBHUVAN UNIVERSITY
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2073

Level: B.Sc. Ag. 1st Semester FM: 40
Subject: Principle of economics PM: 16
Time: 2 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay type Questions **10**

1. Explain characteristics of monopoly, monopolistic and perfect competition market with suitable examples in nepalese economy. How equilibrium price and outputs are determined under perfect competition?

Short questions(attempt any ten) **10x3=30**

2. What is the subject matter of economics? Critically analyze scarcity definition of economics.
3. Define the following terms:

a) Macro- economics b) Monopsony c) Liquidity trap d) Ridge line e) Marginal cost f) Break -even point

4. What are the major limitation of Malthusian theory of population? Explain briefly the modern theory of population.
5. Conceptualize the opportunity cost, social cost, explicit cost and implicit cost. Why average cost curve is U-shaped?
6. What do you mean by elasticity? How can you derive point elasticity of a demand?
7. Define law of supply. Explain degrees of elasticity of supply with appropriate examples.
8. What are the reasons for law of demand? Describe the law of diminishing marginal utility.
9. Write short notes on any three:

a) Importance of economics b) Marginal rate of substitution
c) Capital d) Indifference map

10. What does profit mean? Explain liquidity preference theory of interest.
11. Define rent. Discuss on marginal productivity theory of wage.
12. Differentiate between inferior and giffen goods. Explain the price effect for rise in price in case of normal good.

Final examinations- 2071

Essay type question: **10**

1. What are the various types of costs? Explain the relationship among various types of cost curves. Discuss application of different cost concepts.

Short questions (attempt any ten) **10x3=30**

2. Explain economics according to the view of robins.
3. What are the constant factors while preparing demand curve? What happens when there are changes in these constant factors?
4. What is the law of diminishing marginal return? How is it applicable in our daily life?
5. Explain indifferent curve and enlists its properties with graphical illustration.
6. Describe income and substitution effect of price due to fall in price of normal good.
7. What is the cross elasticity of demand? Explain it for substitute and complementary goods.
8. Differentiate monopoly market with perfect competition market.
9. Explain recardian theory of rent. Discuss its validity.
10. How far do you agree with the applicability of Malthusian theory of population?
11. What is schumpter's innovation theory?
12. Write short notes on:

a) Profit
b) Transaction demand for money
c) Wealth

Final examination- 2072

Essay type question: **10**

1. What are the characteristics of purely competitive market? How monopoly market differs from monopolistic one? Describe price determination under monopolistic competition.

Short questions (attempt any ten) **10x3=30**

2. Define economics. Among several definitions which do you feel the best one land. Why?
3. List out various types of consumption and describe any three important characteristics of indifference curve.
4. Explain income effect and substitution effect of price change for inferior good with the help of a clean diagram.
5. Define law of supply. How can you measure the elasticity of supply?
6. Differentiate between implicit and explicit cost. Explain with the help of clean diagram the relationship among short run marginal cost, short run average cost, average variable cost and average fixed cost.
7. Discuss on the degrees of price elasticity of demand. How can you know the relationship between two goods based on the values of cross elasticity of demand?
8. Define land. Discuss the recardian theory of rent.
9. List the characteristics of labour. Explain the optimum theory of population.
10. What do you mean by liquidity preference? Explain the modern theory of interest.
11. Differentiate between gross profit and net profit. Write about any one type of organization which aims to protect the poor sections of society.
12. Write short notes on any three.

a) Goods b) Law of diminishing marginal utility
c) Equillibrium d) Importance of economics

Final examination -2074

Essay type question: **10**

1. What is the importance of demand and supply in econom ics? Discuss on law of demand and elasticity of demand with examples.

Short questions (attempt any ten) **10x3=30**

2. Highlight the major points of material welfare definition of economics. "Robbins definition is self contradictory." Justify the statement with reasons.
3. Define indifference curve and indifference map. Explain the reasons for diminishing marginal rate of substation.
4. Differentiate between normal and inferior goods. Explain the price effect in case of Gifen's good with the help of neat and clean graph.
5. Why does marginal utility of a commodity diminish? Explain the law of diminishing marginal utility along with its assumptions.
6. Discuss on change in demand with appropriate graphs. Explain the geometric method of measurement of elasticity of supply.
7. Explain the optimum theory of population.
8. Define economic rent. Discuss on Recardian theory of rent in brief.
9. Define wage. Discuss on modern theory of wage.
10. What are the functions of an entrepreneur? Discuss different types of organization in brief.
11. Describe the characteristics of purely competitive market. Explain price and output determination under monopolistic competition with clean graphs.
12. Write short notes on:

a) Economics as normative science
b) IS and LM curves
c) Law of supply

Final examination - 2070

Essay type question: 10

1. Compare and contrast the definitions of economics as given by Marshal and robbins and give your opinion on which one of them you fing a better one.

Short questions (attempt any ten) 10x3=30

2. Write short notes on:
a) Inter- related supply
b) Equilibrium
c) Cross elasticity
3. Discuss different properties of indifference curve.
4. Define demand. Discuss different types of demand.
5. Defines cost. Discuss different types of cost.
6. State and explain the law of diminishing marginal utility. Does it apply to money?
7. "demand and supply determine the market price". Discuss
8. State and explain recardian theory of rent.
9. Define wages. Distinguish between nominal and real wages.
10. State and explain the Malthusian theory of population. How is it valid today?
11. What do you mean by liquidity preference? Explain how interest is determined according to the liquidity preference theory.
12. State and explain the innovation theory of profit.

Final examination - 2068

Essay type question: 10

1. Define indifferent curve. Logically explain the properties of indifferent curve with necessary illustration.

Short questions (attempt any ten) 10x3=30

2. What are the basic assumptions of economics? Explain your agreement on classificatory definition of economics.
3. Explin the factors affecting the demand of any good.
4. State and explain the law of diminishing marginal utility.
5. Give logical explanations:
a) AC is "U" shaped
b) Supply curve of perishable good is perfectly inelastic
c) Elasticity of demand for salt is zero.
6. Classify the market on the basis of time. What are the causes of monopoly market?
7. Explain the following:
a) MR=MC
b) Ed=1
c) AVC=AR
8. Write short note on:
a) Minimum reserve price
b) Marginal rate of substitution
c) Law of equimarginal utility
9. Differentiate between:
a) Wealth and money
b) Explicit and implicit cost
c) Rent and interest
10. Critically explain the optimum theory of population.
11. Graphically illustrate the following:
a) Breakeven point
b) Market equilibrium
c) Super normal profit under PCM
12. State and explaintheRecardian theory of rent.

Final examination - 2067

Essay type question: 10

1. Define law of demand and law of suply. Explain the different typss of elasticity of demand and methods of measurement of elasticity of demand.

Short questions (attempt any ten) 10x3=30

2. Degine economics. Discuss nature and subject matter of economics in brief.
3. Define indifference curve. Explain the properties of indifference curve in brief.
4. Discuss price effect for decreasing price on normal goods.
5. Define various cost concepts. Graphically illustrate the relationship among the various cost curves.
6. Graphically illustrate how price and quantity are determined under perfectly competitive market in short run.
7. Briefly discuss the recardian theory of rent.
8. Define labor and its characteristics. Briefly discuss the optimum theory of population.
9. Briefly discuss the liquidity preference of interest.
10. What is organization? Disscuss the Schumpter's theory of profit.
11. Write short notes on:
I. Utility
II. Value
III. Money and wealth
12. Define:
a) Shut down point and break even point
b) Shot run supply and long run supply

Back examination- 2073

Essay type question: 10

1. Define market. Which market structure you prefer most and why? How price and output determine under monopoly?

Short questions (attempt any ten) 10x3=30

2. Define economics. Discuss the assumptions of economics.
3. Write short notes on:
a) Type of utility
b) Goods
c) Economic cost
4. Discuss the price effect between two commodities.
5. Define elasticity of demand. Discuss the importance of price elasticity of demand.
6. What are the determinants of supply? Discuss.
7. What do you mean by rent? Differentiate between rent and quasi- rent.
8. "Is still valid Malthusian theory of population in developing country." Justify the statement.
9. Enlist the characteristics of capital. Why do people prefer liquidity?
10. What do you mean by profit? Write about types of organizations.
11. Differentiate between perfect competition and monopolistic market.
12. Suppose the price of sugar is Rs. 30/kg and its demand is 1500 kg inRampur if the price falls to Rs. 25/k, the amount goes upto 30 quintals. Calculate the price elasticity of demand of sugar and interpret the results.

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FINAL EXAMINATION - 2073

Level: B.Sc. Ag. 1st Semester FM: 40
Subject: Principle of agronomy PM: 16
Time: 2 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Define agronomy. Enlist the major problemsof Nepalese Agriculture and briefly explain the role of Agronomist to solve the food problemsof Nepal.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define soil erosion. Briefly explain the factors affecting water erosion.
3. Write short notes on:
4. What is plant nutrient? Differentiate between soil fertility and soil productivity.
5. Define quality seed and write down the importance of quality seed in brief.
6. What do you mean by weather? Write down the photoperiodic effect of solar radiation on crop production.
7. Define bio fertilizer and also explain the different types of biofertilizer used in Agriculture.
8. Define allelopathic weed. Explain the preventive and curative methods of weed management in agronomic crops.
9. Define tillage and differentiate between conservation and conventional tillage.
10. What is sequential farming? Write down the major principles of crop rotation.
11. Define seed germination. Enlist the different factors affecting seed germination.
12. What is intercropping? Write down the merits and demerits of intercropping.

Final Examination - 2072

Essay Type Question: 10

1. Define weather and climate. Write the effect of temperature on crop growth, development and yield of crop.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define agronomy and write the role of agronomist in solving the food problem.
3. What is the concept of land equivalent ratio? How does it estimate?
4. What is ideotype? Describe th desirable features of rice, wheat and maize ideotype?
5. Write the role of organic manure in improving the soil productivity.
6. What is a weed? Mention in brief the various losses caused by weed inn crop production.
7. Define tillage. Write down the modern concept of tillage.
8. What do you know about optimum soil moisture regime?
9. What do you understand by the term macro and micro nutrients? Enlist the essential plant nutrients needed by a plant for its growth and development.
10. Why starch crop produce more yield in cool climate as compared to warmer climate?
11. Write short notes on (any three):

a) Multiple cropping
b) Quality seed
c) Zero tillage
d) Cropping intensity

12. Differentiate the following (any three):

a) Light compensation point and light saturation point
b) Silage and soiling crop
c) Exhaustive and restorative crop
d) Cropping system and farming system

Final examination- 2073

Essay Type Question: 10

1. Differentiate between soil fertility and productivity. Discuss the fundamental principles for the maintainance of soil productivity in long-run.

Short Questions: (Attempt Any Ten) 10x3=30

2. Mention the role of present agronomist in brief.
3. Differentiate between conservation and conventional tillage. What are the effect of tillage on crop production?
4. Enlist the basic elements of weather and mention the role duration in crop production.
5. Write short notes on:

a. Bio- fertilizer b. cropping system c. Rainfed Farming

6. What is weed? How would you say weeds are "friends and enemies " both?
7. What do you mean by irrigation scheduling? Write down the critical growth stages of paddy, wheat, mustard, gram and cotton.
8. Define cropping scheme and enlist the basic principles of scientific cropping scheme.
9. What is the role of plant density to determine crop yield? Suggest the appropriate ways to maintain the uniform plant population.
10. Differentiate the followings:

a) Cropping intensity and land utilization index.
b) Splash and sheet erosion
c) Silage and soiling crop

11. Write down the perspective of minimum tillage in present days agriculture.
12. What do you know about quality seeds? Also mention the importance of quality seeed in crop production.

Final examination - 2071

Essay Type Question: 10

1. Define tillage and differentiate between conventional and conservation tillage. Mention the advantage and disad vantage of conventional and conservation tillage in details.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define agronomy. How agronomy is inter- related with different branches of agriculture? Mention briefly.
3. All productive soils are fertile but all fertile soils may not be productive. Justify the statement.
4. What is weed? Enlist the various weed management practices applied in crop fields.
5. Define the role of water in crop plants. Write down the water requirements of crops.
6. Write short notes on:

a) Farming system b) Crop rotation
c) Sequential cropping

7. Differentiate climate and weather. Enlist the various weather factors affecting crop production. How temperature and solar radiation are important in crop production?
8. Define seed. Differentiate seeds with grains. Also mention the characteristics of quality seed.
9. Differentiate the following:

a) Monocropping and multiple cropping
b) Surface and sub-surface drainage
c) Dry land and rainfed agriculture

10. Define soil erosion and explain various damage caused by water erosion and their control measure.
11. Write down the common ideotypes of rice and maize. Also mention the role of plant population in crop production.
12. Enlst bio-fertilizer and explain the role of bio-fertilizer in crop production.

Final examination- 2070

Essay Type Question: 10

1. Define the term agronomy and describe in brief the role of agronomist in increasing food crop production to meet the increasing demand of growing population of Nepal.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define crop rotation. Write the principles and advantages of crop rotation.
3. What do you understand by ideal plant type? List the desirable characteristics of ideal plant type of rice and wheat.
4. What are the differences between soil fertility and soil productivity?
5. Write the short notes on:

a) Biofertilizers b) Seed dormancy
c) Minimum tillage

6. Differentiate between:

a) Mixed cropping vs intercropping
b) Trap vs brake crop
c) Cash crop vs catch crop

7. Define weed. Describe the various disadvantages caused by weeds.
8. Describe the characteristics of quality see and its importance in crop production.
9. Write the formula to calculate any three of the followings:

a) Growing degree day(GDD) b) Water use efficiency (WUE)
c) Harvest index(HI) d) Cropping intensity(CI)

10. Describe in brief the role of temperature and humidity on the production of agronomical crops.
11. What do you mean by rainfed farming? Why is it important in Nepal?
12. Describe the various methods of irrigation in brief?

Final examination 2069

Essay Type Question: 10

1. Define the term agronomy and agriculture. Enlist and discuss in brief the relation of agronomy with other sciences.

Short Questions: (Attempt Any Ten) 10x3=30

2. What is crop classifiacation? Classify the agronomical crops on the basis of season of growing with example.
3. Define macro and micro climate. Briefly explain the effect of light on crop growth and development.
4. Enlist the different types of tillage and explain the objective of tillage.
5. Differentiate between seed and grain. What are the determinants of quality seeds?
6. Define the following terms:

a) Land equivalent ratio b) Farming system
c) Seed viability and seed dormancy
d) Cropping scheme

7. What do you mean by irrigation scheduling? Enlist the methods of surface irrigation with brief description.
8. Define soil fertility and soil productivity. Explain briefly the different practices to reclaim acid and alkaline soils.
9. What is agricultural drainage? Describe in brief the effect of poor drainage on crop growth and development.
10. What is soil erosion. Explain the types of soil erosion caused by water erosion.
11. Define weeds. Briefly explain the looses caused by weed and benefit obtained by it.
12. Write short notes on:

a) Rainfed farming b) Ratoon crops
c) Crop ideotype d) Biofertilizers
e) Silage crops

Final examination 2068

Essay Type Question: 10

1. What are the objective of tillage? Explain the conventional and conservation tillages? With their advantages and disadvantages.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define agriculture and agronomy. List the roles of agronomist insolving the food problems in Nepal.
3. Draw and discuss the light response curve to show the effects of solar radiation on photosynthesis of crops.
4. Describe the chracteristics of quality seeds for optimum crop yield.
5. Define multiple cropping. Discuss the sequence and intercropping with examples.
6. Explain the methods of fertilizer application in the field crops.
7. Enlist the method of weed control.discuss the physical methods with its merits and demerits.
8. Mention the losses caused by soil erosion and by water and suggest the conservation practices for such soil erosion.
9. What is optimum plant population? List the factors affecting optimum plant population. Explain one of them.
10. List the different approaches of scheduling irrigation in field crops and describe the critical stage approach.
11. Differentiate between :

a) Soil fertility and soil productivity
b) Dry land and rainfed farming c) Saltation and surface creep
d) Macro and micro nutrients

12. Write short notes on:

a) Use of biofertiliser in agriculture
b) Cash crops and catch crops c) Water requirement of crops
d) Selective and non selective crops

Final examination 2067

Essay Type Question: 10

1. Define the term agronomy and give its role in increasing food production.

Short Questions: (Attempt Any Ten) 10x3=30

2. Enlist the factor affecting optimum plant population.
3. What is ideotype? Enlist the desirable features of wheat ideotype.
4. What is a weed? What are the different losses caused by the weed?
5. Differentiate between soil fertility and soil productivity.
6. What are the major and minor plant nutrients? Explain in brief the major functions of N.P.K. an Zn in relation to crop growth and yield.
7. Interpret water harvesting in dry farming.
8. Write down the ole of water for normal plant growth and yield.
9. Write short notes on the following.

a) Seed dormancy b) Minimum tillage c)Bio-fertilizers

10. Define macro and micro climate and explain in brief the role of light in crop production.
11. Describe the characteristics of good quality seed and its importance in crop production.
12. Differentiate between:

a) Mixed ccropping and intercropping
b) Primary and secondary tillage
c) Crop rotation and sole cropping

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 1st Semester FM: 40
Subject: General Biochemistry PM: 16
Time: 2 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. How is glucose completely degraded? Give the outline reactions of the pathways involved.

Short Questions: (Attempt Any Ten) 10x3=30

2. Mention the importance of biochemistry in agriculture and medicine.
3. Name the biological buffers. Derive Handerson - Hassalbalch equation and mention its application.
4. Classify carbohydrates with examples.
5. What do you mean by essential and non- essential amino acids? Give the structure of five essential and five non - essential amino acids.
6. How is protein synthesized?
7. Classify lipids with examples. Write about any one group.
8. Mention the salient features of Watson and Crick DNA model.
9. Define "enzyme". Describe the mechanisms of enzyme action.
10. Give the structure of sucrose. How is it synthesized and degraded?
11. Name the common fatty acids found in lipids. Describe the oxidation of fatty acids.
12. Give the structure of any four of the following:

a) Starch b)Pectin c) Lactose
d) Lecithin e)Chitin

Final examination - 2072

Essay Type Question: 10

1. Give outline reactions of kreb's cycle including the name of enzymes and structures of initial compounds, intermediates and products.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define buffer. Give the Handerson-Harshalbalch equation.
3. What are biomolecules? Classify carbohydrates on the basis of hydrolysis. Give examples of each.
4. Define nucleotides. Explain the Watson- Crick model of DNA.
5. What do you mean by essential and semi- essential amino acids? Name them and give the structure of two essential and two non- essential amino acids.
6. Define polypeptide and classify it. Give general structure of a dipeptide.
7. What do you mean by reducing and non-reducing sugars? Give example. Write structure of one reducing and non-reducing sugar.
8. Describe briefly about the enzyme nomenclature and classification.
9. Explain about the synthesis and degradation of fat.
10. Give the structural formula of lecithin, glutamic acid, cholesterol, adenine, lactose and pectin.
11. Describe the biosynthesis and degradation of starch.
12. Write short notes on:

a) Importance of biochemistry
b) Transamination

Final examination - 2073

Essay Type Question: 10

1. Define and step out glycolysis and TCA cycle. Also briefly point out its regulation. Show the energetic as one molecule of glucose gets completely oxidized to CO_2.

Short Questions: (Attempt Any Ten) 10x3=30

2. What are buffers? Give Henderson- Hasselbalch equation and its significances.
3. Classify amino acids on the basis of their side chain.
4. Define structural organization of proteins. What may happen if there is a mis-folding while undergoing protein organization?
5. Write the full form of IUBMB. And classify enzymes with examples.
6. Give a short note on DNA. Also name the different types of RNAs.
7. Describe electron transport chain with the help of a diagrammatic representation.
8. What is Lobry de Van Ekensteintransformation.
9. Explain beta-oxidation in short.
10. Outline the Calvin - Bension cycle.
11. Draw the structures of

a) Amino-sugars
b) Proline
c) Pyruvate
d) Maltose
e) TAG
f) adenosine

12. Classify lipids with example. Differentiate between saturated fat and unsaturated fat.

Final examination - 2071

Essay Type Question: 10

1. Classify carbohydrates with examples. Mention the functions of carbohydrates.

Short Questions: (Attempt Any Ten) 10x3=30

2. Give TCA cycle and draw the structures of intermediates.
3. Give the outline reaction of calvin cycle.
4. Define enzyme and write about the mechanism of enzyme action
5. Draw the structures of glycogen, tryptophan, sucrose, cholesterol, TAG and ATP.
6. Describe the biosynthesis and degradation of amino acids.
7. Describe the beta- oxidation of fatty acid and calculate the ATP production in the oxidation of one palmitic acid molecule.
8. Define nucleosides and nucleotides. Explain double helical structure of DNA.
9. Define and classify phosphor lipis with examples and structures.
10. Describe the biosynthesis and degradation of starch.
11. Classify amino acids on the basis of polarity of R- group.
12. Classify proteins with examples.

Final examination - 2068

Essay Type Question: **10**

1. Define protein and classify them according to structural composition and functions.

Short Questions: (Attempt Any Ten) **10x3=30**

2. Define biochemistry and cell. Describe the structure and functions of endoplasmic reticulum.
3. Explain the titration curve and zone of buffer action of acetic acid.
4. Write the structural composition of anomers and epimers of blood sugar.
5. Describe the carbohydrate derivatives of bacterial cell wall.
6. Explain the importance and fate of pyruvate molecule.
7. What is the biological importance of pyridoxal phosphate?
8. Calculate the energy content released from the palmitic acid breakdown.
9. Write the structural composition and functions of NADH and FADH2.
10. What do you know about common terminal pathway?
11. What are chargaffis rules and okazaki fragments?
12. Describe the principle and applications of spectrophotometry in the field of agriculture.

Final examination - 2067

Essay Type Question: **10**

1. Classify protein with suitable examples. Write the functions of proteins.

Short Questions: (Attempt Any Ten) **10x3=30**

2. What is Henderson Hassel balch equation? Mention the role of haemoglobin in buffer action?
3. Define biomolecules, pH and buffer action.
4. Classify amino acids on the basis of R group or structure.
5. Define fatty acids. Classify them and write the properties of fatty acid.
6. Define enzyme and prosthetic group. Classify enzymes with suitable examples.
7. Describe the structure of t- RNA.
8. Describe glycolysis in erythrocytes.
9. Describe the metabolism of triacylglycerol(TAG)
10. Describe protein synthesis pathway.
11. Write the properties of enzymes.
12. Write short notes on:

a) Nucleotide
b) Peptide bond
c) Glycosidic bond

Final examination - 2066

Essay Type Question: 10

1. Give the outline reactions of kreb's cycle including the name of enzymes and structure of initial compounds, intermediates and final products.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define buffer. Give HandersonHassalbalch equation.
3. What are biomolecules? Classify carbohydrates on the basic of hydrolysis. Give examples of each.
4. Define nucloetides. Explain the Watson- Crick model of DNA.
5. What do you mean by essential and semi-essential aminoacids? Name them and give the structures of semi-essential aminoacids.
6. Define polypeptide. Give the general structure of a dipeptide.
7. Define the terms saponification and hydrogenation.
8. Explain about the synthesis of fat.
9. Write short notes on:

a) pH and pH meter.
b) Water and its importance
c) Degradation of amino acids

10. Describe briefly about enzyme nomenclature and functions.
11. What do you mean by reducing and non-reducing sugars? Give the structure of one reducing and one non-reducing sugar.
12. Write short notes on:

a) Zwitterions
b) Biosynthesis of triacyl glycerol.

Back examination - 2075

Essay Type Question: **10**

1. Sketch the outline of anaerobic glycolytic pathway accounting its energy production. How is it regulated? Give the significance of lactic acid formation during this process.

Short Questions: (Attempt Any Ten) **10x3=30**

2. Derive Michaelis- Menten equation.
3. What is photophosphorylation? Sketch cyclic photo phosphorylation?
4. Differentiate between secondary and tertiary structure of protein.
5. Draw the linear and cyclic structure of glucose, fructose and galactose.
6. Give a brief account of glycogen and show its biosynthesis?
7. List out alcohol containing amino acid and sulphur containing amino acid with at least one structure of each group.
8. Sketch the outline for ?-oxidation of fatty acids.
9. Using schematic diagram, give the features of DNA.
10. What is phospholipid? Explain their types with examples.
11. Define pH? Write down its significance.
12. Classify enzymes with an example of each class.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 1st Semester FM: 40
Subject: Rural Sociology PM: 16
Time: 2 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. How do you conceptualize social movement? Discuss about types of social movement with necessary condition for the emergence of social movement.

Short Questions: (Attempt Any Ten) 10x3=30

2. "Sociology is the mother of all social sciences" Briefly discuss.
3. What is social change? Explain its causes.
4. What do you mean by social process? Enlist different types of social interactions.
5. What are the differences between rural and urban society?
6. What is social stratification? Discuss its major bases of social stratification.
7. What do you mean by family? explain its function in a social stratification.
8. What is social institution? Discuss the importance of economic institution in development paradigm.
9. What are the common social problems in Nepal? write about its control measures.
10. What is social system? Write about major elements of social system.
11. Define socialization process. Explain different stages of socialization
12. What is social deviance? Write about the agencies of social deviance with appropriate examples.

FINAL EXAMINATION -2072

Essay Type Question: 10

1. Define rural sociology and explain why students need the knowledge of rural social systems of Nepal.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define the following term in details: (a) sociology (b) social movement (c) social deviance
3. Describe about the differentiation of "Rural" and "Urban" ways of life styles in detail.
4. Define the following social process in detail: (a) social competition (b) social conflict
5. Explain how age nad gender influence on social stratification in rural Nepal.
6. Describe the differences among caste, race, tribal group and thnic group clearly.
7. List and describe the types of familiesont eh basis of marriage.
8. Explain, with examples, the exogamournad endogamous normative structures of marriage systems in rural Nepal.
9. Explain the role of Pancha- Bhaladmi on finding the solutions of rural social problems in Nepal,
10. Define how yourself is defined by the society in detail.
11. Explain on the impacts of technological advancements in rural social changes in Nepal.
12. Describe by differentiating between primary and secondary groups in detail.

FINAL EXAMINATION -2073

Essay Type Question: 10

1. Define rural sociology and describe the importance of rural sociology in Nepalese context.

Short Questions: (Attempt Any Ten) 10x3=30

2. What is social movement? Write about the precondition of social movement with examples.
3. Why is it difficult to differentiate between rural and urban societies? What are the relative differences between rural and urban socieites?
4. Define social stratification. Explain about Marxian views od social stratification.
5. What do you mean by social system? What are the elements of social system?
6. What is social change? Explain why economic factor is important for social changes.
7. What do you mean by social institution? Explain about the essential features and functions of the family.
8. What are the forms of social interaction? Write on importance of accommodation in the social process.
9. What do you mean by social problem? List the types of social problems and explain the genereal mechanism of social control.
10. Define socialization. Describe about the agencies and stages of socialization.
11. Differentiate the following: (a) Gender and Sex (b) Primary groups and secondary groups
12. Write short notes on the following: (a) Culture (b) Social Norms and Social Values (c) Ethnocentrism.

FINAL EXAMINATION -2071

Essay Type Question: 10

1. Define social institution? Discuss types of institution and interrelationship among social institution.

Short Questions: (Attempt Any Ten) 10x3=30

2. Differentiate between "sociology" and "rural sociology" with appropriate examples.
3. What is social movement? Discuss on the types of social movement.
4. What is social process? Write about the role of accommodation in social system.
5. Define social stratification. Discuss on Karl Marx and Max Weber's viewpoint on stratification.
6. Define "ethnicity" and ethnic group". Also write the importance of interethnic relationship for country's development.
7. What is culture? Discuss impact on cultural lag in relation to social system.
8. Define the term social norm, social value and social belief with appropriate examples.
9. What is social group? Write about the role of reference group in social development.
10. Define socialization process. Discuss various elements of social system.
11. What is social system? Discuss various elements of social system.
12. Define social deviance. Write about the causes of social deviance.

FINAL EXAMINATION -2070

Essay Type Question: 10

1. What do you mean by stratification? Elaborate social stratification in the Nepalese context. Describe different theories of social stratification in brief.

Short Questions: (Attempt Any Ten) 10x3=30

2. "Sociology is the mother of all social sciences" Justify the statement/
3. Define social institutions. Describe briefly the types of marriage practiced in the Nepalese society.
4. Family is the primary and fundamental unit of society. How? Justify your ansmer.
5. What do you understand by deviance? What are the causes of deviant behavior?
6. Name the elemnets of social system, explain the Parson's view.
7. What do you mean by the term "Ethnocentrism"? describe briefly the inter-ethnic relationship in the Nepalese context.
8. Socialization is the life long process, examine in brief. Explain Sigmund Freud's view in short.
9. "Culture is the way of life." Explain briefly. What do you mean by cultural lag?
10. Include briefly the affecting factors of social change.
11. Distinguish between social ceremonies and festivals of Nepal. Describe any two common Nepalese ceremonies.
12. Differentiate abount social norm, values and belief system with appropriate example.

FINAL EXAMINATION -2066

Essay Type Question: 10

1. What do you understand by social system and what are the elements of social system according to Charlis P. Loomis?

Short Questions: (Attempt Any Ten) 10x3=30

2. What is social problem? Make a list of social problems discuss about the unemployment.
3. What do you understand by social change? Describe the natural factors in social change.
4. Define social institution and classify marriage on the basic of different criteria.
5. Define social stratification. Differentiate between class and caste.
6. What do you mean by socialization? Describe the various agencies of socialization.
7. Define or explain the following terms: (a) conflict (b) Poverty (c) accommodation
8. Differentiate the following (a) Rural life and urban life (b) Reform and revolutionary movement (c) Co-operation and Conflict
9. What do you mean by social movement? Describe the types of social movement.
10. What are the mores? How do mores differ from folk ways.
11. Describe the condition of child labor in Nepal.
12. What role can rural sociology play in the present situation of deteriorating economical condition in Nepal?

FINAL EXAMINATION -2068

Essay Type Question: 10

1. What is "Social institution?" Breifly discuss the type of social instutions, and e;laborate your points on why social institutions should thrive in the rural society.

Short Questions: (Attempt Any Ten) 10x3=30

2. What is socialization? Briefly describe the term "looking glass- self in relation to socialization process".
3. Define social movement. Discuss the types of social movement,
4. Define rural sociology and write about the characteristics of rural society.
5. What do you understand by social change? Write in brief about the effect of technological change in the society.
6. What are the major social problems of Nepal? What solutions you can offer to solve those problems?
7. Define culture. Differentiate between cultural ethnocentrism and cultural lag.
8. What are the major causes of 'deviance'? Write about the types of deviance.
9. Differentiate between ethnicity and ethnic group?
10. Write the importance of festivals commonly valued in the Nepalese society. Discuss bay two of them.
11. Differentiate between 'values' and 'norms' with five examples.
12. Define 'reference group.' Differentiate between 'primary' and 'secondary' group with examples.

FINAL EXAMINATION -2065

Essay Type Question: 10

1. Discuss the term "socialization" and explain the socialization process with illustrations. Also describe how different theories of socialization work in the "development of self".

Short Questions: (Attempt Any Ten) 10x3=30

2. Discuss briefly on the interrelationship among social institutions.
3. What is social stratification? Discuss the views of Karl Marx.
4. What is social deviance and social control? Write different types of social deviance and its impact on the society.
5. Define culture. Differentiate between cultural ethnocentrism and cultural lag.
6. Differentiate between 'primary' and 'secondary' group with examples.
7. What is social change? Briefly discuss the impact of technological change in the society.
8. What are the major social problems of Nepal? what solutions you can offer to solve those problems?
9. What is social movement? Write its impact in the country's development.
10. Name major festivals found in the Nepalese society. Describe any two of them with reference to their roles in social and economic aspects of the society,
11. Define social process. Differentiate between 'Cooperation' and 'Conflict'
12. Differentiate between social norms and social values. Also briefly explain the role of social norms in the society.

TRIBHUVAN UNIVERSITY
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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 1st Semester FM: 40
Subject: Introductory Horticulture PM: 16
Time: 2 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Define plant growth Regulators. Enlist the types/classes/ groups of plant growth regulators with examples and describe the uses of plant growth regulators in the field of horticulture.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define horticulture and relate it to other sciences.
3. Define the term propagation. Mention the advantages and disadvantages of vegetative propagation.
4. Define orchard layout and briefly describe the different systems of layout with their merits and diagrams.
5. What is organic farming? Why organic farming on horticultural crop is getting popularity in this modern age?
6. What do you mean by stress? How moisture stress affect the plant growth and development? Mention the measures to overcome the moisture effect.
7. What are the objectives of training and pruning? Describe the modified leader system of training with examples.
8. What is unfruitfulness? Briefly discuss the suitable measures to overcome the unfruitfulness in fruit crops.
9. Briefly describe the principles f off-season and protected cultivation of horticultural crops.
10. What do you mean by irrigation and drainage? Briefly describe the importance of drip irrigation on horticultural crops.
11. Write short notes on (any three):

a. Soilless culture b. Soils for fruit tress
c. Micro propagation d. Dormancy

12. Differentiate between (any three):

a. Growth and Development b. Scion and Stock
c. Top working and Double working
d. Abscission and Senescence

Final Examination-2072

Essay Type Question: 10

1. Define horticulture and show its relation with other disciplines. Discuss the feasibility of horticultural development in Nepal.

Short Questions: (Attempt Any Ten) 10x3=30

2. What is meant by the term 'niche'? enlist various ecological regions of Nepal for horticultural crops with five potential crops for each region.
3. Describe the importance of heat unit and discuss the effect of light on plant growth and development.
4. Define the term stress and discuss the measures to overcome moisture stress.
5. Briefly discuss the factors to be considered for the successful establishment of an orchard.
6. Enlist the merit of asexual propagation nd discuss the advantages of budding over methods of grafting.
7. What is juvenility and enlist the major characteristics of juvenility.
8. What do you mean by seed and bud dormancy? Mention different ways to overcome dormancy.
9. Enlist phytohormones along with their major characteristics. Describe the influence on different plant growth substances on germination, flowering and sex expression.
10. What is high density planting? Explain the objectives of pruning in brief.
11. Differentiate between:

a. Scarification and stratification
b. Growth and development
c. Quincunx and square system of planting

12. Write short notes on:

a. Major events during flowering
b. Soilless culture
c. Needs and prospects of organic farming

Final examination 2073

Essay Type Question: 10

1. Define horticulture and explain in detail the factors to be considered before and during establishment of an orchard.

Short Questions: (Attempt Any Ten) 10x3=30

2. Briefly mention the economic importance of horticultural crops and also give how horticulture is interrelated with other discipline of applied sciences.
3. Discuss about the feasibility of horticultural development in Nepal. Enlist ecological regions of Nepal for horticultural crops with scientific and common names of five potential crops of each.
4. Define the term stress. How does temperature stress affect the plant growth? List some measures to overcome it in orchard.
5. What do you mean by organic farming? Write down the techniques of off-season vegetable production.
6. Briefly describe the training system in fruit crops. How does the training and pruning system play a major role in high density planting of fruit trees?
7. Discuss the characteristics of phytohormones and classify them. Enlist major role or physiological actions of Giberellin.
8. Define and discuss the seed dormancy and its types. What are the major stages of seed germination?
9. Define propagation. What are the advantages of asexual propagation over sexual methods of propagation?
10. A prepared plan has 1600 plants/ha in square system of planting if you are assigned to arrange the plants in equilateral triangular system how many plants can be accommodated? Explain in detail.
11. Differentiate between (any three):

a. Growth and development b. Scarification and stratification
c. Physiological and horticultural maturity
d. Double working and top working

12. Write short notes on (any three):

a. Major events during flowering b. Parthenocarpy
c. Micro-propagation d. Multi-stories cropping in Nepal

Final Examination 2071

Essay Type Question: 10

1. Give the meaning of Growth and Development in horticulture. Explain the causes of unfruitfulness along with remedies with suitable examples.

Short Questions: (Attempt Any Ten) 10x3=30

2. What do you know about genetic resources and indigenous horticultural plant of Nepal?
3. Briefly describe the principles of protected horticulture.
4. What is organic farming? Give its importance in the present context.
5. What is Plant Growth Regulator (PGR)? Give their major uses in horticulture.
6. Discuss about the soil fertility management in an orchard.
7. How pruning differs from training? Explain why pruning has dwarfing effect?
8. Discuss about mist and micro propagation with examples.
9. Briefly describe how would you select a site for an orchard establishment and do planting of fruit saplings.
10. Explain how temperature and light affect horticultural production.
11. What are the different branches of horticulture and its relationship with other disciplines?
12. Explain the terms: hydroponics, aeroponics and multi-storied cropping.

Final Examination 2068

Essay Type Question: **10**

1. Define plant growth substances. Mention the types/ classes/groups of plant growth regulators with examples and describe the uses of plant growth regulators in the field of horticulture.

Short Questions: (Attempt Any Ten) **10x3=30**

2. Define horticulture and relate it to other sciences.
3. Define the term propagation. Mention the advantages and disadvantages of sexual and asexual propagation.
4. What is organic farming? Why organic farming on horticultural crop is getting popularity in this modern age?
5. Discuss the needs of high density planting with examples.
6. Briefly discuss the different methods of orchard layout system with clean diagrams.
7. Discuss different causes of unfruitfulness with suitable remedies to overcome them.
8. What do you mean by stress? How moisture stress affect the plant growth and development? Mention the measures to overcome the moisture effect.
9. What do you mean by irrigation and drainage? Briefly describe the most suitable irrigation method for fruit crop.
10. What are the objectives of training and pruning? Briefly describe the different systems of training of fruit trees.
11. Write short notes on (any three):

a. Dormancy
b. Multi-stories cropping
c. Soilless culture
d. Soils for fruit trees

12. Differentiate between (any three):

a. Climacteric and non-climacteric fruit
b. Double working and top working
c. Mono embryonic and poly embryonic
d. Scarification and stratification.

Final examination 2066

Essay Type Question: **10**

1. How would you plan and establish an orchard including site selection, preparation of site, layout and planting? Explain.

Short Questions: (Attempt Any Ten) **10x3=30**

2. How climatic factors influence the growth of horticultural plants? Discuss.
3. Describe in what ways is horticulture important to every sphere of life in a society.
4. What are the major purposes of asexual propagation? Give limitation of vegetable propagation also.
5. Describe the mechanism of healing of a graft union.
6. Describe mechanism of flowering initiation in horticultural plants.
7. What are the developmental stages of growth of horticultural plants? Describe juvenile phase.
8. Give roles of auxins in horticulture.
9. Describe various orchard soil management practices.
10. Give objectives of training and pruning. Discuss major forms of training in fruit crops.
11. Differentiate between:

a. Hydroponics and aeroponics
b. Thinning-out and heading-back cut
c. Division and separation

12. Define the following terms:

a. Senescence b. Ripening c. Apical dominance
d. Hormones e. Explants f. Callusing
g. Apomixes h. Etiolation
i. Environmental pollutants.

Final Examination 2067

Essay Type Question: **10**

1. Define horticulture and describe its relationship with other sciences.

Short Questions: (Attempt Any Ten) **10x3=30**

2. Discuss different methods of irrigation of horticultural crops.
3. Classify horticultural crops on the following basis:

a. Life span b. Growth habit c. Physiology

4. Discuss different causes of unfruitfulness with suitable remedies to overcome them.
5. What are the objectives of layout systems? Describe the different steps involved in planting of fruit trees with neat and clean diagram.
6. What is a Plant Growth Regulator? Describe uses of auxins in horticultural crops.
7. Write short notes on any four of the following:

a. Branches of Horticulture b. Mist propagation
c. Dormancy d.Germination e. Senescence

8. Differentiate between the following horticultural terms:

a. Training and Pruning b. Inhibitors and Retardants
c. Sexual and asexual propagation
d. Top working and Double working

9. Discuss the following:

a. Physiological basis of rooting b.Formation of graft union

10. Explain in brief effect of low temperature on horti cultural crops.
11. How off-season vegetables are produced by adjustment of planting time?
12. What are the advantages of High Density planting? Discuss about Multi-storied cropping.

Final examination 2065

Essay Type Question: **10**

1. Define horticulture and describe the importance and scope of horticultural development in Nepal.

Short Questions: (Attempt Any Ten) **10x3=30**

2. Enlist the propagation methods and briefly describe the methods of cutting.
3. Define phytohormones and describe the commercial uses of PGR in horticulture.
4. Write down the factors causing unfruitfulness of fruit trees. How do you overcome the problem of unfruitfulness?
5. Briefly discuss the principle of off-season and protected horticulture.
6. Classify the horticultural plants based on uses with examples.
7. Write down the basic principle of orchard establishment and describe the different planting system.
8. Enlist the objectives of pruning and training. Describe the rule of training and pruning of fruit trees.
9. Describe the influence of climatic factors on the growth of plants.
10. Briefly mention the temperature stress on plants and describe how to overcome temperature stress on horticultural plants.
11. Write short notes on:

a. Juvenility b. Approach grafting
c. High density cropping d. Peri-urban horticulture

12. Differentiate between

a. Top working and double working
b. Stratification and scarification
c. Hot bed and cold frame d. Shrubs and herbs
e. Hydroponics and aeroponics
f. Climacteric and non climacteric g.Tropical and temperate zones
h. Shrubs and herbs

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 1st Semester FM: 40
Subject: Fundamental of Soil Science and Geology PM: 16
Time: 2 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Compare among saline, saline- sodic and sodic soils. What are the techniques to measure and quantity such soils. Explain the reclamation of such soils to improve their productivity for optimum plant growth.

Short Questions: (Attempt Any Ten) 10x3=30

2. What is soil? Write its concept and uses for various fields of life.
3. Differentiate between sandy loam and loamy sand soils. Describe the properties of loam soils.
4. List the reasons of soil acidity.
5. Soil colloids serve as the "Bank" of plant nutrients. Justify this statement with figure.
6. Differentiate between cation and anion exchange phenomena in soils. Describe their importance in agriculture.
7. Sketch a rock cycle with its components. Discuss in brief the mechanical weathering of rocks and minerals.
8. Derive the relationship among bulk density, particle density, porosity of soils.
9. Mention various type of silicate clay minerals, describe the general properties of smectites.
10. What is solar system? Describe any one hypothesis for the evolution of the earth.
11. Terai is called the "Breadbasket of Nepal". Justify this statement with reference to soil properties,
12. Write short notes on:

a) Composition of the earth b) Soil structure c)Soil-plant relationship

FINAL EXAMINATION - 2073

Essay Type Question: 10

1. Define and explain cation exchange phenomena in soil. Write down the importance of cation exchange capacity in soil fertility.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define soil and explain why soil is considered as a dynamic body.
3. Explain the unique contributions of nay two great scientist in the field of soil science,
4. Explain the general propertied of soil colloids and their types and explain their importance in soil science,
5. Explain the buffering capacity of soil and why some soils are highly and some are poorly buffered?
6. Define soil texture. Compare physical, chemical and mineralogical properties of sand and clay particles?
7. Define soil structure? How are soil aggregates formed and which constituents are responsible for their stability?
8. Derive the formula used to calculate the percentage of total pore-space in soil and differentiate between sulk density and particle density of soil?
9. What is soil pH? Describe the causes of soil acidity.
10. Explain the effects of pH on availability of plant nutrients in soil.
11. Explain these terms in relation to salt in soil: ESP, SAR and EC. Summarize the properties of salt affected soil,
12. Describe these landforms in brief (any three):

a) Flood plain
b) Alluvial plain
c) Aeolian deposits
d) Colluvium

Essay Type Question: 10

1. "Soil is made by nature not by man." Justify this statement with examples. Explain chemical weathering of rocks and minerals with suitable reactions.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define soil in your own words. Describe in brief the different approaches to study soil.
3. Enlist the physical properties of soil and derive the relationship among bulk density, particle density and porosity.
4. What are the causes of soil acidity? Mention the effective management practices of acidic soils for better crop production.
5. Describe in short, the management practices of saline-sodic soils for better crop production.
6. Define CEC, mention its measurement unit. Describe the importance of cation and anion exchange phenomena in soils.
7. Define soil colloids. Enlist the different types of colloids with examples. Illustrate the fundamental of silicate clay structures.
8. Mention the physiographic regions of Nepal. Briefly, the soils of terai region of Nepal.
9. Differentiate between: (i) Soil fertility and soil productivity (ii) montmorillinite and kaolinite (iii) isomorphic substitu tion and pH dependent charges.
10. You are supposed to deliver a training session on 'soil nutrient management' to the progressive farmer group of Rampur. How would you illustrate on 'Ideal soil' to them. Describe in brief.
11. Define soil profile. Draw a well labelled diagram showing all the master horizons with their characteristics features in short.
12. What is solar system? Describe in short for about the evolution of earth.

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. What is soil reaction? Explain the major sources of soil acidity with suitable management options.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define soil structures and explain its significance in agriculture.
3. How does phosphorous become unavailable to acid and alkaline soils? Explain.
4. Define soil colloids and discuss their characteristics in brief.
5. How do you confirm that a given soil in saline? How does halophyte tolerate salinity?
6. Vermiculites have higher cation exchange capacity than that of Semctites, why?
7. Calculate the amount of $CaCO_3$ required per hectare of clayey land to replace 2.5 cmol H^+ per kg soil from the exchange complex.
8. Explain the effects of soil moisture regimes on soil color development.
9. Describe the characteristics of soil of middle mountain region of Nepal.
10. Differentiate between active alluvial plains and recent alluvial plains.
11. What is the significance of soil buffering capacity? Explain the mechanisms of acid to buffer soil pH when lime is added.
12. Write short notes on:

a) Soil consistency
b) Isomorphic substitution

FINAL EXAMINATION - 2071

Essay Type Question: 10

1. Explain the types of soil colloids. Discuss the mineralogical composition of layered silicate lays.

Short Questions: (Attempt Any Ten) 10x3=30

2. How do different people perceive soil? Define soil in your own words.
3. "Weathering is the combination of disintegration and synthesis process". Justify the statement.
4. Why is soil bulk density always lower than particle density? Discuss the importance of soil aeration in crop growth.
5. Is there any relation between soil pH and plan nutrients availability? Discuss.
6. What are the basic cause of soil acidity? Discuss in brief the type of soil acidity.
7. Compare and contrast the Kaolinite, Smecticite and Vermiculite type of silicate clay mineral in term of nutrient exchange capacity, water absorption and swelling properties.
8. Differentiate between the soil texture and soil structure. Explain thy types of soil structure.
9. Why is ion exchange considered as an important reaction in soil? Describe in brief the cation exchange the phenomena in soil.
10. Discuss the "Nebular Hypothesis" about the origin of the earth.
11. Differentiate between sedimentary rocks and metaphoric rocks. Also the list the names of some minerals founds in these rocks,
12. Enlist the different physiographic units of Nepal. Describe the soil of middle mountain unit of Nepal.

FINAL EXAMINATION - 2069

Essay Type Question: 10

1. Define the cases that develop specify type of soil reaction. Explain in detail the causes of osil acidity and suggest a farmer who might have to solve the problem.

Short Questions: (Attempt Any Ten) 10x3=30

2. Define soil in your own words. Describe soil as natural body and medium for the plant growth,
3. Soil is three phase system. Justify the statement with components of soils.
4. "Weathering is the combination of disintegration and synthesis process". Justify the statement.
5. Define soil porosity and derive the relationship between the bulk density and particle density of soil.
6. Soil texture is relatively permanent property of soil, discuss the importance of soil structure in soil management.
7. Define soil colloids. How do soil colloids serve as 'bank' for plant nutrients?
8. Discuss the importance of cation exchange in soil system.
9. What do you mean by salinity and sodicity? Give some management options to reclaim saline sodic soil.
10. Write three hypotheses proposed for the evolution of solar system. Briefly discuss the Nebular hypothesis.
11. Define primary and secondary minerals with examples. Differentiate between sedimentary and metamorphic rocks.
12. Write physiographic units of Nepal. Discuss the geological status of the Siwalik in detail.

FINAL EXAMINATION - 2068

Essay Type Question: 10

1. Define soil colloid and describe the general characteristics of soil colloids and their types.

Short Questions: (Attempt Any Ten) 10x3=30

2. What do you mean by soil? Explain briefly the concept of soil
3. "Soil is a natural body." Justify with examples.
4. How doe soil detoxify the chemical pollutants present in the soil?
5. What are the differences between soil air and atmospheric air?
6. Define soil separates and describe the importance of soil structure in agriculture.
7. What is soil acidity? Explain how soil become acidic.
8. What is CEC and what creates difference in CEC of the soils?
9. What are the characteristics of saline soil and how it can be reclaimed?
10. List how the liming materials and explain eh benefits of liming in intensive agriculture,
11. Mention the land forms available in Nepal and describe about the alluvial soils
12. Write short notes on:

a) Planetesimal hypothesis of the origin of the earth
b) Black color in the soil
c) Soil pH and nutrient availability.

FINAL EXAMINATION - 2067

Essay Type Question: 10

1. Define soil colloids and describe the general characteristics of soil colloids, classify silicate clays with examples.

Short Questions: (Attempt Any Ten) 10x3=30

2. What is soil? What are the uses of soil in economic life of the society?
3. Is soil natural dynamic body? Justify your answer.
4. How does the soil become a medium for plant growth? Describe soil plant relationship.
5. List the components of soil? Explain the soil water.
6. Define soil separates and describe the importance of cohesion and adhesion in agriculture soils,
7. Enlist types of soil structures and describe the properties of the most suitable soil structure for crop cultivation.
8. Write down the different types of soil acidity and explain the exchangeable soil acidity.
9. What are the liming materials? Describe briefly the management of acidic soils for agricultural purposes.
10. Describe relationship between soil pH and nutrients availability of crop plants.
11. Write short notes on:

a) Planetesimal hypothesis for the origin of the earth.
b) Phosphorous and iron containing minerals
c) Physiographic and iron containing minerals.

12. Differentiate between:

a) Chemical and physical weathering of rocks and minerals
b) White and black alkali soils
c) Cation and anion exchange phenomena

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 1st Semester FM: 20
Subject: Intoductory of Animal Science PM: 8
Time: 1:30 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 6

1. Discuss about importance, scope and constraints of livestock and poultry production in contest of the Nepalese farming system.

Short Questions: (Attempt Any Ten) 7x2=14

2. Give the zoological classification of cattle, buffalo, sheep and goat.
3. Write about care and management of new born calf.
4. Write about sign of health and disease.
5. Discuss about transportation and marketing of animal in Nepal.
6. Write short notes on:
   a) Aging b) Branding c) Casting
7. Enlist the indigenous breeds of cattle buffalo sheep and goat.
8. Write the incubation period, sign and symptom and prevention and control of FMD.
9. Write short notes on:

a) Farm record keeping b) Tattoing

10. Classify feed stuff on the basis of TDN content.
11. What are the major factors affecting barn sanitation and also write about the characteristics of good disinfectants.
12. Write about differences between ruminant and non-ruminant.

Final examination- 2073

Essay Type Question: 6

1. Define animal husbandry. Discuss importance, future scope and limitations of overall livestock farming in Nepal.

Short Questions: (Attempt Any Ten) 7x2=14

2. What are the significance of identification of farm animals? Briefly discuss the method of tagging with suitable example.
3. What are the rules of scientific naming? Zoologically classify the following: a) Goat b) Fowl
4. Write in brief transportation of farm animals.
5. Enlist the importance of colostrum feeding. Write general care and management of newly born calf.
6. Mention the significance of barn sanitation. Discuss the factors that affect barn sanitation.
7. Classify the feedstuffs. Give the major advantages of fodder conservation in Nepal.
8. Discuss the sign and symptoms of sick animals.
9. What are the importance of farm recording keeping? Prepare a sample of herd book record.
10. Write the prevention and control measures of FMD or Ranikhet.
11. Write short notes n (any three):
    a) Ageing of farm animals b) Characteristics of disinfectants

c) Casting of farm animals d) Gestation ration

12. Differentiate between Ruminant and non- ruminant animals

Back examination 2073 poush

Essay Type Question: 6

1. Livestock production is a major occupation of hilly region's farmers in Nepal. Justify this statement with your own logic.

Short Questions: (Attempt Any Ten) 7x2=14

2. What do you mean by sanitation? Also mention its importance in animal production.
3. Differentiate between ruminant and non ruminant animals with suitable examples.
4. Give zoological classification of the following .

a. Sheep b. Duck

5. Write in detail about animal marketing system in Nepal.
6. Classify feed stuffs and also write major importance of silage in ruminant production.
7. Draw a labelled diagram of buffalo digestive system.
8. Write in detail on coccidiosis or tapeworm.
9. Define the following terms (any six).

a. Hay b. Farrowing c. Adlibitum d. Pellet ration
e. Gutter f. Forage g. T-T Housing system

10. Define sick aniamls and also write about general care and management of sick animals.
11. Write general symptoms and prevention methods of FMD or Ranikhet.
12. Write short notes on following (any three).
    a. Restraining b. Importance of farm record
    c.Liver fluke d. Management of new born calf

Back examination 2072

Essay Type Question: 6

1. Cattles are grazing on the pasture land; you need to vaccinate those animals. How do you handle them? Explain different method of restraining animals.

Short Questions: (Attempt Any Ten) 7x2=14

2. Livestock and poultry are the assets of farming community, explain.
3. Differences between ruminants and non-ruminants.
4. Zoologically classify the cattle and poultry.
5. What are the means of transportation and how do you transport live animals and animal products?
6. In a farm there are 100 animals and among them 7 are sick. How do you find animals are healthy or sick?
7. You are a farm manager and new calf are born today, how do you handle, care and manage them?
8. What do you understand by feed, fodder and feeding? Differentiate concentrate and roughages.
9. You are establishing a new dairy farm, what are the records you maintain and prepare?
10. What do you understand by bran sanitation, write its importance.
11. You need to buy ruminants, in absence of record hoe do you identify the age of ruminants? Write dental formula of pig.
12. Write short notes on:

a. H.S b.F.M.D c.Ranikhet d.Branding

Back examination 2071

Essay Type Question: **6**

1. Define Barn Sanitation. Why Sanitation is done? Describe factor affecting barn sanitation. Write the characteristics of good disinfectants and classify it.

Short Questions: (Attempt Any Ten) **7x2=14**

2. Mention the major importance and constraints of livestock farming in Nepal.
3. Define hierarchy of taxonomy. Zoologically classify the followings:

a. Fowl b. Cattle c. Horse

4. What are the importance of identification of farm animals? Describe its methods.
5. Mention the signs and symptoms of healthy and diseased animals.
6. Describe the methods of transportation of farm animals.
7. Define the following terms;

a. Free martin b. non-layer c. concentrate

8. Describe care and management of draft animals.
9. What are the significances of maintaining farm records? Mention the major characteristics of a good farm records.
10. Describe the process of hay making. Mention the charac teristics of good quality hay.
11. Write the prevention and control measures of Black Quarter and Ranikhet .
12. Write short notes on:

a. Reuffs method of casting b. Classify the feed stuffs

b. Weighing of farm animals

Back examination- 2068

Essay Type Question: **6**

1. How can you justify the importance of animal husbandry in Nepal? Discuss the major scope, constraints and possible solution of livestock farming in Nepal.

Short Questions: (Attempt Any Ten) **7x2=14**

2. What is hierarchy of taxonomy? Zoologically classify the following animals.

a. Cattle b. Sheep c. Pig d. Fowl

3. What are the importance of identification of farm animals? Discuss its methods with special referee to tattowing.
4. Explain the common appliances used for approaching handling and controlling of farm animals.
5. Discuss the method of marketing of poultry and swine.
6. Discuss the sign and symptoms of healthy cow.
7. Mention the importance of colostrum feeding. Explain the care and management of newly born calf.
8. What is the significance of farm record keeping? Give the sample of Herd book record.
9. Mention the objectives of barn sanitation. Explain the key points of factor affecting the maintenance of barn.
10. Classify the feed stuffs. Write the importance of fodder production.
11. Write casual organisms, prevention and control of FMD and BQ.
12. Write short notes on:

a. Aging by dentition b. Casting c. Characteristics of disinfectants

Final examination- 2068

Essay Type Question: **6**

1. Define animal husbandary. Discuss importance, future scope and limitations of overall livestock farming in Nepal.

Short Questions: (Attempt Any Ten) **7x2=14**

2. What are the significance of identification of farm animals? Briefly discuss the method of tagging with suitable example.
3. What are the rules of scientific naming? Zoologically classify the following: a. Goat b. Fowl
4. Write in brief transportation of farm animals.
5. Enlist the importance of colostrums feeding. Write general care and management of newly born calf.
6. Mention the significance of barn sanitation. Discuss the factors that affect barn sanitation.
7. Classify feedstuffs. Give the major advantages of fodder conservation in Nepal.
8. Discuss the sign and symptoms of sick animals.
9. What is the importance of farm record keeping? Prepare a sample of herd book record.
10. Write the prevention and control measures of FMD and Ranikhet.
11. Write short notes on (any three):

a. Ageing of farm aniamls

b. Characteristics of disinfectants

c. Casting of farm animals

d. Gestation ration

12. Differentiate between Ruminant and non- ruminant animals.

Back examination- 2067

Essay Type Question: **6**

1. What are feedstuffs? Classify the feedstuffs and describe each of them.

Short Questions: (Attempt Any Ten) **7x2=14**

2. Write down the zoological classification of cattle and buffalo.
3. What are the Ecto and Endo parasites? Write in brief about liver fluke and Ticks.
4. What are the digestive organs of ruminants? Write down the structure and function of a cow stomach.
5. Why is numbering or marking important in an animal farm? What are the common methods of identification?
6. Classify the teeth of farm animals and give the dental formula of cattle, sheep and goat.
7. Why is record keeping done? Describe some important records that should be kept in the farm.
8. How can the body weight of farm animals be estimated in the absence of weighing scale? Discuss.
9. What is casting? Write down the different steps of casting by the use of alternate methids.
10. How will you differentiate a healthy animal from that of a sick one?
11. Discuss the care and management of a newly born calf.
12. What is Haemorrhagic Septicaemia (H.S.)? Write down the symptoms and control measures of it.

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FINAL EXAMINATION - 2075

Level: B.Sc. Ag. 2nd Semester FM: 40
Subject: Farm management, Production Economics & Planning PM: 16
Time: 2 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay type Questions **10**

1. What is production function? Explain three zones of production function along with the relationship among TP, AP and MP.

Short type Questions (Attempt any Ten) **3x10**

2. Show the nutrient cycle in a hill farming system.
3. What are the advantages and disadvantages of farm mechanization?
4. What is least cost combination?
5. What are the relationships among enterprises? Explain it along with the view of decision making.
6. Enlist the principles involved in decision making and explain the principle of equimarginal return.
7. What is farm planning? Why is it important?
8. What is farm inventory?
9. What is linear programming? Explain the graphical method of linera programming for solving problem through a hypothetical example.
10. Differentiate:
1. Farm management and Production Economics
2. Balance sheet and cash flow statement
3. Partial budgeting and complete budgeting
11. What are the types of risk and uncertainity?
12. Write short note on (any three):

a. Farm records
b. Factors affecting farm cost and income
c. Expansion path
d. Scope of farm management

FINAL EXAMINATION - 2072

Essay type Questions **10**

1. Conceptualize the term production economics. Discuss the stages of classical production function in detail.

Short type Questions (Attempt any Ten) **3x10**

2. What is linear programming? Explain the principle of comparative advantage with example.
3. Explain the decision making process of a typical farm in detail.
4. What is farm inventory? Describe the methods of computing depreciation of farm assets.
5. List out the types of risks prevailing in livestock sector. Also briefly describe the steps of farm planning.
6. ' Properly maintained farm records are key to successful farm business'. Comment.
7. Discuss relationship between various production curves in agriculture sectors.
8. What are the techniques of valuating farm assests? Explain how will you arrive at least cost point graphically.
9. Discuss the relationship of farm management with other sciences in detail.
10. Explain the relationship among enterprises in detail.
11. Describe the strategies to be adopted by farm manager to minimize the effect of risk in livestock and agriculture sector in detail.
12. Write short note on (any two):

a. Partial budget
b. Elasticity of production
c. Net worth statement

FINAL EXAMINATION - 2074

Essay type Questions **10**

1. Define farm management. Discuss the importance of farm management in Nepalese context.

Short type Questions (Attempt any Ten) **3x10**

2. Define linear programming. Discuss the uses of linear pro gramming technique to solve farm management problems with numeric example.
3. Define marginal production. Explain law of equimarginal returns.
4. Discuss different types of enterprises relationships and economic decisions in each relationships.
5. Define production function. How can you determine the least cost combination of two variable inputs?
6. What are the major uncertainties affecting Nepalese farmers? Discuss on safeguard measures against them.
7. What are the causes of poor labour use efficiency in agriculture sector of Nepal? Discuss on production efficiency indicators with examples.
8. What does farm planning mean? Develop a form for monthly feed record to be used in raising 1000 broiler chicken in Terai condition of Nepal.
9. Estimate a partial budget of manual versus machine harvesting of wheat on the basis of best information you have regarding the effect of machine use on yield and cost per ropani.
10. Define land management. Discuss on good farm layout and its importance in agriculture.
11. Write short notes on:

a. Strategic management decisions
b. Time value of money

FINAL EXAMINATION - 2071

Essay type Questions **10**

1. Define farm management along with its scope. Differentiate it with production economics and show the relationship of farm management with other sciences.

Short type Questions (Attempt any Ten) **3x10**

2. Show the relationship among total product, marginal product and average product in various zones of clas sical production function.
3. Explain input input relationship and profit maximiza tion under this relationship.
4. What are the characters of a good farm plan? Why is it important to prepare a farm plan?
5. Define linear programming. What are the assumptions and application of linear programming?
6. What is net worth statement? How is it different from income statement?
7. Explain nutrient cycle in Nepalese farming system.
8. Enlist various method to calculate depreciation and explain straight line method.
9. What is the importance of preparing a farm inventory? What are the methods of valuation?
10. What are the various types of risk and uncertainity? Enlist risk management strategies for mango orchard.
11. Write short notes on:

a. Isoquant curve
b. Production possibility curve
c. Land use efficiency

12. Differentiate between:

a. Risk and Uncertainty
b. Fixed and variable resources
c. Complete and partial budgeting

FINAL EXAMINATION - 2071

Essay type Questions **10**

1. Define farm management. Discuss scope and importance of farm management in Nepalese context.

Short type Questions (Attempt any Ten) **3x10**

2. Enlist different farm management decisions. Explain production and organization decision with suitable example.
3. What does production function mean? Explain satge of pro duction function in detail.
4. Write short notes on: a. Expansion path b.Production possibility curve c.Land use efficiency
5. Briefly explain the types of factor - factor relationship. How can you obtain the least cost combination of two variable inputs?
6. Draw an iso-revenue line. Describe different types of enterprise combinations aand profit maximizing rules in each combination.
7. What are the principles of farm management? Explain law of equi0marginal returns with suitable example.
8. A commercial farmer in Terai need tractor for his farm operation. Alternatives to him are; a. purchase a new tractor at Rs. 100,000 that will last for 15 years or b. purchase a old at Rs. 60,000 and replace it by the next old tractor of value Rs. 50,000 after 8 years. Suggest him which option will be eco nomical to him if he has limited capital. Also check which option is best if he has unlimited capital.
9. What do you mean by partial budgeting? Prepare an enter prise budget of raising a lot of 500 broilers in your condition.
10. Differentiate between risk and uncertainty. Explain the graphical method of linear programming in solving farm management problems.
11. What is the importance of farm inventory preparation? Describe method of valuation along with the suitability of each method for valuation of different types of assets.
12. What do you mean by balance sheet? Prepare an income statement a farmer for the year 2070/71 putting hypothetical data relevant to an average Nepalese farmer.

FINAL EXAMINATION - 2068

Essay type Questions **10**

1. What are the assumptions of linear programming? Explain the relationship of farm management with other discipline in detail.

Short type Questions (Attempt any Ten) **3x10**

2. Discuss the relationship between inputs in brief. Also explain the steps of arriving at optimum combination of enterprises.
3. How is income statement different from cash flow statement? Discuss liquidity and solvency ratios for a typical livestock farm.
4. 'In order to maximize resource use efficiency, a farm manager must operate his business in second region of classical production function'. Justify this statement.
5. What are the principles involved in farm management decisions? Discuss any two principlkes that you consider most important in brief.
6. Differentiate risk and uncertainty. Also write down the steps to be followed to arrive at least cost point.
7. What do you mean by farm planning and budgeting? Construct a hypothetical linear programming model.
8. What are the characteristics of a good farm plan? Discuss the importance of farm management studies in Nepalese's condition.
9. What do you mean by farm resources? Explain the valuation techniques of farm assets in detail.
10. What is partial budget? Discuss the strategies to mitigate risk and uncertainity.
11. Explain decision making process in detail.
12. Differentiate between (any two):

a. Input Vs Output
b. Isoquant Vs Product transformation curve
c. Total value product Vs Total return

FINAL EXAMINATION - 2067

Essay type Questions **10**

1. What is farm management? How farm management is important in commercializing agriculture in Nepal?

Short type Questions (Attempt any Ten) **3x10**

2. What are the production relationships? Explain why second zone of production function is rational?
3. What are the objectives of a farm manager? If you are a farm manager and provided with limited resources, the, how would you manage the farm to achieve the objectives?
4. Write the implications of following in farm management:

a. Production possibility curve b. Least cost point
c. Derivative

5. Suppose you have following relationship of profit: ?= Py.Y- [Px.X+FC] where ?= profit, Py = Price of commodity, Y= total production, Px= Price of inputs, X= Total input, FC= Fixec cost
6. Write short notes on:

a. Opportunity cost
b. Principle of comparative advantage

7. What is linear programming? Describe the different budget types and its importance in agricultural planning.
8. What is efficiency? Discuss various efficiency ratios in brief.
9. " Nepalese agriculture is not well managed", how would you justify this statement?
10. Differentiate following" a. Short run and long run b. Variable cost and fixed codt c. Average cost and marginal cost
11. Draw graph for following: a. Isoquant Vs Iscocost line b. PPC vs budget line c. Economies of scale d. Supplementary product e. Factor- product relation
12. Conceptualize risk and uncertainity. Discuss the safeguard measures of risk and uncertainity.

FINAL EXAMINATION - 2067

Essay type Questions **10**

1. Define farm management. Explain the scope and major issues of farm management in Nepal.

Short type Questions (Attempt any Ten) **3x10**

2. Explain least cost combination.
3. Define product and describe its types.
4. First and third zone of production function are called irrational, why?
5. What do you mean by risk and uncertainty? List the safe measures of risk and uncertainty.
6. Define linear programming. Describe the graphical method of linear programming with an example.
7. Explain the comparative advantage principle.
8. Differentiate farm plan and farm budgeting. Enlist the farm management decisions.
9. Explain nutrient cycle in Nepalese context.
10. Explain the methods of calculating depreciation.
11. Law of diminishing return is applied in agriculture.
12. Define:

a. Expansion path
b. Product transformation curve
c. Network statement

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FINAL EXAMINATION - 2075

Level: B.Sc. Ag. 2nd Semester FM: 40
Subject: Cereal Crop Production PM: 16
Time: 2 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay type Questions **10**

1. What are the causes and effects of late sown wheat in Nepal? Describe in details.

Short type Questions (Attempt any Ten) **3x10**

2. Classify rice cultivars grown in the world and describe them in Brief.
3. Write short notes on (any three):

a. Dalbhat combination of ration in Nepalese diet
b. Baby-corn c. Crown root initiation stage in wheat.
d. System of rice intensification.

4. Describe the reasons for higher yields of winter maize than the spring and summer maize in Nepal.
5. Mention the scientific ways to increase the nitrogen use efficiency in lowland rice.
6. Write about the buckwheat species, soil requirement and fertilizer management for their higher yield in Nepal.
7. Mention the seed rate, planting seasons and planting methods of finger millet in brief.
8. Enlist the major weeds of direct seeded rice and suggest the ways for their scientific management.
9. Write down the sunshine hour, temperature and rainfall required for main season rice grown in Nepal and South Asia.
10. Enlist the latest five cultivars of rice, maize and wheat recommended for mid-hill region of Nepal.
11. Write down the water and nutrient management in Barley.
12. Suggest the major cereal based cropping systems for terai, mid hill and high hill regions of Nepal.

FINAL EXAMINATION - 2072

Essay type Questions **10**

1. Discuss the fate of added nitrogen in wetlands rice and methods for minimizing nitrogen loss from flooded rice soils.

Short type Questions (Attempt any Ten) **3x10**

2. Classify maize on the basis of endosperm.
3. Write down the soil and climatic requirements of barley.
4. Fingermillet crop is also called "poor's food" why? Write the importance of fingermillet crop.
5. What are the different growth stages of rice.
6. Give the name of five varieties of rice, maize and wheat grown in hilla nad high hills of Nepal .
7. Write short notes on: a. Triticale

b. Economic importance of buckwheat.
c. Yield and yield components of rice.

8. Enlist the major weeds of rice field and explain the weed control practices in rice crop.
9. Differentiate between:

a. Direct seeding rice Vs system of rice intensification
b. Photosensitive Vs photo insensitive crops.
c. Japonica vs indica cultivar

10. Write the weed and nutrient management in wheat crop.
11. Why is the yield of chaite dhan higher than barkhe dhan? Explain.
12. Why is the yield of winter maize higher than the rainy season maize in Terai of Nepal? Dicuss in brief.

FINAL EXAMINATION - 2073

Essay type Questions **10**

1. Write about the spacing, climatic and edhapic requirements of rice, maize and wheat. Also enlist each five varieties of rice, maize and wheat with domain.

Short type Questions (Attempt any Ten) **3x10**

2. Classify maize on the basis of endosperm.
3. Write down the soil and climatic requirements, seed rate and spacing of barley.
4. Fingermillet crop is also called "poor's food" why? Write the importance of fingermillet crop.
5. Explain the different growth stages of rice.
6. Define baby corn. Write down the importances and uses of baby corn.
7. Mention the scientific ways to increase the nitrogen use efficiency in lowland rice.
8. Enlist the five major weeds of maize filed na dexplain the weed control practices in maize crop.
9. Differentiate between:

a. Direct seeding rice system and system of rice intensification.
b. Photosensitive and photo insensitive crops
c. Japonica and indica cultivar

10. What are the causes and effects of late sown wheat in Nepal?
11. Suggest the major cereal based cropping systems for terai, mid hill and high hill regions of Nepal.
12. What are the reasons of higher yield of winter maize than the spring and summer maize in Nepal?

FINAL EXAMINATION - 2071

Essay type Questions **10**

1. Explain water and nutrient management in lowland rice cultivation. Write about ways of nitrogen losses and ways to improve nitrogen use efficiency in that condition.

Short type Questions (Attempt any Ten) **3x10**

2. Classify maize on the basis of endosperm.
3. In Nepal, winter and summer grown cereals face water deficiet. What agronomic ways would you recommend to reduce or manage crop production in such environment.
4. Write down the major practices of DSR (Direct Seeded Rice) and SRI (System of Rice Intensification).
5. Explain about weed managemnent practices in rice.
6. Compare and contrast between various methods of rice nursery preparation.
7. Describe various intercultural operations practice in maize.
8. Write short notes on:

a. Triticale
b. Weed management in buckwheat
c. Types of wheat based on ploidy level.

9. What are types of barley and how are they distinguished.
10. Write 5 varieties each of rice, wheat and maize with their recommendation domain.
11. Describe the planting methods of finger millet and also highlight the seed rate, crop geometry and plant nutrients required for each method of planting.
12. Write short notes on:

a. climatic requirement of barley
b. Water management in wheat c. Glutein protein

FINAL EXAMINATION - 2070

Essay type Questions **10**

1. Explain land preparation, seed sowing and nutrient management in different in different types of rice nursery. Write the water management in lowland rice correlating it with the rice physiology.

Short type Questions (Attempt any Ten) **3x10**

2. Classify wheat on the basis of ploidy level.
3. Explain the water and nutrient management in wheat cultivation.
4. Write down the major practices of DSR (Direct Seeded Rice) and SRI (System of Rice Intensification).
5. What are the effects of water deficit on maize? How would you avoid water deficit in maize under rainfed condition?
6. How is nitrogen lost from lowland rice field? Discuss the ways to improve nitrogen-use efficiency under such condition.
7. Describe various intercultural operations practiced in maize.
8. Write short notes on:

a. Triticale
b. Economic importance of buckwheat
c. Types of maize based on endosperm

9. What are the types of barley and how are they disti guished?
10. Write five varieties of rice, maize and wheat with their recommendation domain.
11. Describe the planting methods of finger millet and also highlight the seed rate, crop geometry and plant nutrients required for each method of planting.
12. Describe the current status of agronomic research in Nepal.

FINAL EXAMINATION - 2068

Essay type Questions **10**

1. Discuss in detail about the fate of added nitrogen in wetland rice and methods for minimizing nitrogen loss in flooded rice.

Short type Questions (Attempt any Ten) **3x10**

2. How does a rice plant respond to temperature and light?
3. Comparatively differentiate between indica, japonica and javonica sub-species of rice. Shortly write the features of dapog method of seedling raising of rice.
4. What do you mean by puddling? Write about the special features of submerged rice soil.
5. Briefly discuss about the growth stages of wheat plant.
6. How can we manage the water in wheat, if available?
7. Explain about the seed rate, sowing time, sowing depth and spacing in wheat.
8. Give reasons for the higher yield of maize in winter than in the summer season.
9. Write about the rate, time and method of manure and fertilizers application in maize.
10. Mention about 2 most popular maize varieties for each agroecological region of Nepal. How can we manage the weeds in maize?
11. Highlight the improved agrotechniques of fingermillet production in short.
12. Short notes on (any three):

a. Fertilizer and manure management in buckwheat.
b. Seed rate and sowing in barley
c. Post-harvest operation in rice d. Triticale

FINAL EXAMINATION - 2069

Essay type Questions **10**

1. Explain about the climatic and edaphic requirements of rice.Write about the land preparation and nutrient management in transplanted rice.

Short type Questions (Attempt any Ten) **3x10**

2. Explain nursery raising in rice. Distinguish between the sub-species of Oryza sativa.
3. Write down the major practices of DSR (Direct Seeded Rice) & SRI (System of Rice Intensification).
4. What are the effects of water deficit in maize? How, as an agronomist, would you avoid water deficit in maize? Explain.
5. C4 crops are generally better producers and photosyn thetically more efficient than C3 . why is the national average productivity of maize lower than that of rice? Explain.
6. Write about weed and nutrient management in wheat.
7. Write short notes on:

a. Triticale b. Economic importance of buckwheat
c. Seed treatment

8. Classify maize on the basis of endosperm.
9. Write five varieties of rice, maize and wheat with their recommendation domain.
10. Describe the planting methods of finger millet and also highlight the seed rate, crop geometry and plant nutrients required for each method of planting.
11. Write short notes on:

a. Water management in irrigated wheat
b. Weed management in buckwheat c. Glutein protein

12. Enlist major weeds of maize and explain the weed control practices in maize.

FINAL EXAMINATION - 2067

Essay type Questions **10**

1. List the different methods of raising seedling and explain any two of them with their advantages.

Short type Questions (Attempt any Ten) **3x10**

2. Discuss the fertilizer management in low land rice.
3. List the major weeds of rice. Describe in brief the weed control methods in low land rice.
4. Write down the recommended varieties of each crops rice, wheat and maize for both terai and mid hills of Nepal.
5. What are the critical stages of wheat for irrigaton? If you have only two irrigations, when will you irrigate the wheat crop.
6. Discuss the seed rate, fertilizer and plating time in wheat.
7. Why is the yield of winter maize higher than the rainy season maize in terai of Nepal?
8. Explain the importance of buckwheat cultivation in Nepal.
9. Write down the planting time, seed tae, spacing and fertilizer application in finger millet.
10. Why is the yield of Chaite dhan higher than the barkhe dhan?
11. Write short notes (any two):

a. Puddling b. Triticale c.Importance of barley in Nepal.

12. Describe the fertilizer management for improved maize cultivation in Terai.

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FINAL EXAMINATION - 2075

Level: B.Sc. Ag. 2nd Semester FM: 40
Subject: Ornamental Horticulture PM: 16
Time: 2 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Define landscape. What are the factors affecting land scape design?

Short type Questions 10×3= 30

2. Write the characteristics of the plants suitable for bonsai making.
3. Write the characteristics of different lawn grasses.
4. How can you justify floriproducts are economically important? Justify with examples.
5. What are the different methods of dormancy breaking of gladiolus corms?
6. What are the basic consideration that should be done before establishing of nursery enterprises?
7. Describe briefly the landscape design process.
8. How temperature affects postharvest life of flowers?
9. Describe the chain of life steps of flowers.
10. Write short notes on:

a) Nursery media b)Nursery containers

11. Differentiate between:

a) Sympodial orchid and monopodial orchid
b) Pinching and disbudding
c) Spray chrysanthemum and standard chrysanthemum

12. Write the propagation method followed in rose.

FINAL EXAMINATION - 2072

Essay Type Question 10

1. Discuss cultivation of Chrysanthemum under following headings: i) Propagation ii) manure and fertilization iii) de-shooting and dis-budding iv) important disease v) protected cultivation

Short type Questions 10×3= 30

2. Define landscape gardening. Comment on factors which affect landscape design.
3. Discuss the main features of Japanese style of gardening.
4. Write short notes on (any three):

a) Economic value of ornamental gardening
b) Bio-aesthetic planning
c) Sphagnum moss
d) Guidelines for selection of containers for Bonsai

5. Describe briefly the different methods of planting lawn grass.
6. How shifting of potted plant is done? Why is repotting necessary?
7. Discuss the aesthetic use of following ornamental plants:

a) Acalypha b) Gulmohar c) Hibiscus

8. Give reason of wiring and method of wiring of Bonsai plants. How dwarfing of plant is achieved in Bonsai making?
9. What types of plants are suitable for hanging basket? Classify different types of House plants with examples.
10. What do you know about pre-cooling and storage of cut flowers.
11. Briefly describe about objectives of flower exhibition and hints for flower judging.
12. Describe in brief different methods employed for propagation of roses.

FINAL EXAMINATION - 2073

Essay Type Question 10

1. What is landscape gardening? And explain the principles involved in landscape gardening design.

Short type Questions 10×3= 30

2. Differentiate between weak and strong geophyte with example.
3. Compare and contrast eastern and western design and twister and also highlight the motto and aims of Ikebana.
4. Explaining pruning and root exposing in rose.
5. Discuss the process of making bonsai.
6. Discuss cleaning and light management of indoor ornamental plants.
7. Discuss briefly the use of ornamental plants in landscape gardening design.
8. Discuss the management practices of established lawn.
9. Classify the orchid according to the habit with example.
10. Discuss about calyx splitting in carnation.
11. Discuss the objectives and goal of chain of life concept in postharvest handling of cut flowers.
12. Write short notes on:

a) Pergola b) Boulevard c) Xeriscape gardening
d) FAN

FINAL EXAMINATION - 2071

Essay Type Question 10

1. What is lawn? Describe different types of grass used for making lawn. What are the different methods of lawn establishment? What are the major management practices for lawn maintenance? Describe.

Short Questions 10×3= 30

2. Describe the importance of ornamental horticulture in Nepal.
3. What is landscape? Describe about landscape designing process.
4. What is bonsai? What types of plants are suitable for making Bonsai? Write with example.
5. Classify Carnation. Describe about pinching methods in Carnation.
6. What are the factors influencing postharvest longevity of cut flowers?
7. What is indoor gardening? What are the practices that should be done for the maintenance of indoor plants?
8. What is nursery? What are the basic considerations for the nursery enterprise development?
9. Write short notes on:

a) Factors affecting landscape design b) Types of rose
c) Types or styles of Bonsai

10. Differentiate between:

a) Formal and informal styles of gardening
b) Pinching and disbudding
c) Standard and spray Chrysanthemum

11. Classify orchids. Write about the potting media commonly used in orchids.
12. What are the commonly used containers? Describe the advantages of plastic pot over clay.

Final examination- 2069

Essay Type Question **10**

1. What is landscape gardening? Explain the principles involved in landscape gardening design.

Short type Questions **10×3= 30**

2. Differentiate between weak and strong geophytes with example.
3. Compare and contrast eastern and western design and twister and also highlight te motto and aims of Ikebana.
4. Explain pruning and root exposing in rose.
5. Discuss the process of making bonsai.
6. Describe cleaning and light management of indoor ornamental plants.
7. Mention use of ornamental plants in landscape gardening design.
8. Discuss the management practices of established lawn.
9. Classify the orchid according to habit with example.
10. Discuss about calyx splitting in Carnation.
11. Write objectives and goal of chain of life concept in postharvest handling of cut flowers.
12. Write short notes on (any three):
    a) Pergola b) Boulevard c) Xeriscape gardening d) FAN

Final examination- 2068

Essay Type Question 10

1. Why orchid is wondrous among flowers? Discuss about orchids on the following heads:

a) Classification according to habit b) Media for growing orchids c) Structures for growing orchids d) Manuring and fertilization

Short type Questions 10×3= 30

2. Compare and contrast eastern and western design of flower arrangement.
3. Discuss the goals and objectives of "Chain of Life" concept.
4. Briefly describe the steps involved in landscape gardening design.
5. Describe the management practices of established lawn.
6. Enlist the rose root stocks and explain how the modern roses are developed.
7. Write down the aesthetic and functional uses of following plants:

a) Polyaltheapendula b)Petunia c) Tagetes spp.

8. Discuss the importance of nursery raising of plants.
9. How can you judge the harvesting stage of following ornamentals:

a) Carnation b) Gladiolus c) Rose

10. Discuss the remedies for prolonging vase life of cut flowers.
11. Discuss the judging criteria in flower shows and competition.
12. Write short notes on the following:
    a) Sciophytes b) Calyx splitting c) Dieback in rose

Final examination- 2067

Essay Type Question **10**

1. Discuss Rose under the following heading:
    a) Classification b) Propagation c) Pruning and root exposing d) Important pests and diseases

Short type Questions **10×3= 30**

2. Mention the important varieties of Gladiolus and Tube rose.
3. Discuss stopping and de-shooting in Dahlia.
4. Differentiate between cacti and succulents with suitable examples.
5. Briefly discuss the propagating methods of Bougainvillea and Chrysanthemum.
6. Write short notes on (any three):

a. Indoor plants b. Nursery media c. Mughal - garden d. Flower exhibition

7. Briefly discuss the postharvest practices of cut flowers.
8. Briefly discuss the classification and protected cultivation of orchids.
9. What are the factors that affect landscape design?
10. Define lawn. Give suitable plant species for making lawn. Give the maintenance tips for lawn.
11. What is a bonsai? Give five suitable plant species for making bonsai. Also mention how a plant can be miniatuized.
12. Briefly discuss the elements of landscape gardening

Final examination- 2066

Essay Type Question 10

1. Landscape design is a problem solving process. Why? Discuss in detail the landscape design process and the factors affecting it.

Short type Questions 10×3= 30

2. Ornamental horticulture is an emerging enterprise in Nepal. Justify this statement in brief.
3. Briefly mention the climatic requirements of rose and tuberose.
4. Briefly discuss the aesthetic and functional use of five ornamental shrubs and five ornamental trees with their scientific name.
5. What do you mean by potting and repotting? Explain the significance of repotting.
6. Define bonsai and enlist the plant specimen selection criterion for bonsai.
7. Briefly mention the factors affecting the postharvest longevity of cut flower.
8. Discuss on the following aspects of gladiolus. a) Varieties b) Corm dormancy c) Plant depth d) Harvesting
9. Discuss on the following aspects of Orchids.
    a. Origin and distribution b. Orchid house c. Propagation d. Harvesting
10. Write short notes on (any three):
    a Partial opening b. Topophysis c. Basic rules of Ikebana d. Pulsing
11. Differentiate between (any three):

a. Cacti and succulents b. Complementary and analogous arrangement c. Burmuda grass and Korean grass d. Pinching and disbudding

12. Briefly describe about the flower exhibition and judgment.

TRIBHUVAN UNIVERSITY
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2073

Level: B.Sc. Ag. 2nd Semester FM: 20
Subject: Ruminant production PM: 8
Time: 1:30 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

EASSY TYPE QUESTION 6

1. What are the methods of housing dairy cattle? Give the comparative merit and demerit of loose housing and cow house barn system. Discuss the factors which affect the location and construction of dairy farm building.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Discuss in brief about the care and management of milking animals for maximizing the milk production.
3. Which hand or machine milking methods would you prefer on your farm? Give reasons.
4. Enlist the important breeds of sheep and write the charac teristics of Merino.
5. What do you mean by colostrums and write the importance of colostrums feeding?
6. Write in brief about selection and judging of dairy cattle.
7. Explain the characteristics of Holestein Frisian breed.
8. Write in brief about use of draft animals.
9. Explain the constraints of ruminant production in Nepalease farming system.

FINAL EXAMINATION - 2073

EASSY TYPE QUESTION 6

1. Explain the management practices of dairy cattle adopted in hot climate to take optimum performance

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Give the characteristics of Murrha and Merino breed.
3. Describe the role of ruminant animal in agriculture.
4. Describe the artificial rearing of calf and different feeding system.
5. Explain the feeding of dairy cow.
6. Write the care of breeding buck and culling of goat.
7. Explain about dipping sheep.
8. What are the points to be consider while selection of breeding stock? Describe in brief.
9. Write short note on:
   a) Flushing b) Synchronization of heat

FINAL EXAMINATION - 2072

EASSY TYPE QUESTION 6

1. Discuss about importance of colostrum and artificial rearing of new born.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Discuss about system housing for dairy cattle housing.
3. Enlist the important breeds of sheep and goats. Explain the characteristics of Lampuchare and Beetal.
4. Write the care and management of new born calf.
5. Write in brief about the use of draft animals.
6. Explain the breed characteristics of Jafarabadi buffalo.
7. Discuss about different methods of milking.
8. Explain briefly the feeds and feeding of ruminants.
9. Write short notes on:
   a) Dehorning b) Dipping

FINAL EXAMINATION - 2071

EASSY TYPE QUESTION 6

1. Explain about the importance and scope of Ruminant production in Nepal.

SHORT QUESTION (ATTEMPT ANY SEVEN) 7*2=14

2. Draw a well labeled diagram of digestive system of a buffalo.
3. Why is castration mostly done in young animals? Describe the burdizo method of castration.
4. What do you mean by estrus cycle? Write the important symptoms of estrus in a cow.
5. Describe the care and management of new born calf.
6. Write short note on:
   a) Murrah b) Lime c) Jersey
   d) Jamunapari e) Lampuchhre f) Chyangra
7. Describe the breed characteristics Holstein Friesian and Merino.
8. Explain about care and management of breeding bull.
9. What do you mean by Dehorning? Explain the method of Dehorning with its merits.

FINAL EXAMINATION - 2071

EASSY TYPE QUESTION 6

1. Why goat is regarded as poor man's cow? Explain the importance of ruminants in Nepalese agricultural systems. Also explain the problems of ruminants farming (e.g. dairy cattle) in commercial level among our farmers.

SHORT ANSWERS (ATTEMPT ANY SEVEN) 7*2=14

2. Write down the breed characteristics of Holstein- Friesian cow.
3. What do you mean by estrus cycle? Explain the external systems of heat in cattle.
4. Discuss about care and management of breeding bull.
5. Describe about various type of milking methods. Which method do you consider the best one?
6. Explain about different types of housing systems with their merits and Demerits.
7. Why castration is done in male animals? Describe the Burdizzo method of castration.
8. Explain the importance of colostrums feeding in new born animals.
9. Write short notes on:
   a) Grooming b) Murrah c)Jamunapari d) Dehorning

FINAL EXAMINATION - 2069

EASSY TYPE QUESTION 6

1. Discuss the importance, scope and constraints of ruminant production in Nepal.

SHORT QUESTION (ATTEMPT ANY SEVEN) 7*2=14

2. Name five important cattle breeds and write down the breed characteristics of Murrah Buffalo.
3. Differentiate between Loose housing and barn systems as housing.
4. Differentiate between Full hand and Stripping method of milking.
5. What is Castration? State the objectives and different methods of Castration.
6. Enlist the desirable characters for Judging and selection of a dairy cow by using Score card method.
7. Discuss the care and management of new born lamb.
8. Discuss the role of draft animals in Nepalese farming system.
9. Write short notes on (any two):
   a) Grooming b) Docking c) Merino

FINAL EXAMINATION - 2068

EASSY TYPE QUESTION 6

1. What are the Salient points is grouping of dairy farm buildings? Explain the different types of intensive cattle housing and give merits of each.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. What do you understand by 'breed'? List the factors you would consider in selection of dairy cattel breed in Nepalese condition.
3. Explain the care and management of breeding buck.
4. Discuss in brief the general care and management of new born calf up to one year age.
5. Why is Full hand milking preffered to any other method of hand milking?
6. Write the breed characteristics:
   a)Brown swiss b) Jaffarabadi c) Barbari
7. Define the followings:
   a) Animal Judging score card b) Animal Body wedges- side, top, front
8. What do you understand by barn sanitation? Explain disinfectants and disinfectants.
9. Differentiate between:
   a) Hand milking and machine milking
   b) Stanchion stall and Tie stall of animal housing

FINAL EXAMINATION - 2067

EASSY TYPE QUESTION 6

1. Why crude fiber is essential for ruminant animals? Also, write the scope of ruminant production in Nepal.

SHORT QUESTION (ATTEMPT ANY SEVEN) 7*2=14

2. Write breed characteristics of following breeds: Jersey and Nili-Ravi.
3. Why sheep and goat are suitable for midhill region? Also write in short about their grazing systems.
4. Write in short about care and management of newly born kid.
5. What do you mean by milking? Which method is suitable for cattle and why?
6. " Conventional housing system is suitable for milking animals", why? Justify with your suitable logic.
7. Write short notes on:
   a. Casting b. Docking c. Grooming
8. How can you estimate the age of sheep? Write with example.
9. Enlist different breeds of goat introduced in Nepal and which ones are considered most appropriate & why?

TRIBHUVAN UNIVERSITY
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2075

Level: B.Sc. Ag. 2nd Semester FM: 40
Subject: AGRICULTURAL MICROBIOLOGY PM: 16
Time: 2 hrs.

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

EASSY TYPE QUESTION: 10

1. What is Transduction? Explain the process with well labeled diagram.

SHORT QUESTION: (ATTEMPT ANY TEN) 10*3=30

2. What is the role of plasmid in cell and genetic engineering?
3. Draw nitrogen cycle along with the names of associated microbes.
4. Define mycorrihza. Differentiate between ectomycorrhiza and endomycorrhiza.
5. Write short note on staphylococcal intoxication. Name one mycotoxin and the micro- organism producing it.
6. How does microbial degradation of starch take place?
7. Name six antibiotics and microorganisms producing them.
8. Explain the role of protozoa and fungi in rumen with four examples of each.
9. Name any ten bacterial diseases of plants with causal oraganisms.
10. Explain biodegradation of aromatic hydrocarbons.
11. Define biopesticide and its types with examples.
12. Account the contribution of Louis Pasteur and M. Beijerinck.

FINAL EXAMINATION - 2072

EASSY TYPE QUESTIONS 10

1. What do you mean by genetic recombination? Describe types of transduction with their detail mechanism. Point out the significance of recombination in bacteria.

SHORT QUESTIONS (ATTEMPT ANY TEN) 10*3=30

2. Explain briefly the importance of microbiology in agricultural field .
3. Present the general schemes of degradation of aromatic hydrocarbons.
4. Enlist Biofertilizers. Explain mass production of Cyanobacteria.
5. Enlist the important bacterial diseases of plant with causal oraganisms.
6. What is Hay and silage? Describe the role of microbes in silage making?
7. Describe the cell of organism possessing incipient nucleus with well - labeled diagram.
8. Give the role of microbes in the degradation of cellulose and protein.
9. Describe the microbiology of milk and milk products.
10. Give the mechanism of symbiotic nitrogen fixation.
11. Explain the phosphorous cycle.
12. Classify micro- organisms with examples. Describe the characteristics of any one group.

FINAL EXAMINATION - 2073

EASSY TYPE QUESTION: 10

1. Explain the mechanism of symbiotic nitrogen fixation with account of Rhizobium.

SHORT QUESTIONS (ATTEMPT ANY TEN): 10*3=30

2. Draw sulphur cycle along with the names of associated microbes.
3. Explain microbial degradation of aliphatic hydrocarbons.
4. Define biofertilizer. Give mass production method of Mycorrhizal biofertilizer.
5. Name at least five rumen associated bacteria and their role.
6. Describe Azolla- Anabaena symbiosis.
7. Differentiate between batch fermentation and continuous fermentation.
8. Give a brief account on salmonellosis and campylobacteriosis with salient features.
9. How does lignin degradation take place? Name at least three associated microbes.
10. Name any ten fungal pathogens of plants with the diseases.
11. Account the contributions of S. Winogradsky and M. Beijerinck.
12. Categorize and explain the types of microorganisms encountered in milk.

FINAL EXAMINATION - 2071

ESSAY TYPE QUESTION: 1*10=10

1. Define mycorrhiza. What are its species? Write the mechanism of symbiotic Nitrogen fixation?

SHORT QUESTIONS (ATTEMPT ANY TEN) 10*3=30

2. Define micro biology. Classify microorganisms.
3. What are different cell envelopes of prokaryotic cell? Differentiate between the cell wall components of Gram positive and Gram negative bacteria.
4. What are different nutritional requirement for growth of bacteria.
5. Differentiate between Lytic and Lysogenic phase of transduction.
6. Write about phosphorus cycle.
7. What is anaerobic digestion of organic residues? Write its major steps and responsible microorganisms.
8. Define recalcitrant chemicals. Outline the process of degradation of aromatic chemicals by microorganisms.
9. Define and classify bio remediation.
10. Differentiate between sign and symptoms. How is mass culture of Rhizobium done?
11. Define rumen microbiology. What are different phases of silage production?
12. Short notes on:(any three)
    a) Application of microbiology in agriculture
    b) Fermentation
    c) Dairy microbiology
    d) koch's postulate

FINAL EXAMINATION - 2069

EASSY TYPE QUESTION 10

1. Give the historical background of microorganisms. Describe their importance in agriculture.

SHORT QUESTION (ATTEMPT ANY TEN) 10*3=30

2. Define insecticides, fungicides and herbicides.
3. Mention only the outline of sulphur and nitrogen cycle.
4. Give a note on nutritional requirements of bacteria and nematodes.
5. Name any five fungal and five bacterial diseases with their causal organisms and hosts occurring in plants.
6. Give a definition and classification of mycorrhiza and also mention their importance.
7. Write the short notes on:

a. Silage
b. Antibiotics
c. Asymbiotic nitrogen fixation
d. Food borne infection and toxins

8. Define biofertilizers. Give their importance in agriculture.
9. Describe plant microbes association with suitable example.
10. What do you mean by prokaryotic cell? Draw & label a typical bacterial cell.
11. Write short-notes on the followings:

a. Butter b. Cheese c. Rumen microbiology

12. Describe microbial degradation of cellulose.

FINAL EXAMINATION - 2068

EASSY TYPE QUESTION:

1. Define mycorrhiza and describe various types of micorrhiza with examples. Give its significance in agriculture.

SHORT QUESTION (ATTEMPT ANY TEN) 10*3=30

2. Describe briefly the carbon and sulphur cycle in nature.
3. Give the name of microbes which help in the degradation of lipids, starch and cellulose.
4. Give the role of microbes which develop diseases in crop plants.
5. Give short notes on any three:

a. Botulism b. Transformation
C. Pasteurization d. Silage

6. Discuss briefly the biopesticides and biofertilizers with suitable examples.
7. Mention a list of five microbes present in milk, infected food and alimentary canal of any cattle.
8. Give the importance of microbes in industry, agriculture and medicines.
9. Discuss briefly the role of micro-organisms in soil fertility and crop production.
10. Define recalcitrant pesticides with examples and also write about food borne mycotoxins.
11. Give mechanism of symbiotic nitrogen fixing microbes.
12. Write in short the nutritional requirements and genetics of bacteria.

FINAL EXAMINATION - 2067

EASSY TYPE QUESTION:

1. Name any two prokaryotic and two eukaryotic microorganisms. Describe the cell structure of a typical prokaryotic micro-organism with well labeled diagram.

SHORT QUESTIONS (ATTEMPT ANY TEN) 10*3=30

2. How genetic recombinations occur in bacteria? Describe any one mechanism.
3. Describe the role of micro-organisms in maintaining nitrogen cycle.
4. Describe Azolla- Anabaena symbiosis. Mention the significance of this symbiosis.
5. What is mycorrhiza? Classify mycorrhiza giving characteristics of each group.
6. Name some recalcitrant and biodegradable pesticides. Give the general scheme for the biodegradation of pesticides having aromatic side chain.
7. Classify micro-organisms on the basis of cellular organization. Mention the characteristics of any one group.
8. Enlist only five bacterial diseases and five fungal diseases of plants with their causal organisms.
9. Describe the microbiology of milk.
10. Write about any two food infections and One food intoxication.
11. Enlist any ten ruminal micro-organisms and mention their role in rumen.
12. Enlist the important biofertilizers and biopesticides. Describe the mass inoculums production method of any one biofertilizer.

FINAL EXAMINATION - 2065

EASSY TYPE QUESTION: 10

1. Classify biological nitrogen fixing organisms with examples. Show with the help of labeled diagrams only how nodule is formed in leguminous plant. Mention the mechanism of biological nitrogen fixation.

SHORT QUESTION (ATTEMPT ANY TEN) 10*3=30

2. Give broad classification of micro-organisms with examples.
3. Describe the importance of microorganism in agriculture.
4. Write the structure of peptidoglycan. Give three differences between gram positive and gram negative bacteria.
5. Describe how conjugation takes place in bacteria.
6. Define and classify mycorrhiza mentioning the characteristics of each group.
7. Write down name of two biodegradable and two recalcitrant pesticides. With the help of general scheme show how aromatic insecticides are degraded by microbes.
8. Enlist each five important plant pathogenic bacteria and fungi and diseases caused by them.
9. Describe briefly bio-pesticides and on which factor the use of bio-pesticides depends.
10. Describe the metabolism of carbohydrate and protein in the rumen by ruminal microbes.
11. Describe about the diseases caused by food borne infection and food borne in toxication.
12. Classify microorganisms present in milk with examples and also name the sources through which they enter in the milk.

TRIBHUVAN UNIVERSITY
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RAMPUR, CHITWAN
FINAL EXAMINATION - 2075

Level: B.Sc. Ag. 2nd Semester F.M. 40
P.M. 16
Subject: Introductory Crop Physiology Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

EASSY TYPE QUESTION: 10

1. Define respiration? Outline the EMP pathway and TCA cycle with all the steps and enzymes involved.

SHORT QUESTION: (ATTEMPT ANY TEN) 10*3=30

2. Define micro-bodies? Draw a well labeled diagram of mitochondria and enlist its major function.
3. Define imbibition? Does osmosis occurs in dead cells? Explain.
4. Differentiate between active and passive absorption of water?
5. Outline C2 cycle. What are the conditions required for its initiation?
6. What is guttation? Which theory is most accepted for explaining opening and closing of stomata?
7. What is Z scheme? Outline and discuss briefly the process.
8. Define phloem loading and sink loading. Explain the factors affecting source sink translocation.
9. Define dormancy? How can it be removed? What are the significance of dormancy?
10. Enlist the visual symptoms of Phosphorus, Potash and Sulfur deficiency.
11. Define crop production? How is developmental analysis of annual crop done?
12. Define: (any three)

a. Cell inclusion b. Growth curve
c. Long short day plant d.Vernalin

FINAL EXAMINATION - 2072

EASSY TYPE QUESTION: 10

1. Explain the hypothesis/theories of stomatal movement in with the criticism about them.

SHORT QUESTION: (ATTEMPT ANY TEN) 10*3=30

2. List out the physiological role auxin and gibberellin.
3. What are photoperiodism and critical day length? Explain.
4. Explain the methods of breaking of seed dormancy.
5. What is phasing development theory given by Lysenko?
6. With the evidences and objectives of Mass Flow Hypothesis, explain the hypothesis.
7. Draw the outline of glycolysis pathway.
8. Explain Hatch and slack cycle.
9. Differentiate between cyclic and non-cyclic photo phosphorylation.
10. What are the deficiency symptoms of potassium?
11. What is carbon exchange theory for? Explain.
12. List out the differences between water potential and DPD.

FINAL EXAMINATION - 2073

EASSY TYPE QUESTION: 10

1. Draw a well labeled diagram of a typical plant cell and give the functions of important cell organells.

SHORT QUESTION: (ATTEMPT ANY TEN) 10*3=30

2. Give the physiological role of auxins, gibberellins and cytokinins. Mention their practical application.
3. Describe with the help of diagram electron transport system.
4. Define photophosphorylation and write about cyclic and non-cyclic photophosphorylation.
5. Write shorts notes:

a. Osmosis
b. Diffusion
c. Vernalization

6. Define C3 and C4 cycles and differentiate between them.
7. Give the various theories proposed for mechanism of solute translocation.
8. Give the outline reactions of Kreb's cycle.
9. Define transpiration? Give the mechanism of closing and opening of stomata.
10. Write down the water absorption and mineral absorption. Differentiate between active absorption and passive absorption.
11. Mention various theories proposed for mechanism of ascent of sap.
12. Write about photoperiodism.

FINAL EXAMINATION - 2071

EASSY TYPE QUESTION: 10

1. What is photosynthesis? Outline the Hill Reaction and Black Man's cycle with all steps and enzymes involved.

SHORT QUESTION: (ATTEMPT ANY TEN) 10*3=30

2. Write about cell inclusion. Draw a well labeled diagram of endoplasmic reticulum and enlist its major function. Define diffusion pressure deficit. How is osmosis different then diffusion?
4. What is apoplastic movement of water? When does active absorption of water takes place?
5. Which theory is widely accepted for mineral salt absorption? Explain.
6. What is guttation? Explain starch glucose interconversion theory for opening and closing of stomata.
7. Outline glycolysis process with its different phases. Enlist three regulatory enzymes involved in the process.
8. Define phloem loading and phloem unloading. Explain the factors affecting source sink translocation.
9. What are the causes of dormancy? What are the ways to remove it?
10. Define nutria physiology. Enlist the visual symptoms of phosphorus and sulfur deficiency. Write about the physiological role of these minerals.
11. Write about the physiological parameters which influence crop productivity.
12. Write short notes on:

a. Quiescence b. Growth curve
c. Water potential d. Vernalin

FINAL EXAMINATION - 2069

EASSY TYPE QUESTION: 10

1. Differentiate between C3 and C4 plants. Give the outline reaction of the cycles operating in these two categories of plants.

SHORT QUESTION: (ATTEMPT ANY TEN) 10*3=30

2. Describe the mechanism of stomatal movement.
3. Define diffusion and osmosis. Describe the significance of osmosis in plants.
4. Give the outline structure of a typical cell. Discuss briefly the functions of ribosomes and chloroplast.
5. Make a list of vital and physical forces theories respon sible for accent of sap. Explain briefly the transpiration pull theory.
6. What is respiratory quotient? Give the outline reactions of EMP pathway.
7. What do you mean by seed dormancy? What are its causes and how it can be broken?
8. What do you know about phptoperiodism and vernalism? Give briefly the mechanism of photoperiodism.
9. Classify hormones. Point out the role of auxin in agriculture.
10. Discuss the biochemical change which takes place during seed germination.
11. What are the essential and non-essential elements? Discuss briefly the role played and deficiency symptom of nitrogen, sulfur and zinc in plant metabolism.
12. Enlist the physiological parameters which influence the productivity of major cereals, pulses and oilseed crops.

FINAL EXAMINATION - 2067

EASSY TYPE QUESTION: 10

1. Differentiate between C3 and C4 plants. Give the outline reaction of the cycles operating in these two categories of plants.

SHORT QUESTION: (ATTEMPT ANY TEN) 10*3=30

2. Define diffusion and osmosis. Describe the significance of osmosis in plants.
3. What is water potential? Differentiate between water potential and diffusion pressure deficit.
4. Describe the mechanism of stomatal movement.
5. Enlist the theories put forward for explaining the mecha- nism of ascent of sap. Explain any one of these.
6. What is respiratory quotient? Give the outline of EMP pathway.
7. What do you mean by growth and development? Explain the different growth stages in annual plants with the help of growth curve.
8. What do you mean by seed dormancy? What are its causes? How it can be broken?
9. Define vernalisation and photoperiodism. Classify plants on the basis of length of photoperiod requirement with examples.
10. Draw well labeled diagrams of chloroplast, mitochondria and golgi body.
11. Classify growth regulators with examples. Write about the biosynthesis of any one phytohormone.
12. Enlist the physiological parameters which influence the productivity of major cereals.

FINAL EXAMINATION - 2068

EASSY TYPE QUESTION: 10

1. What do you understand by C4 cycle? Describe the Hatch-Slack cycle of photosynthesis and comment on its biological significance.

SHORT QUESTION: (ATTEMPT ANY TEN) 10*3=30

2. Give the outline of a typical cell. Discuss briefly the functions of ribosomes and chloroplast.
3. Make a list of vital and physical force theories responsible for ascent of sap. Explain briefly the transpiration pull theory.
4. Write shorts notes on(any two):
   a) photosynthetic pigments and role of light in photosynthesis
   b) practical application of crop physiology in agriculture
   c) practical application and effect of hormones in crop plants
5. Differentiate between:
   a) diffusion and osmosis b) C3 and C4 plants
   c) aerobic and anaerobic respiration
6. What do you know about passive and active uptake of ions? Describe briefly the mechanism of cytochrome pump hypothesis.
7. Describe briefly the mechanism of stomatal movement. Give emphasis on active K transport mechanism of transpiration.
8. What are xylem and phloem? Write a note on Munch Mass Flow hypothesis.
9. Discuss briefly the complexes involved in ETS and oxidative phosphorylation in respiration process.
10. Define photoperiod, vernalisation and dormancy. Write the mechanism and significance of vernalisation.
11. What are the essential and non-essential elements? Discuss briefly the role played and deficiency symptoms of nitrogen, sulfur and zinc in plant metabolism.
12. Make a list of conditions necessary for germination. Describe briefly the biochemical changes during see germination

FINAL EXAMINATION - 2067

EASSY TYPE QUESTION: 10

1. will you differentiate between C3, C4 and CAM plants? Why C4 plants photosynthetically more efficient than C3 plants.

SHORT QUESTION: (ATTEMPT ANY TEN) 10*3=30

2. Established the relationship between leaf angle, plant type and penical initiation with crop productivity.
3. If a cell a with DPD 4 bars is connected to cells B, C, D whose O.P. and T.P. are respectively 4 and 4; 10 and 5 and 7 and 3 bars. Then what is the direction of flow of water?
4. Give an account of the factor affecting transpiration.
5. Write short notes on(any three):

a. anaerobic respiration
b. trace element
c. vernalisation
d. dormancy

6. Distinguish between active and passive absorption of water.
7. Describe Cohesion-Tension theory in ascent of sap.
8. How does ion exchange and accumulation mechanism mechanism help in the absorption in mineral solutes?
9. Give an account of the energy releasing process in glucose oxidation through glycolysis.
10. Discuss the biochemical change which takes place during seed germination.
11. Write different types of growth hormones. Discuss the role of cytokinin in plant growth.
12. Give an account of the physiological parameters with influence the productivity of cereal crops.

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INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2073

Level: B.Sc. Ag. 2nd Semester F.M. 40
P.M. 16
Subject: Soil Fertility, Fertilizers & Integrated Nutrient Mgmt. Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. What are the different pools of phosphorus in soil? Discuss in detail the behavior of single super phosphate in different types of soil. Illustrate your answer in figure.

Short Questions(Attempt any Ten) 10*3=30

2. What is the essence of the "Law of the Minimum"
3. Define the term fertilizer. Enlist at least three fertilizer sources with nutrient concentration of each nitrogen, phosphorous and potash.
4. What are possible ways of nitrogen losses from added N sources in soil and discuss in short about control measures?
5. Describe the function and deficiency symptoms of phosphorus, sulphur and boron in crop plants.
6. What is hidden hunger? Describe the visual diagnosis method of soil fertility evaluation with merit and demerits.
7. Describe the following deficiency symptoms in crop plants: a) Dead heart (b) Grey speck (c) Khaira disease
8. What are biofertilizers? Describe the importance of Azolla in rice cultivation.
9. The soil fertility status of Nepalese soil is being declining. Give your opinion on this statement and possible over come.
10. Discuss about different components and relevance of Integrated Nutrient Management (INM) for sustainable soil management in Nepalese condition.
11. Discuss briefly about the soil test value as the basis of fertilizer recommendation in different land.
12. List the salient features of biogas plant in Nepal.

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. Enlist at least three common commercial fertilizer sources of each Nitrogen, Phosphorus and Potassium. Explain the behavior of Phosphatic fertilizer in acid soil with the help of well labeled diagrams.

Short Questions (Attempt any Ten) 10*3=30

2. Discuss in brief the "Law of the Minimum"
3. Define plant nutrient. List all essential plant nutrients with their forms absorbed by plants.
4. What are the possible ways of nitrogen losses from added N sources in soil also discuss their control measures.
5. Write the most important three functions of Phosphorous, Calcium and Zinc in crop plants.
6. Why should we evaluate the soil fertility? List the various methods of soil fertility evaluation techniques with precautions in interpreting visual diagnosis.
7. Describe the following deficiency symptoms in crop plants:

(a) Dead heart (b) Grey speck (c) Khaira disease (d) Branches to weep

8. What are biofertilizers? Describe the importance of Azolla in rice cultivation.
9. "The soil fertility status of Nepalese soil is being declining". Give your opinion on this statement and possible overcome.
10. What is the basic concept of Integrated Nutrient Management (INM)? Discuss in brief the different options Nepalese farmers for INM.
11. Discuss briefly the philosophy of fertilizer recommendation in different lands.
12. Describe in short about different organic residue decomposition in soil with figures

FINAL EXAMINATION - 2072

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Short Questions (Attempt any Ten) 10*3=30

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FINAL EXAMINATION - 2071

Essay Type Question: 10

1. Describe the nitrogen (N) cycle. Explain the source and forms of nitrogenous fertilizers. Can on-farm nitrogen loss be minimized? How? Explain with examples.

Short Questions (Attempt any Ten) 10*3=30

2. What is law of the Minimum or Liebieg's Barrel, elaborate.
3. Due to which elements deficiencies are "V" and opposite "V" shapes symptoms on leaves of plants? Enlist major functions of nitrogen
4. Explain the roles of sulphur (S) and its deficiency symptoms on mustard and onion plants.
5. Explain the role of zinc (Z) in plant growth. How necrotic lesions on leaves are developed under Zn deficiency condition? Suggest its correction measures.
6. Why Potassium is called chemical policeman? Explain its roles during wear stress condition.
7. Why Boron (B) is called unique element? Explain its deficiency symptoms on crop plants.
8. Is Integrated Nutrient Management (INM) relevant in Nepal? Explain major components of IPNS.
9. Differentiate between inorganic and organic fertilizers. Describe the importance of Azolla in rice cultivation in Nepal
10. Which element is responsible for causing "whiptail" in cauliflower? Enlist its function in plants.
11. Enlist the soil fertility evaluation techniques. Describe any one of them.
12. Enlist the major functions of P in plant growth and development. At which stage of the plant growth, phos phorous is most important?

FINAL EXAMINATION - 2069

Essay Type Question: 10

1. Write the behavior of urea and ammonium sulphate in soil. Ammonium sulphate causes soil to be more acidic than urea, why? How do you increase the effectiveness of urea in soil? Explain

Short Questions (Attempt Any Ten Questions) 10*3=30

2. What advances were made in the field of agriculture and plant nutrition in 21st century? Describe.
3. Do you think 'Nitrogen' is an essential element? Give the reasons. Classify nutrients on the basis of mobility in plants.Identify the nutrients deficiency with reasons.
   a. Porphyrin ring b. Whiptail in cauliflower
   c. Wheat sterility d. White bud in corn
   e. Corky apple f. Grey speak of oat
   g. Dead spot on tobacco leaf h. Weak straw of cereals
4. In fruit trees, copper deficiency causes branches to weep, why?
5. Briefly discuss occurrence, availability and deficiency symptoms of boron and molybdenum in plants.
6. Describe the phosphatic fertilizers in soil with suitable figures.
7. What are the different criteria that are to be considered while selecting MOP and SOP as fertilizer?
8. Write different methods of assessing soil fertility in the field. Describe any one.
9. Compare and contrast pit and heap method of composting organic reaction.
10. Write short notes:
    a. Sustainable agriculture
    b. Biofertilizer

FINAL EXAMINATION - 2067

Essay Type Question: 10

1. Define the term fertilizer. Classify the phosphatic fertilizer on the basis of solubility and explain the behavior of phosphatic fertilizer in acid soil with the help of well labeled figures.

Short questions (Attempt Any Ten): 10*3=30

2. Being a soil scientist suggest the farmer to select potassic fertilizer to harvest good yield of crop
3. What is plant nutrient? List out all essential plant nutrient elements with their forms absorbed by plants.
4. Differentiate soil fertility and soil productivity. Descrie the experimental findings of John Wood Ward (1700).
5. "Organic matter depletion is the core problem of soil fertility degradation". Justify the statement.
6. List the possible ways of nitrogen losses from nitrog enous fertilizers in soil and give brief description to control these losses.
7. Describe in brief the most important three functions and typical deficiency symptoms of Nitrogen, Sulphur and Iron in crop plants.
8. What is hidden hunger? Describe the biological method of soil fertility evaluation.
9. What is the fundamental concept of Integrated Plant Nutrient Management (IPNM)? Also suggest the avail able management options for Nepalese farmer to follow IPNM.
10. Describe biofertilizers. Describe vermicompost with its benefits to improve the soil health.
11. Discuss briefly the major soil fertility problems in Nepal along with your suggestions to overcome the problems.
12. Write short notes on:
    a.Beneficial elements b. Biogas c. Chemical policeman

FINAL EXAMINATION - 2068

Essay Type Question: 10

1. Differentiate between commercial fertilizer and biofertilizers. Explain the behavior of single super phos phate in soils. Illustrate your answer with figures.

Short questions (Attempt Any Ten) 10*3=30

2. Describe the behavior of ammonium sulfate in soils. Justify your answer with reactions.
3. Mention the most important functions of Nitrogen, Sulfur and Molybdenum with reasons.
4. Explain the following symptoms of plant nutrient defi- ciency on crop plant.
   a) Branches to weep b) Dead heart of cauliflower
   c) Empty peanut shells d) White bud of maize
5. What is azolla? Mention the importance of Azolla in lowland rice cultivation.
6. Describe the practical significance of C:N ratio in soil giving a suitable figure.
7. List the composition of biogas. Mention its salient features under Nepalese condition
8. Define Integrated Plant Nutrient Management. Describe its importance in Nepalese agriculture.
9. Write down the techniques of soil fertility evaluation. Explain the microbiological method of soil fertility evaluation
10. Describe the soil fertility problems in Nepal. Also mention their management practices.
11. What management practices do you consider for sustain able agriculture in Nepal?
12. What are the criteria for nutrient essentiality to plants? Describe in brief the historical development of soil fertility and plant nutrition.

FINAL EXAMINATION - 2066

Essay Type Question: 10

1. What is phosphate rock? Explain the behavior of phos phatic fertilizer in soils. Also discuss the effect of PH on phosphorous availability to plants.

Short Questions (Attempt any Ten) 10*3=30

2. Describe the following deficiency symptoms in crop plants. a. Dead heart b. Branches to weep
   c. Khaira disease d. Whiptail
3. Explain the three most important functions of phosphorus, sulphur and molybdenum in crop plants.
4. List the various types of biofertilizers. Describe their importance in Nepalese agriculture.
5. Discuss in brief the forms and transformation of potassium in soils.
6. Mention the source of raw materials for the manufacture of urea.
7. Distinguish between MOP and SOP in terms of use in crop production to obtain quality produce.
8. Write down the various types of Soil Fertility Evaluation Techniques. Mention the merits and demerits of visual method of nutrient deficiency symptoms.
9. Define SOM. Describe the importance of SOM in the soil productivity.
10. What are the soil fertility problems in Nepal? Give your vision to improve soil fertility of agricultural land.
11. Define Integrated Plant Nutrient Management. Explain its relevance in sustainable agriculture.
12. Write short notes on (any two):\

a) Beneficial elements b) Biogas slurry c) organic manures.

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FINAL EXAMINATION - 2073

Level: B.Sc. Ag. 3rd Semester F.M. 40
P.M. 16
Subject: Agricultural and Environmental Economics Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. What are the pre-requisites of resources? Biomass addition in the soil is a function of time and nutrient recruitment is the function of biomass. Discuss in detail.

Short Questions(Attempt any Ten) 10*3=30

2. How could you apply the knowledge of project cycle for mitigating environmental deterioration created by development projects?
3. What is project sensitivity analysis? Discuss.
4. What are the typical institutional developments in eights Five Year Planned Period for the environmental issues? Discuss the objectives of Nepal Environmental Policy and Action Plan for environment protection and sustainable development.
5. What do you mean by farming system component? Show the interrelationship between these components.
6. Interpret the following outcomes of economic analysis of irrigation project.

a. Net Present Value= Rs. 25,000 b. Benefit-Cost Ratio= Rs. 1.15
c. Internal Rate of Return= 21%

7. How do you valuate the non-traded goods? Discuss it.
8. Show the interrelationship between overpopulation and natural resources.
9. What are the legal provisions made by the government in different acts related to agricultural resources managment?
10. Illustrate the nutrient cycle in a typical hill farming system for sustainable productivity.
11. All pollutions and resources depletion are the consequences of overpopulation. Justify.
12. Discuss the different aspect of project preparation and analysis.

FINAL EXAMINATION - 2071 (Back Paper)

Essay Type Question: 10

1. Define externality. What are various direct and indirect measures of impact from externality?

Short Questions(Attempt any Ten) 10*3=30

2. Define project cycle and explain its stages.
3. Give a brief description of various discounting project appraisal criteria.
4. Prepare a nutrient cycle in mid hill farming system.
5. What are the policy and action plan for land management in Nepal?
6. What are the major causes for deforestation in Nepal?
7. Explain the strategies for the conservation of biodiversity.
8. Elucidate the importance of Environment policy in Nepal.
9. What is Environmental Impact Assessment? Why is it essential?
10. What are the various institutions involves in Resource Management?
11. Present the behavioral relationship of biomass.
12. Write short notes on:

a. Buffer zone management
b. Inland fisheries

FINAL EXAMINATION - 2073

Essay Type Question: 10

1. Define project cycle. Discuss the different criteria for appraising a project with their suitability to different conditions, merits and demerits.

Short Questions(Attempt any Ten) 10*3=30

2. Differentiate between exhaustible and non-exhaustible resources.
3. Discuss on behavioral relationship of biomass in relation to its optimum management.
4. Enlist the characteristics of Nepalese farming system. Explain the population and environment relation to Nepal.
5. What are the major reasons for watershed degradation in Nepal? Explain shortly the action plan and policy for land management in Nepal.
6. Highlight the present situation of mineral and livestock resources in Nepal.
7. Discuss on technical and economic aspects of project preparation and analysis with examples.
8. What are the major strategies for biodiversity conserva tion in Nepal? Explain role of community in Natural resource management.
9. Enlist criteria for formulation of effective environmental policy. Discuss briefly on Rio declaration on environment and development.
10. Write short notes on (any three):

a. Agenda 21 b. National Conservation Strategy
c. Environment Impact Assessment
d. Nepal Environmental Policy and Action Plan

11. Discuss on types and roles of institution involved in management of natural resources and environmental protection in Nepal.
12. Show the nutrient cycle in the hill farming system.

FINAL EXAMINATION - 2071

Essay Type Question: 10

1. Define externality. How can we internalize the externality? Explain the various tools and methods for economic valuation of non-traded goods.

Short Questions(Attempt any Ten) 10*3=30

2. Define program and project. Enlist various aspects to be considered in an agricultural project and explain any one of them with suitable example.
3. What do you mean by biodiversity? Explain the status and strategies for the conservation of biodiversity.
4. What are the different project appraisal criteria? Interpret the result obtained from the following projects with the given information. (Consider opportunity cost of capital is 24%)
   Project A: POULTRY LDR= 20, UDR= 32, NPV@LDR= 29678 and NPV@UDR= -32491
   Project B: PIG FARMING LDR= 18, UDR= 26, NPV@LDR= 309070 and NPV@UDR= -296831
5. What is inland fishery? Explain the scope and economic importance of inland fisheries in Nepal.
6. Explain the efficient ways for the use of limited farm resources for economic management.
7. What do you mean by natural resource management? Explain the concept of Environmental Impact Assessment.
8. Define the terms in short: cut-off rate, buffer zone management, sustainable development, decentralization of power, need assessment, equity.
9. Enlist the objective of Nepal Environmental Policy and Action Plan. And show the interrelationship between different components of Nepalese farming system.
10. What do you mean by resources is imperfect?
11. Write short notes on: (any three)

a. Sensitivity analysis b. Behavioral relationship of biomass (graphically) c. Agenda 21
d. National Conservation Strategy (NCS)

12. Explain the status of the forest and rangeland resources. Also discuss the action plan adopted by government for their management.

FINAL EXAMINATION - 2070

Essay Type Question: 10

1. Define project cycle. Discuss on different aspects of project preparation and analysis with suitable examples.

Short Questions(Attempt any Ten) 10*3=30

2. Explain the importance of environmental economics in agricultural development.
3. Define natural resources. "Ecological optimum nay no necessarily be the economic optimum". Justify this statement in relation to biological resource management.
4. Write short notes on:

a. Scope of inland fisheries in Nepal. b.Mineral resource in Nepal.
c. Agenda 21.

5. Differentiate between:

a. Project and programme b. Renewable and non-renewable resources
c. Technical and pecuniary externality

6. Discuss on Nepalese farming system and interrelation between its components.
7. What do you mean by internalizing the externality? Describe the Hedonic Pricing Method of economic valuation.
8. What is the importance of project valuation? Show the steps of evaluation in a flow diagram.
9. Write down the characteristics of land resource. Describe the present land use pattern of Nepal with relevant data.
10. What are the major causes of deforestation in Nepal? Explain the action plans and policies for forest and range land management in Nepal.
11. Highlight the importance of biodiversity conservation. Also discuss in brief the strategies for biodiversity conservation in Nepal.
12. What are the criteria for development of effective environ mental policy? Highlight the major achievements made in 8th five year plan in relation to environment.

FINAL EXAMINATION - 2068

Essay Type Question: 10

1. Explain concept of resource. Describe different categories of resources with suitable examples. Why categorization of resources is generally imperfect? Give reasons.

Short Questions(Attempt any Ten) 10*3=30

2. Define biological diversity. Highlight major causes of worldwide biodiversity loss.
3. Explain strategies of forest management for economic growth of nation.
4. Illustrate interrelationship between Nepalese farming system components. How could it help farmer for economic decision making?
5. Define externality. Briefly describe different types of externality with suitable example.
6. Define pollution. Briefly describe major action plan of current three year interim plan for economic management of environment.
7. Define project cycle. Describe different aspects of project preparation with suitable examples.
8. Briefly describe limitations of non-discounting criteria of project evaluation.
9. Differentiate: a. Public and private goods

b. Monitoring and evaluation
c. IRR and NPV

10. write short notes on (any three):

a. inland fisheries b.watershed
c. maximum sustainable yield d. sensitivity analysis

11. Enlist any ten national rules and regulations for the management of natural resources.
12. Write short notes on (any three):

a. Decentralization b. Program
c. Project identification d.Shadow price

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. What do you mean by externality and what is the importance of internalizing it? Discuss on the methods of measuring externality with suitable examples.

Short Questions(Attempt any Ten) 10*3=30

2. Discuss on dimensions of exhaustible resources. "Ecological optimum may not necessarily be the economic optimum". Justify the statement in relation to biological resource management.
3. How do you identify a potential project in an area? Which appraisal criteria will be appropriate for ranking of accept able, independent alternative projects and why?
4. Enlist the characterizes of Nepalese farming system. Discuss the role of different components of Nepalese farming system.
5. Discuss the issues of land resource management in peri urban area of Nepal in brief.
6. Explain the present situation of forest resource, causes of deforestation and legislative measures on forest management in Nepalese context.
7. Discuss the climate resource of Nepal as boon for agricul tural development of the country with sufficient examples.
8. Depict present situation of livestock resource in Nepal. Explain this resource in relation to land and forest degradation problem and ways of addressing this problem.
9. Describe the importance of biodiversity conservation for sustainable agriculture. Explain role of community on natural resource management with convincing evidences.
10. Enlist criteria for formulation of effective environmental policy. Discuss briefly on Rio declaration on environment and development.
11. Write short notes on (any three):

a. Environmental Accounting
b. Environmental Impact Assessment
c. National Conservation Strategy
d. Nepal Environmental Policy and Action Plan

12. Discuss on types and roles of institutions involved in management of natural resources and environmental protection in Nepal.

FINAL EXAMINATION - 2074

Essay Type Question: 10

1. Conceptualize externality and its internalization. Discuss on different methods of externality measurement.

Short Questions(Attempt any Ten) 10*3=30

2. Define resource and natural resource. Discuss on behav ioral relationship of biomass in relation to ecological and economic optimum.
3. Differentiate between program and project. Discuss with evidences the social and economic aspects of project preparation and analysis.
4. Why is sensitivity analysis of a project is important? Discuss on discounted measures of investment analysis.
5. How project monitoring differs from evaluation? Discuss on steps and types of project evaluation.
6. Define nutrient cycle. Show population and environment relationship in contests of both developed and developing countries.
7. Highlight major environmental concerns in current agriculture development strategy (ADS) of Nepal.
8. Explain the specific challenges for management of land, water and forest resources of Nepal.
9. What do you mean by biodiversity? Discuss on efforts of Nepalese government for biodiversity conservation.
10. What does watershed degradation mean? Explain action plan and polices for land management in Nepal?
11. Explain in brief the different types of institutions involved in natural resource management and environmental protection in Nepal with examples.
12. Write short notes on:

a. Criteria for effective environmental policy
b. National Conservation Strategy (NCS)
c. Climate as boon to Nepalese agriculture

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 3rd Semester F.M. 20
P.M. 8
Subject: Grain Legumes and Oilseed production Time: 1:30 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

EASSY TYPE QUESTION 6

1. Give the differences between rapeseed and mustard with respect to their morphology and agronomical practices. Moreover, compare date wise sequence of activities which are used in spring and summer sown blackgram.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Write about the biochemical processes which occur during root nodule formation in grain legumes.
3. Define the following terms:

a) Inoculation b) Nipping c) Aflatoxin d) Iodine number

4. Write about morphological changes which occur during flowering and pegging in groundnut.
5. Write about the dose of N, P, K fertilizers with their time and method of application used for sunflower cultivation.
6. Explain about water management for soyabean cultivation under irrigated condition.
7. Write short notes on:

a) Seed priming b) Micro nutrient loading

8. What are the purposive differences in land preparation of summer and winter legumes? Explain with reasons.
9. Write about herbicidal weed management used in winter legumes.

FINAL EXAMINATION - 2073

EASSY TYPE QUESTION 6

1. Explain the importance of grain legumes. Grain legumes are said to be the 'mini-fertilizer factory'. Justify the statement.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Suggest the seed rate, spacing, and date of planting in groundnut.
3. Write short notes on:
   a. Land preparation in soybean
   b. Rhizobium inoculation in legumes

c. Pegging in groundnut

4. Give the complete agronomical packages to grow blackgram in brief.
5. What are the major problems of growing rapeseed and mustard in Nepal? Mention on any three major problems.
6. Enlist the various cereal- legumes crop rotation most popular in the terai and hilly regions of Nepal.
7. How will you manage fertilizer in rapeseed and mustard under rainfed and irrigated condition?
8. Giive the most popular released cultivars of rapeseed, mustard, groundnut and sesamum in Nepal.
9. Enlist the major weeds of summer and winter legumes. Also, mention their scientific management.

FINAL EXAMINATION - 2074

EASSY TYPE QUESTION 6

1. Explain the importance of grain legumes in human nutrition, soil fertility improvement and cropping system of Nepal.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Explain the improved cultivation practices on green-gram / moong bean in Nepal.
3. Explain the importance of Rhizobium inoculation in grain legumes.
4. Write the recommended varieties of lentil, chickpea and soyabean in Nepal.
5. Write the cultivation practices of rapeseed and mustard on following headings;

a) Sowing time b) Seed rate c) Spacing
d) Fertilizer and manure e) Irrigation

6. Explain the cultivation practices of sunflower on following heading:

a) Sowing time b) Sowing method c) Seed rate d) Manure and fertilizer

7. Write the importance sesamum crop.
8. Explain the climatic and edaphic factors influencing chickpea cultivation in Nepal.
9. Write short notes on: (any two):

a) Biological nitrogen fixation
b) Different species of rape and mustard grown in Nepal
c) Relay cropping of legumes with rice

FINAL EXAMINATION - 2072

EASSY TYPE QUESTION 6

1. Suggest date wise sequence of activities for cultivation of lentil.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Write about nitrogen fixation in grain legumes.
3. Write difference between toria and mustard.
4. Suggest about seeding time and seed rate of redgram.
5. Write recommended varieties of chickpea with their yield potential.
6. Why tori was replaced by buckwheat in Chitwan instead of juncea?
7. Write about nutrient management in the cultivation of groundnut.
8. Suggest about harvesting of groundnut.
9. Write down five legume based cropping systems.

FINAL EXAMINATION - 2071

EASSY TYPE QUESTION 6

1. The area production and productivity of major oilseed crops are declining in terai region of Nepal give the reasons and possible solution measures.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Enlist the planting date, seed rate and spacing and plant population of soyabean or sunflower.
3. Discuss the importance of grain legumes in human diet.
4. Discuss briefly the importance of pulses in human nutrition.
5. Give the climate and soil requirements of green gram and back gram.
6. Mention the maturity indication of lentil and sesamum.
7. Suggest the scientific ways o fertilizer management in rapeseed and mustard in upland as well as low land conditions of field.
8. Grain legumes production is lesser than cereals, give the reason.
9. Explain the process of flowering and seed formation in groundnut.

FINAL EXAMINATION - 2070

EASSY TYPE QUESTION 6

1. Describe the process of root nodule formation in grain legumes. Also state how and under which conditions we inoculate Rhizobia in legumes.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Discuss the importance of grain legumes in Nepalese cropping system.
3. Write the climatic and edaphic requirements of soybean. Also enlist the varieties of soybean released by NARC.
4. Describe the land preparation and seed sowing of lentil focusing on methods of sowing, crop geometry, seed rate and time of sowing.
5. Describe the weed management in rapeseed and mustard.
6. Write the plant nutrient and irrigation managements in Sunflower.
7. Write the names of recommended varieties of:

a. Rape and mustard

b. Groundnut cultivated in Nepal

8. What are the ways to enhance grain legumes and oilseed yield in Nepal? Describe theem.
9. Write short notes on (any two):

a. Importance of oilseed crops in Nepal

b. Pollination and fertilization in groundnut

c. Major constraints of oilseed production in Nepal

FINAL EXAMINATION - 2069

EASSY TYPE QUESTION 6

1. Discuss the nutrients and irrigation requirements of rapeseed and mustard crops for their optimum yields under inner- terai conditions of Nepal.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Describe the importance of grain legumes in Nepalese agriculture.
3. Enlist the different cultivars of chickpea and lentil with their recommended regions grown in Nepal.
4. Discuss the suitable package of practices of effective weed management for soybean growers.
5. Write manures and fertilizers requirement of chickpea under irrigated and rainfed condition of Mid Terai region of Nepal.
6. List the botanical names of rapeseed and mustard crops grown in Nepal with their uses for various purposes.
7. Write the fertilization process in groundnut crop. How does the pegs get developed into a full matured pod? Explain it.
8. Describe the importance of sesamum in Nepal. Also write its sowing time and seed rate for a hectare.
9. Suggest a package of practices for growing pea for green pod by farmers.

Final examintion- 2068

EASSY TYPE QUESTION 6

1. Suggest datewise sequence of activities for growing mustard in Chitwan.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. What do you know about ennoculation of seed of legumes?
3. Write botanical name of groundnut, lentil and their crop duration.
4. Write about nitrogen and phosphorous management in chickpea.
5. Write recommended varieties of tori and juncea with their yield potential.
6. Why tori production in Chitwan has gone down?
7. Suggest about irrigation management in the cultivation of juncea.
8. Suggest suitable soil and weed management practices for lentil cultivation to farmers of your locality.
9. Write short notes on the followings:

   a. Broomrape in tori b. Uses of brassica oilseed

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INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 3rd Semester F.M. 40
P.M. 16
Subject: Introductory agrometeorology Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Describe the effects of intensity, duration and quality of solar radiation on crop production. Explain the factors affecting actual evapotranspiration demand of a crop.

Short Questions(Attempt any Ten) 10*3=30

2. What is pressure gradient? How does pressure gradient determine the speed and direction of wind?
3. Describe briefly the different types of instruments used for precipitation measurement with their simple sketches.
4. How can modification of climate at micro-level be achieved? Describe briefly.
5. How can the study of agrometeorology help agriculture sector? Describe with examples.
6. Explain the significance of soil temperature in crop production with necessary examples.]
7. Compare agroclimatic regionalization and crop zonation.
8. Describe the structure of earth atmosphere.
9. Explain the factors affecting wind motion.
10. What are the relationship among green house effect, global warming and climate change? Explain.
11. Define relative humidity. What is the significance of humidity in agriculture?
12. Explain the factors affecting soil moisture.

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. Discuss the basic laws of solar radiation. Explain the major effects of solar radiation on crop plants.

Short Questions(Attempt any Ten) 10*3=30

2. Discuss the different layers of atmosphere in brief.
3. Explain with the help of diagram the variation of soil temperature during day and night period.
4. Define growing degree day (GDD) and mention its various advantages. Describe the concept behind growing degree day.
5. What climatic factors are considered while estimating the evapotranspiration by penman;s method?
6. Discuss Beaufort's scale of wind estimates and measure ment of wind direction by wind vanes.
7. Discuss briefly the process of formation of precipitation.
8. Discuss the important normal for the production of rice from arometeorological point of view.
9. How can heat balance be controlled in the agricultural field?
10. Explain the greenhouse effects on agriculture production.
11. Explain the effects of humidity on plant growth and development.
12. Determine the evapotranspiration for maize if climatic conditions are as given below, use Blaney-criddle formula with crop factor of 0.75.

Month	Mean monthly temp. in degree celcius	Monthly % of day time Hrs.
June	36	8.30
July	33	8.21
August	30	8.20
September	28	8.15
October	25	8.00

FINAL EXAMINATION - 2073

Essay Type Question: 10

1. How diurnal and seasonal temperature variation occurs in atmosphere and in soil? give their significances of atmospheric and soil temperature in crop production. Explain how soil temperature is measured.

Short Questions(Attempt any Ten) 10*3=30

2. Write with sketch on extent and structures on earth atmosphere.
3. Give the nature and properties of solar radiation.
4. How do human influences on changes in climate, global warming and crop production?
5. How wind speed and direction are measured?
6. Explain the pressure gradient and give concept about mercurial barometer.
7. Write significance of atmospheric humidity in crop production.
8. Sketch the clear diagrams of a non-recording type rain gauge and any two of recording type rain gauges.
9. Explain what does mean permanent wilting percentage? Give significance of soil moisture in crop production.
10. Write the agrometeorological normals for wheat, sugar cane and cotton.
11. Give the concept of wind modification and shelter belt.
12. Explain on agroclimatic regionalization and crop zonation.

Back examination 2072

Essay Type Question: 10

1. Discuss the basic radiation laws related from solar radiation. What are the major effects of solar radiation on crop plants?

Short Questions(Attempt any Ten) 10*3=30

2. Define ambient temperature, temperature lapse and temperature inversion. Mention the effect of air temperature on crop plant.
3. What is Bimetallic Thermograph? How it is used to measure air temperature.
4. Define temperature coefficient (Q10). What are its demer its?
5. Discuss the various effects of wind on crop plants.
6. Discuss different processes of formation of precipitation.
7. What climatic factors are considered by pen0plan for estimation of evapotranspiration?
8. Discuss the climatic normals of rice in context to Nepal.
9. Discuss various forms of soil water. Discuss the methods of increasing soil moisture in crop zone.
10. Explain the effects of global warming on yield of rice.
11. Name the different layers of atmosphere. Describe the important features of troposphere.
12. Explain the effect of humidity on plant?

Final Examination 2071

Essay Type Question: 10

1. Define solar radiation. How does solar radiation affect the crop production?

Short Questions(Attempt any Ten) 10*3=30

2. Describe the instrument used in measurement of sunshine duration.
3. Define agrometeorology and discuss its importance in agricultuture.
4. What is evaporation? What are the factors affecting it? Describe briefly.
5. Write about the floating siphon gauge.
6. Define saturation capacity, field capacity, permanent wilting point, ultimate wilting point.
7. Define agroclimate, agroclimatic regionalization and agroclimatic index.
8. What is hair hygrometer? Describe.
9. List the factors affecting wind motion. How does horizon tal pressure gradient affect the wind direction and velocity.
10. Explain about Thiessen Polygon method to determine average rainfall over an area.
11. What is climate change? Discuss its effect on agriculture sector briefly.
12. Write short notes on:

a. Coriolis force
b. Temperature inversion
c. Consumptive use

Final Examination 2070

Essay Type Question: 10

1. Discuss the roles of human influence on climate change. What are the meteorological indicators of climate change? What microclimatic modification techniques can be adopted to cope its effect in the Nepalese context?

Short Questions(Attempt any Ten) 10*3=30

2. Define agromeorology related the modern approach of agrometeorology in the relevance to developing country.
3. Enlist the instruments used to measure solar radiation quality, duration and instensity. Why bimetallic actinogra phy is superior to solarimeter?
4. Draw a graphical sketch of diurnal and annual variations of air temperature. Write the importance of growing degree day in crop production.
5. Discuss the thermal properties of soil which affect soil temperature. Enlist the importance of soil temperature in agriculture.
6. Differentiate between actual and potential evapotranspira tion. Which instrument is the best for measurement rate of evapotranspiration and whY?
7. Explain collision coalescence theory. Write any three differences between recording and non-recording types of rain gauge.
8. Classify soil water on the basis of soil moisture constant. Hills of Nepal receive more orographic precipitation while in Terai convective precipitation why? Mention the reasons.
9. What is the role of coriolis force in geostrophic wind? Explain the mechanisms of cyclone and anticyclone.
10. Show the relationship between specific humidity and temperature. Enlist the instruments used to measure humidity and explain any one of them.
11. Write short notes on (any three):

a. Relative humidity and saturation vapour pressure
b. Penman's equation c.Kirchoff's law
d. Temperature inversion and lapse rate

12. Draw the temperature variations in different layers of atmosphere and describe the reasons.

Back examination 2069

Essay Type Question: 10

1. What is precipitation? Discuss its forms and types in detail with examples. Also mention its importance in agriculture.

Short Questions(Attempt any Ten) 10*3=30

2. Define evapotranspiration. Wyt is it considered as cooling process>? Describe the effect of cooling process on agricultural crops.
3. Discuss the scope of agrometeorolgy on crop production.
4. State the Kirchoff's law of radiation and its applicability in agriculture.
5. Differentiate among absolute humidity, specific humidity and its applicability in agriculture.
6. Describe in brief the coriolis force. How does it affect the wind motion?
7. How does annula variation of air temperature occur? Describe the effects on crop production.
8. How does variation of soil temperature occur with depth? Discuss it with reference to various soil types.
9. Define climatic normals. Mention the climatic normals of rice.
10. Explain the importance of microclimate modification in agriculture.
11. Distinguish between agroclimatic index and agroclimatic regionalization.
12. Describe the functions and working principles of bimetal lic thermograph in agriculture.

Back examination 2068

Essay Type Question: 10

1. Define solar radiation. How does solar radiation affect the crop production?

Short Questions(Attempt any Ten) 10*3=30

2. Describe the instrument used In measurement of sunshine duration.
3. Define agrometeorology and discuss its importance in agriculture.
4. What is evapotranspiration? What are the factors affecting it? Describe briefly.
5. Write about the floating siphon rain gauge.
6. Define saturation capacity, field capacity, permanent wilting point, ulitimate wilting point.
7. Define agroclimate, agroclimatic regionalization and agroclimatix index.
8. What is hair hygrometer? Describe.
9. List the factors affecting wind motion. How does horizon tal pressure gradient affect the wind direction and velocity?
10. Explain about Thiessen Polygon method to determine average rainfall over an area.
11. What is climate change? Discuss its effect on agricultural sector, briefly.
12. Write short notes on:

a. Coriolis force
b. Temperature inversion
c. Consumptive use

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 3rd Semester F.M. 40
P.M. 16
Subject: Environment Science and Agro-ecology Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Define climate change. What are the causes of climate change? What are the various adaption and mitigation strategies to cope against climate change?

Short Questions(Attempt any Ten) 10*3=30

2. What is human environment interaction? Explain.
3. Define ecosystem. Why is agro-ecosystem called as human engineered ecosystem?
4. What is ecological pyramid? Why is pyramid of energy always upright?
5. What are POPs? What are the effects of long term use of agrochemicals?
6. Define people's participation. What are its various types?
7. What is EIA? Explain about matrix method to impact identification.
8. Why is home garden said to be appropriate in Nepalese context?
9. State water balance equation. How is it different in areas with vegetation and without vegetation?
10. What is sustainability? How will you analyze the sustainability of a farm?
11. Explain the ecology of multiple cropping.
12. Define: (answer any three)

a. Eutrophication b. LD 50
c. Disease cycle d. Living mulch

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. Explain the three-fold relationship between agriculture and climate change: agriculture as a contributor to climate change, impacts of climate change on agriculture and agriculture as a part of climate change solution.

Short Questions(Attempt any Ten) 10*3=30

2. Define environmental science. Explain the interrelationship between human and environment.
3. Enlist global environmental issues and explain any two of them.
4. Write short notes on:

a. Soil erosion b. Eutrophication
c. Types and sources of water pollution

5. How does IEE differ from EIA? What are the steps of EIA? Explain in brief.
6. Enlist Nepal's environment rules and regulations? Explain the people participation in environment management.
7. Write a few examples of the interrelationship between agro-ecology and agricultural productivity.
8. What are the structures and functions of an agro-ecosystem? Explain.
9. Write short notes on:

a. Trophic level b. Food web c. Ecological pyramid

10. Describe agro-ecology of the following production systems:

a. Multiple cropping
b. Minimum tillage
c. Crop production

11. Does the present agricultural system of Nepal is sustain able? Give your argument with examples
12. How does crop interact with weeds and pests? Explain.

FINAL EXAMINATION - 2074

Essay Type Question: 10

1. Define environment impact assessment and short description on each process. Give short notes on descriptive checklist method for identification of environment impact.

Short Questions(Attempt any Ten) 10*3=30

2. What should be the strategies and requirements for sustainable agriculture in our context?
3. Define ecosystem. What is your inference that any ecosystem having less primary productivity would have shorter food chain?
4. What do you understand by population ecology? Describe briefly the interactions of agricultural crops with pathogens and pest populations.
5. What is climate change and its consequences on environ mental sectors?
6. 'Organic farming system is an eco-friendly system'. Justify this statement.
7. Define air pollution and types of air pollutants and their effects on agro-ecosystem.
8. 'Active participation of local people is the root for sustain able development'. Justify this statement with examples.
9. Analyze the sustainable farming system.
10. Write short notes on:

a. People's participation in environment management
b. Ecological processes
c. Deforestation and its impacts on environment

11. Define any three of following:

a. Bioaccumulation and bio-magnification
b. Eutrophication, its causes and controlled measures
c. Farmers and their environment
d. Primary and secondary productivity

12. Write short notes on any three:

a. Pyramid of biomass in pond ecosystem
b. Pesticide use and abuse c.Ecology and agro-forestry
d. Effect of different management on dynamics of pest population.

FINAL EXAMINATION - 2072 (back paper)

Essay Type Question: 10

1. What are the challenges of sustainable agriculture? Write down about sources of pollution (soil and water) and their impacts on agro-ecosystem.

Short Questions(Attempt any Ten) 10*3=30

2. What are the problems and opportunities of sustainable agriculture?
3. Write about organic farming systems in agro-ecology.
4. What do you mean by dynamics of pest population and what should be the management strategies?
5. How crop response to environment factors?
6. What are the biotic and abiotic components of a hill based maize farm? List only.
7. Give nutrient cycling process and food chain I agriculture.
8. Briefly explain about the interrelationships of agricultural ecology with agricultural productivity.
9. How environment impact assessment in framed?
10. How do you link global warming and agricultural production?
11. What are the environment issues of Nepal?
12. Give brief definition of environment management strategies.

FINAL EXAMINATION - 2071

Essay Type Question: 10

1. What do you understand by pollution and pollutants? What are the different types of pollution and how do you define them?

Short Questions(Attempt any Ten) 10*3=30

2. What is global warming? Give various sources of global warming effects. Describe in short its adverse effect on agriculture production.
3. What is Eutrophication? Give different methods to stop eutrophication.
4. Give only definition of following (any four only)

a. Soil erosion b. Population c. Urbanization
d. Deforestation e. Pet animals f. Ecological pyramids

5. Mention briefly the conservation strategies used in Nepal for environment management.
6. Define agro-ecosystem. Give biotic components influencing the agro-ecosystem.
7. Give short notes on nay three of the following:

a. Shifting cultivation b. Crop rotation c. Organic farming
d. Water balance e. Minimum and zero tillage

8. Briefly describe the interaction of crops with weeds and pathogens.
9. Give a list of requirements essential for sustainable agriculture and mention a list of any of weeds of any crop field of Nepal.
10. What is environment impact assessment? Describe briefly its methods.
11. Define food chain and food web. Describe ealso the various types of food chain which exist in nature.
12. Discuss the following terms(any three only)

a. Agro-ecology b. Climate change c. Energy flow
d. Water contamination e. Nutrient cycle

Year:2069

Essay Type Question: 10

1. What are the major factors responsible for causing changes in agricultural ecosystems? Discuss the impacts of agro-ecosystem dynamics on crops and their pests.

Short Questions(Attempt any Ten) 10*3=30

2. Define" environment science" and "agro-ecology". Explain the role of environment studies in agriculture.
3. What are the different issues related to the environment? Discuss briefly about the most important environmental issues.
4. Discuss the impact over use of pesticide in agriculture.
5. What is EIA? Briefly explain the steps.
6. Write a short note on impact of climate change on agriculture.
7. What are the importance of people's participation in environment management.
8. What do you understand by farmhouse or home garden ecology? Discuss the inter-relation between different components that exists in a farmhouse or home garden.
9. Explain briefly any three of the following:

a. Ecological pyramid b.Food chain
c. Food web d.Trophic level

10. What are the major organizations working in the field of environment science? Write the contribution of any one of them.\
11. What is organic farming? 'Organic farming is important for conserving soil health', justify your answer with suitable examples.
12. What are the challenges of sustainable agriculture? How do you convert those challenges into opportunities? Write your answer in concise way.

Year: 2070

Essay Type Question: 10

1. Why is climate change known as contemporary issue of global world? Explain. Elaborate its impacts on agriculture with some adaptation examples.

Short Questions(Attempt any Ten) 10*3=30

2. How are human and environment interrelated? Show their synergetic relations.
3. Why is agro-ecosystem also known as human engineered ecosystem? Explain.
4. What do you understand by farm house ecology? Show the interrelationship among its components.
5. What are POPs? Discuss the pesticide misuse.
6. Why is EIA needed? What are its guiding principles?
7. How does interaction of crops with crops with weeds and insects take place?
8. Define people's participation. Discuss the different types of people's participation.
9. What are the strategies to be followed for social stability? Explain.
10. Enlist the goals for sustainable production system. Compare among natural, conventional and sustainable agro-ecosystem.
11. How is analysis of sustainable farming system done? Discuss.
12. Write short notes on (any three):

a. IPM
b. Type of competition by mechanism
c. Monitoring
d. Applied ecology

Year: 2068

Essay Type Question: 10

1. What are the environmental issues? Mention various types and sources of pollutants and also give at least five diseases caused by water microbial pollutants?

Short Questions(Attempt any Ten) 10*3=30

2. Define agro-ecosystem. Give the biotic components of any agro-ecosystem of Nepal.
3. Give only the definition of the environment, deforestation, urbanization, garbage, rubbish, and population.
4. What is greenhouse effect? Give the various sources of green-house gases. What can be the effects of the global warming?
5. What is eutrophication? What the methods to stop eutrophication?
6. Define food chain and food web. Give a list of various food chains which exist in nature.
7. Mention various conservation strategies for biological and physical stability in Nepal.
8. Give short notes on any three:

a. Shifting cultivation b. EIA c. Water balance
d. Agro-ecology

9. Briefly describe the interactions of crops with weed and pathogens.
10. Mention briefly the conservation strategies used in Nepal for environment management.
11. What do you mean by climate change? Discuss its impacts on agriculture.
12. Give a list of requirements essential for sustainable agriculture and mention a list having at least fifteen weeds of any crop fields of Nepal.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 3rd Semester F.M. 40
P.M. 16
Subject: Introductory entomology Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Enlist the family of order Coleoptera with example. Write the important characteristics of order Diptera and Homoptera.

Short Questions(Attempt any Ten) 10*3=30

2. Define entomology. How smaller size of insect help to dominance in this world?
3. Describe the beneficial aspects of insects.
4. Define cuticle. Describe the integument of insect with figure.
5. Enlist the different mouth parts modification of insect. Describe the biting and chewing type of mouth part with suitable example.
6. Define ommatidia. What might be the role of number of ommatidia in insect? How compound eye of insect is differ with simple eye?
7. Describe the abdominal appendages of insect with appropriate diagram.
8. Define metamorphosis. Describe the different type of metamorphosis in insects.
9. How honeybee is manage in winter and summer season?
10. Enlist the organs involved in the process of excretion in insect. Describe the function of Malpighian tubules of insect.
11. Enlist any seven holometabolous type of insect order with examples.
12. Write the difference between following:
    a) Caterpillar and Semilooper b) Halter and Hamuli
    c) Chilopoda and Diplopoda

Back examination- 2074

Essay Type Question: 10

1. Define metamorphosis. Describe different types of metamorphosis with examples.

Short Questions(Attempt any Ten) 10*3=30

2. Define the followings:
    a) Entomology b) Insect c) Ecdysis
3. Differentiate between Hypognathous head and ophisthognathous head.
4. Distinguish between apposition image and super position zimage.
5. Give six modification of legs of insect with examples.
6. What is venation? Draw a labelled diagram of typical wing venation of an insect.
7. Draw and label a neat diagram of digestive system of an insect and mention major function of each part.
8. Draw and label a neat diagram of male reproduction system of an insect and mention major function of each part.
9. Mention the names of fifteen orders of insect with examples.
10. Enlist six important characteristics of the order Hemiptera or Lepidoptera and mention five families of economic importance with examples.
11. How would you recognize workers, droves and queen of honeybees? Give their characteristics.
12. Write the systematic position of Honeybee, silkworm and lac insect.

Final examination- 2073

Essay Type Question: 10

1. Define entomology. What are the reasons for the domi nance of insects over other animals? Explain in details with examples.

Short Questions(Attempt any Ten) 10*3=30

2. What is cuticle? Write on hardening of cuticle.
3. Write on six modifications of insect legs with suitable examples.
4. Explain complete metamorphosis with examples.
5. Draw and label a neat diagram of male reproductive system of an insect and mention function of each part.
6. What is "Binomial Nomenclature"? Write the systematic position of honey bee.
7. Write down the lifecycle of mulberry silkworm.
8. Draw a typical insect wing and label longitudinal cross-veins.
9. Enlist oligo-pod and polypod type of insect larva with examples.
10. Write six important characteristics of the order "Co leoptera" and mention five families of economic impor-tance with examples.
11. Differentiate between chewing biting and chewing lapping types of mouth parts.
12. Write short notes on: a) Haemolymph b) Isoptera-termite

Final examination- 2072

Essay Type Question: 10

1. Define entomology. Insects are the successful group of organisms in the world. Justify with example.

Short Questions(Attempt any Ten) 10*3=30

2. Human's perception towards insects is negative but actually they have more beneficial effects than negative, how?
3. Enlist non-stylet types of insect mouth parts and which type of insect's mouth part is mainly responsible for disease transmission and how?
4. Draw a well labelled diagram of insect antennae and enlist its modifications with an example.
5. Draw a well labelled diagram of typical insect wing including venation.
6. Enlist abdominal appendages of insect and explain about the genital appendages.
7. Enlist forms of larvae with appropriate example of each.
8. Enlist the orders of endopterygota division and mention seven distinguishing characteristics of order Coleoptera and Diptera.
9. Define beekeeping and explain about its importance.
10. Draw a well labelled diagram of insect digestive system and describe briefly about its digestion process.
11. Differentiate between:
    a. Compound eye and simple eye b. Quiescense and Diapause c. Hemimetabolous and Holometabolous
12. Short notes on:
    a) Integument b) Prognathus c) Cerci

Final examination- 2070

Essay Type Question: 10

1. Enlist the modified mouth parts of insects with example. Describe with figures the typical mouth parts of grass hopper.

Short Questions(Attempt any Ten) 10*3=30

2. Draw and label a neat diagram of male reproductive system of an insect and describe in brief the major parts with their functions.
3. Enlist five types of antennae of insects with figure and one example of each.
4. Define metamorphosis and mention it types in insects with examples.
5. Classify insect larvae with one example of each.
6. Mention the list of abdominal appendages with one example of each.
7. List the orders of endopterygota division with one example of each.
8. Enlist any five major characteristics of order Hemiptera and also mention any five families of this order with examples.
9. Draw and write the names of longitudinal and cross veins of a typical wing.
10. Mention any five bee species that collect honey and the castes of honey bee.
11. Write short notes on:
    a. Mimicry b. Mesothorax c. Pseudo legs
12. Differentiate between (any three):
    a. Saltatorial and Raptatorial legs
    b. Nymph and Naiad
    c. Apposition and Superposition

Final examination- 2068

Essay Type Question: 10

1. What are the reasons for the dominance of insects over other animals? Explain with examples.

Short Questions(Attempt any Ten) 10*3=30

2. Differentiate between the followings:
    a. Arachnida and crustacea b. Connectives and commissures
3. Write short notes on:

a. Entomology b. Tergum c. Excretion d. Spiracle

4. Draw and label a neat diagram of digestive system of an insect.
5. Give six modifications of antennae with examples.
6. Give six modifications of wings with examples.
7. Draw and label a neat diagram of female reproductive system of an insect.
8. Explain the complete metamorphosis with examples.
9. Give six important characters of the order "Heteroptera" or "Coleoptera". Mention five families of the order with examples.
10. Write the names of fifteen orders (not mentioned in this question paper) of insects with examples.
11. Mention the names of six appendages of abdomen of insects with examples.
12. Give the systematic positions of honey bees, silkworm and lac insects. What are the advantages of beekeeping?

Final examination- 2069

Essay Type Question: 10

1. Define the term insect and entomology. Explain the reasons of insect dominance over other living beings in the world with suitable examples.

Short Questions(Attempt any Ten) 10*3=30

2. Briefly describe the major parts of integument with a well labelled diagram.
3. What are the functions of insect antennae? Also briefly describe the major parts of a insect antennae.
4. Enlist the modified insect legs with a diagram and a specific function of each.
5. What do you mean by insect classification? Enlist ten important insect orders with an example of each.
6. Explain the complete metamorphosis with an illustration.
7. Draw and label a diagram of insect digestive system.
8. Briefly describe the piercing and sucking type of mouth part of an insect with the help of a well labelled diagram.
9. Enlist distinguishing characteristics and five important families, with examples, of the order Coleoptera or Hymenoptera.
10. What do you mean by industrial entomology? Explain in brief about the life cycle of silkworm.
11. Write short notes on (any three):
    a. Photoreceptors b. Halter c. Cerci d. Types of larvae
12. Differentiate between (any three):
    a. Butterfly and Moth b. Thoracic legs and pseudo-legs
    c. Homoptera and Hemiptera d. Apposition and Superposition

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FINAL EXAMINATION - 2074 (Back Paper)

Level: B.Sc. Ag. 3rd Semester — F.M. 40, P.M. 16
Subject: Introductory Genetics — Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. In maize, F1 heterozygous plants were test crossed with colourless, shrunken, waxy plants and the following types of progeny were obtained.
   CfS 50, cFs 46, CFs 383, cfS 380
   Dfs 72, cFS 68, CFS 6, cfs 5
   Symbols: coloured= C, colourless= c, full= F, shrunken= f, starchy= S, and waxy= s
   i) Are these genes linked? Give reason.
   ii) Write the genes in correct order on the chromosome.
   iii) What are double crossover, non- crossover and single crossover types?
   iv) Write the genotypes involved in the parental and test crosses.
   v) Draw a linkage map showing map distances.
   vi) Calculate Coefficient of coincidence (CC) and interfer ence (I). Interpret the value.

Short Questions(Attempt any Ten) 10*3=30

2. Explain sex determination in animals with example.
3. Calculate gametic and phenotypic frequencies of AAaa individual after selfing. Also, write the types of genotype and phenotype.
4. Differentiate between mitosis and meiosis cell divisions. Write down their significance.
5. Mention steps of DNA replication. Write down the properties of genetic code.
6. Present complete diagram of a cross between tall round variety and dwarf wrinkled peas. Summarize the expected results up to second filial generation.
7. What is Gametogenesis? Describe the life cycle of maize diagrammatically.
8. Differentiate between auto and allo polyploidy. Write applications of haploid in crop improvement.
9. Explain in brief about Lac operon system in E. coli.
10. Two plants for one trait are crossed and the F1 is pro duced. The F1 is self fertilized and F2 is obtained. The data of F2 is given below. Perform chi-square test for goodness of fit and interpret the result. (Tabulated chi-square value at 1 d.f. = 3084)
    Round: 165, Wrinkled: 35
11. In papaya, what kinds of progeny will occur by crossing (i) male and female plants, (ii) female and hermaphrodite plants and (iii) selfing of a hermaphrodite plant? And in what proportions?
12. Define cytoplasmic inheritance and maternal effect. How cytoplasmic inheritance differs from nuclear inheritance?

Essay Type Question: 10

1. Explain in detail about Mendel's law of inheritance with the help of appropriate examples and crosses. If you had a plant that was of phenotype A_B_, what test would you conduct to determine whether it was AABB or AaBB or AABb or AaBb? Explain logi-cally.

Short Questions(Attempt any Ten) 10*3=30

2. What is cell cycle? Write in short about meiosis cell division with figures.
3. What is sporogenesis and oogenesis? Diagrammati cally show, how gamete formation takes place in life cycle of maize.
4. If a man of blood group AB marries a man of blood group A whose father was of blood group O, to what different blood groups can this man and woman expect their children to belong?
5. What is "Central dogma of biology"? How Eukary otic transcription differs from that of prokaryotic? Explain with the help of figures.
6. Calculate gametic and phenotypic frequencies of AAaa individual after selfing. Also, write the types of genotype and phenotype.
7. What do you mean by extra nuclear inheritance? Explain with the help of example. Write down the characteristics of cytoplasmic inheritance.
8. The two pairs of alleles are linked on chromosome two in tomato. A test cross between a heterozygous smooth round pistilate plant and a peach elongate staminate one produced the following progeny. Smooth round 420, peach round 57, peach elongate 460 and smooth elongate 63.
   i) Which are the crossover and non-crossover progeny?
   ii) What is the map distance in the map units be-tween these two loci?
9. What are the transposable genetic elements? Write down features and significance of transposons.
10. In chicken, the gene h, distinguishes hen feathering from cock feathering. If a cock feathered male was mated to a hen feathered female (HH), what pat-terns of feathering might be expected between the (i) male F2 and (ii) female F2 progeny.
11. A heterozygous plant for two genes is self-fertilized and in F2, the following seeds are observed. Perform chi-square test for goodness of fit and interpret the result. (Tabulated chi-square value at 3d.f. = 7.81) round yellow: 315, round green: 108, wrinkled yellow: 101, wrinkled green: 32
12. Explain sex determination in plants with suitable examples.

Final examination- 2073

Essay Type Question: 10

1. Define central dogma of biology. Explain in detail about how DNA transcribe a messenger RNA and its translation to amino acids. Also list out significance of Replication.

Short Questions(Attempt any Ten) 10*3=30

2. Define genetics. How do you correlate life cycle of any crops with it?
3. Sketch diagram and briefly explain the major events that occurs during meiotic cell division.
4. Explain about Mendel's laws of inheritance.
5. What are sex limited and sex linkage traits? Explain with suitable example.
6. Define male sterility. Discuss its significance in crop science.
7. What do you mean by linkage? If two persons het erozygous for albinism have four children. What is the probability that three will be normal and one albino? (Albino phenotypes appears in recessive condition).
8. Explain briefly about sex determination in papaya. Present suitable example of role of environment in sex determination.
9. What are transposable genetic elements? Explain in detail.
10. Define mutation and mutagen. Classify them.
11. Discuss about genetic control mechanism in prokary otes with the help of Lactose metabolism.
12. Calculate the gametic and phenotypic frequencies of following individuals after selfing. Also, write the types of genotype and phenotype.
    a. AAa b. AAaa

Final examination- 2071

Essay Type Question: 10

1. Explain in detail about Mendel's laws of inheritance with the help of suitable examples.

Short Questions(Attempt any Ten) 10*3=30

2. Diagram and briefly state the major events that occur during meiotic cell division.
3. If a man of blood group A marry a woman of blood group B whose father was of blood group AB, what different blood groups their children belong to? Also, what may be the probable blood group(s) of the woman's mother?
4. Non red hair (R) is dominant over red hair (r). Black skin color (B) is dominant over white skin color (b). Tall (T) is dominant over short (t). If a man who is heterozygous for all characters marry a short, white skin woman having homozygous non red hair character, find the chance of obtaining their first child (i) a tall white skin non red hair girl (ii) a short black skin red hair boy.
5. Write about semi-conservative mode of DNA replication.
6. What is gene interaction? Write about the types of epistatic gene interaction with suitable examples.
7. In maize, recessive gene ba produces barren cob and ts gene converts male flower into female flower. Ba and Ts are the dominant genes give the normal cob and male flowers, respectively. A genetician working in the IAAS crossed a plant having genotype Baba Tsts with other plant having genotype BaBa Tsts. Show this cross and determine the sex expression in the progeny.
8. The recessive gene e, produces color blind in human, which is sex linked gene. A carrier woman of this gene married a color blind man and produced first child, a normal vision klinefelter but in the second time this couple gave birth a color blind daughter. How such klinefelter and daughter may be produced? Show with the help of clean diagram.

Final examination- 2072

Essay Type Question: 10

1. Explain in detail about Mendel's laws of inheritance with the help of appropriate example.

Short Questions(Attempt any Ten) 10*3=30

2. Diagram and briefly state the major events that occur during meiotic cell division.
3. What is gene interaction? Write about the types of epistatic gene interaction with suitable examples.
4. Black colour is dominant over white. A man hetero for body colour married with white woman and is expecting 4 children. Find the probability of obtaining: (a) one black boy and three white girls (b) all white girls (c) two black boys and two black girls (d) all black children.
5. Write about semi-conservative model of DNA replication.
6. What is the maternal effect? Present (dextral female and sinistral male) coiling in water snail mentioning (a) genotype of parent, F1, F2 and F3 progeny (b) the genotypic and phenotypic ratio of F1, F2 and F3 progeny.
7. What do you mean by Translation? Discuss the step involving translation.
8. What is mutation? Classify mutation on different bases.
9. Explain the type of chromosome inversion. What is its genetic effects?
10. What are the transposable genetic elements? Give your logic on gene expression.
11. What is the gene regulation? What do you mean by positive and negative transcriptional control?
12. Write short notes on (any three):
    a) Cell cycle b) Scope of genetic c) Genetic code d) Pachytene

9. What is mutation? Classify mutation on different bases.
10. What are transposable genetic elements? Give your logic how those elements can affect the gene expression.
11. An autotetraploid plan is heterozygous for two gene loci, YYyy and DDdd. Dominant Y and D genes govern high yielding and disease resistant traits respectively. These genes are located on a different set of homologous chromosomes. If dominance is complete, how many progenies of this autotetraploid will you expect for both traits, high yielding and disease resistant?
12. Write short notes on (any three):
    a) Cell cycle b) Scope of genetics c) Genetic code d) Chromosome inversion

Final examination- 2070

Essay Type Question: 10

1. A dominant gene (B), in maize, produces brown pericarp, and its recessive allele (b) produces colorless pericarp. Tissue adjacent to pericarp is alerone, which is triploid. The purple pigment is deposited in the aleurone when dominant (C) is present, its recessive allele (c) results in colorless aleurone. The color of the endosperm itself is modified by a pair of alleles. Yellow is governed by the dominant allele, Y, and white by the recessive allele y. both C and Y show xenia to their respective alleles. A plant which is bbCcYy is pollinated by a plant of genotype BbCcYy.
   (a) What phenotypic ratio is expected among the progeny kernels?
   (b) If the F1 is pollinated by plants of genotype bbccyy, in what proportions color ratio will the resulting F2 kernels be expected to occur?

Short Questions(Attempt any Ten) 10*3=30

2. What is apomixes? What is the benefit of apomictic rice?
3. In mammals, including humans, a fixed sex ratio is maintained. Explain the genetic mechanism.
4. In tomatoes, a cross between normal (LfLf) and inflores cence leaf (lf lf) was made, then a test cross was per formed, producing 20 offsprings. Fourteen of them were normal type and 6 were inflorescence leaf type. Using binomial expression, calculate its probability.
5. Differentiate between repulsion and coupling phases of linkage. Provide examples.
6. Draw a well labelled diagram of DNA molecule.
7. Give (at least) 5 points differentiating mitosis from meiosis.
8. Mean and variance of heights among the girls and boys students varied significantly in your class. What may be the possible reasons?
9. What is the reason of obtaining hermaphrodites in goat population in Chitwan? Explain.
10. What is the importance of DNA replication? Explain.
11. What do you understand by gene regulation? Explain.
12. There are 2 types of segregation in polyploids. How do they produce a different gametic ratios? Describe.

Final examination- 2069

Essay Type Question: 10

1. Female F1 maize heterozygous for tall producing round and starchy seed was test- crossed and the following progenies were obtained.

Tall round starchy :10	dwarf shrunken waxy : 05
Tall shrunken waxy : 300	dwarf round starchy : 350
Tall round waxy :70	tall shrunken starchy : 135
Dwarf round waxy : 70	dwarf shrunken starchy : 60

i. Is there linkage between genes?
ii. Draw a linkage map of the linked genes showing the correct genes order and their map distances.
iii. What are double crossover, non crossover and single crossover types?
iv. Write the genotypes of flies involved in the parental and test crosses.
v. Diagram the cross showing the arrangement of the genetic markers on the chromosomes.
vi. Calculate I and CC and interpret the results.

Short Questions(Attempt any Ten) 10*3=30

2. Black skin colour (B) is dominant over white skin colour (b). Tall (T) is dominant over short (t). If a man who is heterozygous for both characters marry a short and white skin woman, find the chance of obtaining (i) a tall black skin girl and (ii) if this couple expect to obtain 5 children, what is the chance of obtaining three tall black boys and two short white girl?
3. Tall is dominant over dwarf and round is dominant over wrinkled. Mendel crossed tall wrinkled and dwarf round seeded pea and found the following F2 progenies. Test each for goodness of fit and indicate whether it is signifi cantly different from 9:3:3:1 ratio or not. The chi-square value at 0.05P against 3 df is 7.8.
   Tall round: 100, Tall wrinkle: 20, Dwarf round: 30 and Dwarf wrinkle: 10
4. Hemophilia in human is a sex-inked character. A normal woman whose father had hemophilia married a normal man. What is the chance of occurring hemophilia in their children? If this couple wishes to get first two boys, what is the chance of occurring hemophilia in both boys?
5. In dogs dark coat colour (D) is dominant over albino (d), and short hair (S) is dominant over long hair (s). These effects are caused by two independently segregating gene pairs. A dark short dog is crossed with a dark long dog and found the following progenies.
   Dark short: 29, albino long: 11, Dark long: 38, albino short: 12
   Find the probable genotypes of the parents.
6. In summer squash, fruit may be white, yellow or green. In one case the cross of Yellow X White produced an F1 of all white fruited plants. The F1 is selfed and F2 progenies were found as 135 White and 105 Yellow phenotypes, explain the results giving genotypes of the parents, F1 and F2 of this cross.
7. In papaya, sex determination is governed by a single gene. Single gene with three alleles controls the sex differentiation. What kinds of progeny will occur by crossing (i) male and female plants, (ii) female and hermaphrodite plants (iii) selfing of a hermaphrodite plant? and in what proportions?
8. Explain in brief about transformation.
9. How Turner and Kilnefelter syndromes are appeared? Explain with the help of suitable diagrams.
10. What is maternal effect? Briefly explain with the help of suitable example.
11. Explain in brief about transcription process in prokaryotic individuals with the help of suitable figure(s).
12. The transposable genetic elements, **Ac** and **Dc**

Final examination- 2068

Essay Type Question: 10

1. Female maize heterozygous for coloured (Cc), tall (Tt) and starchy (Ss) were test- crossed and the following progeny were obtained.

Coloured tall starchy 75	colourless dwarf waxy 68
Colourlesss tall starchy 320	coloured dwarf waxy 330
Coloured dwarf starchy 80	coloured tall waxy 20
Colourless tall waxy 77	colourless dwarf starchy 30

Answer the following questions:

a. Construct a linkage map showing the correct order of genes and the map distances between adjacent genes.
b. Write the genotypes of parents, F1 and test crossed progenies.
c. Which are non crossover, single crossover and double crossover types?
d. Calculate coefficient of Coincidence and Interference and interpret the results.

Short Questions(Attempt any Ten) 10*3=30

2. An individual has two homologous pairs of metacentric chromosomes. Draw metaphase, anaphase and telophase plates of mitosis cell division. How many chromosomes will be present in daughter and parental cells of such individual?
3. If a man of blood group A married a woman of blood group B whose father was of blood group O, what different blood groups their children belong to? Also, what was the probable blood group(s) of the woman's mother?
4. Black skin colour (B) is dominant over white skin colour (b). Tall (T) is dominant over short (t). If a man who is heterozygous for both characters marry a short and white skin woman, find the chance of obtaining (i) a tall white skin girl and (ii) if this couple expect to obtain four children, what is the chance of obtaining three tall black boys and one short white girl?
5. Mendel crossed tall wrinkle and dwarf round seeded pea and found the following F2 progenies. Test each for goodness of fit and indicate whether it is significantly different from 9:3:3:1 ratio or not. The chi-square value at .05P at 1 df is 7.8, respectively.
   Tall round: 83, Tall wrinkle: 24, Dwarf round: 30 and Dwarf wrinkle:07
6. A plant breeder crossed a white flowered sweet pea plant with one producing purple flowers and found 2/4 purple and 2/4 white flowered progenies. Determine the geno types of the parents and progeny.
7. In human, how many male gametes and female gametes will be produced by a primary spermatocyte and by a primary oocyte respectively? How many and what kinds of chromosomes will be present in such male and female gametes?
8. In maize, recessive gene ba produces barren cob and ts gene converts male flower into female flower. Ba and Ts are the dominant genes give the normal cob and male flowers, respectively. A genetician working at IAAS crossed a plant having genotype Baba Tsts with other plant having genotype BaBa Tsts. Show this cross and determine the sex expression in the progeny.
9. The recessive gene c, produces colour blind in human, which is sex linked gene. A carrier women of this gene married a colour blind man and produced first child, a normal vision klinefelter but in second time this couple gave birth a colour blind daughter. How such klinefelter and daughter would be produced? Show with the help of clean diagrams.
10. A dwarf variety of tomato appears in a research line. The dwarf is crossed as female to tall plants and all F1 found dwarfs. The F1 are selfed and found F2 all tall. Again, F2 are selfed and found F3 progenies. Explain the result giving genotypic and phenotypic frequencies of F1, F2 and F3 progenies.
11. Explain semi- conservative mode of DNA replication with the help of well labelled figure.
12. An autotetraploid plant is heterozygous for one gene locus (YYyy). Dominant Y gene governs high yielding trait. If dominance is complete, how many progenies of this autotetraploid will you expect high yielding after selfing? Also, mention the gametic frequency of this plant and phenotypic frequencies of progenies.are found in maize. Mention their roles in the development of seed with the help of diagrams.

TRIBHUVAN UNIVERSITY
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 3rd Semester F.M. 40
P.M. 16
Subject: Fruit and plantation crop production Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. What are the specific problems encountered in the commercial farming of Apple, Mandarin and Mango. Discuss the remedial measures/solutions regarding the specific problems in Apple.

Short Questions(Attempt any Ten) 10*3=30

2. Classify the apple varieties according to the chilling requirements.
3. Briefly discuss the Bahar regulation techniques in case of Guava.
4. Discuss the flowering and fruiting habit of Litchi and pear.
5. Define indigenous fruit crops. Why conservation of indigenous fruit crops is necessary?
6. What do you mean by plantation crops? Briefly discuss the processing methods of C.T.C and orthodox tea.
7. Briefly describe the dry and wet methods of coffee processing.
8. What are maturity indices? Mention the maturity indices of banana, papaya and pineapple.
9. Describe the soil and soil profile for fruit crops.
10. Write short notes on (any three):

a. Litchi cracking b.Alternate bearing habit of fruit crops
c. Citrus decline d. Spongy tissue of mango

11. Differentiate between (any three):

a. Training and Pruning b.Climacteric and Nonclimacteric fruits
c. Monoembryonic and polyembryonic
d. Sexual and asexual propagation

12. Write about the following in short (any three):

a. Characteristics of juvenile phase b. Clonal rootstocks of apple
c. Importance of indigenous fruit species
d. Use of plant growth regulators in fruit crops.

Final Examination 2072

Essay Type Question: 10

1. Write cultivation of Apple under following headings:

a. Root stock b. Climatic requirement
c. Role of pollinizer d.Alternate bearing

Short Questions(Attempt any Ten) 10*3=30

2. What are the differences between European plum and Japanese Plum. Write briefly about prunes.
3. Explain the propagation technique of Litchi and botany of Papaya.
4. Write short notes on (any two):

a. CTC tea b. Parchement coffee
c. Under exploited fruit crops

5. Describe any two physiological disorders of mango.
6. Write any two techniques of improving fruit quality of grape.
7. Mention about soil and climatic requirement of walnut. Write about double working in European pear.
8. What are the major problems of commercial cultivation of banana in Nepal?
9. Describe two training systems for strawberry.
10. Write down the uses of plant growth regulator on following crops:

a. Grape b. Mango c.Pineapple

11. What is citrus decline? List out the factors responsible for citrus decline.
12. Write down the names of five popular varities of following fruit crops:

a. Mango b. Guava
c. Jackfruit d. Peach
e. Litchi f. Apricot

Final Examination 2073

Essay Type Question: 10

1. Enlist the specific problems encountered in the commercial farming of mandarin, pinepapple, banana and mango. Discuss the solution/remedial measures regarding the specific problems of mango.

Short Questions(Attempt any Ten) 10*3=30

2. Write about the climatic requirements of mango and pear.
3. Mention the important cultivars and maturity indices of papaya and litchi.
4. What do you mean by "Chilling requirements of temperate fruits"? Write about the different cultivars and propagation of apple.
5. Discuss the suitable site and soil condition for commercial cultivation of guava, litchi and peach.
6. Discuss the climatic suitability of different citrus species in Nepal.
7. What do you mean by table grapes? Discuss about the planting and fertilizer management practices in guava and banana.
8. Write short notes on propagation and processing of coffee.
9. Differentiate between:

a. CTC and Orthodox tea b. Cayenne and Queen pineapple

10. Enlist any six underexploited and indigenous fruit crops with their scientific name. discuss the skin cracking problem in litchi.
11. Discuss the usefulness of plant growth regulator in fruit sector.
12. Describe in brief about the major problems encountered in the development of fruit and plantation sector in Nepal.

Back examination 2072

Essay Type Question: 10

1. Describe the cultivation of Aplle under the following heads:

a. Climatic requirement b. Root stock
c. Alternate bearing d. Insect pest

Short Questions(Attempt any Ten) 10*3=30

2. What are the differences between European plum and Japanese plum?
3. Describe any two physiological disorders of mango.
4. Write two techniques of improving fruit quality of grape.
5. Write briefly about processing of parchment coffee.
6. Describe a papaya plant and name six important cultivars of papaya.
7. Describe a training system for grape which is simple and inexpensive.
8. Mention about the soil and climatic requirements of litchi and walnut.
9. Write down the names of five popular varieties of following fruit crops:

a. Mango b. Guava c. Pear d. Peach e.Apricot f.Jackfruit

10. Describe two training systems for strawberry plant.
11. Write down the cultivation practices followed for banana under the following heads:

a. Season of planting b. Planting
c. Desuckering d. Deflowering

12. Write short notes on (any three):

a. CTC tea b. Fruit Drop in citrus
c. Propagation of pineapple

Final Examination 2071

Essay Type Question: 10

1. Discuss on the causes of bearing and malformation in mango and also suggest their remedies.

Short Questions(Attempt any Ten) 10*3=30

2. What are the various constraints for the development of deciduous fruits in Nepal?
3. Discuss banana with respect to bunch covering and its propagation materials.
4. Discuss about the propagating materials of pineapple and crop regulation in guava.
5. Discuss about the propagating materials and planting systems of strawberry.
6. Define citrus decline. Discuss the multiple causes of this problem.
7. Discuss litchi on the following topics:
   A. Fruit drop B. Fruit cracking C. Litchi curl mite
8. Give the training and pruning practices in apple and peach.
9. Discuss various sex forms of papaya and pollination behavior of apple cultivars.
10. Give the method of propagation in tea and coffee.
11. A citrus orchard is seen with its foliage covered with black powdery mass, diagnose the problem and suggest the remedy measures.
12. Write short notes on:
    a. Harvesting indices of jackfruit
    b. Guava wilt
    c. Telephone system of training in grapevines

Final Examination 2069

Essay Type Question: 10

1. What are the major problems faced by Nepalese farmers in the production of fruits? Also mention the measures to overcome these problems.

Short Questions(Attempt any Ten) 10*3=30

2. What is chilling temperature? Why chilling requirement is necessary for temperate fruit crops?
3. Describe the ways to regulate flowering in guava.
4. Give the control measures of alternate bearing in mango and citrus greening in citrus.
5. What do you mean by viticulture? Why viticulture is not still in commercial scale? Mention suitable varieties of grape.
6. Explain the flowering and fruiting behavior of pear, plum and apricot.
7. Explain the high density orcharding concept in pineapple, banana and papaya.
8. What is the importance of underexploited fruit crops? Enlist ten under exploited fruit with their scientific name and family.
9. What do you mean by CTC tea? Describe briefly on processing of tea.
10. Why Nepal is potential for coffee plantation? Also mention the wet method of coffee processing.
11. What are maturity indices? Mention the maturity indices of jackfruit, litchi and peach.
12. Write short notes on (any three):

a. In vitro propagation of fruit crops
b. Promising cultivars of apple and pear
c. Strawberry
d. Climacteric fruits

Final Examination 2070

Essay Type Question: 10

1. Describe the cultivation practices of mango on the following headings:
   a. Climate and soil b. Propagation
   c. Alternate bearing d. Insect pests

Short Questions(Attempt any Ten) 10*3=30

2. What are the major constraints of fruit production in Nepal? Describe in brief.
3. Describe two training systems for apple practiced in developed countries that are used for height regulating root stocks.
4. Write the propagation technique and one popular planting system for pineapple.
5. What is citrus Decline? List out the factors responsible for citrus decline.
6. Describe the harvesting technique and storage of litchi fruits.
7. List the names of five popular varieties of following fruit crops.
8. What are the differences between European plum and Japanese plum?
9. Write short notes on (any three):

a. Propagation in papaya b. Coffee processing
c. Desuckering in banana d. Guava wilt

10. What do you mean by CTC tea? Discuss briefly on processing of tea.
11. What are the differences between comunis and serotina pear?
12. Describe physiological disorders of Apple.

Final Examination 2068

Essay Type Question: 10

1. Describe the cultivation practices of mango on following headings:
   a. Origin and uses b. Climate and soil
   c. Variety d.Propagation e. Orchard planning and planting

Short Questions(Attempt any Ten) 10*3=30

2. Define 'citrus declining'. Explain its causes and control measures.
3. Briefly describe the feasibility of fruit development in Nepal.
4. Define 'graft incompatibility'. What are the requirements for the success of grafting?
5. How does pruning differ with the age of tree? Briefly describe the different training system of grape vine.
6. Explain the alternate bearing in mango and state in briefly the causes of alternate bearing.
7. Write down the cultivation practices of coffee on the following topics:

a. Area and production b. Climate and soil
c. Intercultural operation d. Varieties e. Processing

8. Shortly describe the banana cultivation in chitwan.
9. What are the prospects and constraints of banana cultivation in Nepal?
10. Write short notes on:

a. Mango malformation b. Guava wilt
c. Panama wilt d. Classification of fruits

11. Enlist any four varieties of the each fruit crops:

a. Grapes b. Apple
c. Papaya d. Mandarin orange e. Banana

12. Why grafted plants are precious in bearing and dwarfer than seedling?

TRIBHUVAN UNIVERSITY
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 3rd Semester F.M. 20
P.M. 8
Subject: Pig and Poultry production Time: 1:30 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

EASSY TYPE QUESTION 6

1. Why housing is important for poultry? Describe different systems of housing birds. Which system is generally used for commercial farming and why?

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Describe the care and management of chicks up to 8 week of egg.
3. Write about care and management of new born piglet.
4. Write different points would keep in mind for selection of egg for hatching.
5. Write short notes on:
   a) Needle teeth cutting b) Debeaking
6. What are the principle points considering while formulating rations for poultry feed feeding?
7. Describe the care and management of broiler up to the age of marketing.
8. Enlist common breed of pig and write the characteristics of middle Yorkshire.
9. Enlist the local breeds of poultry and discuss about distinguishing characteristics of Rhode Island Red.

Back examination- 2074

EASSY TYPE QUESTION 6

1. Explain the national scenario of poultry industries and write problem associated with poultry production and suggestion to overcome such problem.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Why biosecurity is essential? Write the different proce dure fallow s in biosecurity.
3. Describe the causes of egg drop syndrome and it prevention in layers.
4. Describe the formation of eggs.
5. Write the care and management of litters up to eight weeks.
6. Describe the care and management of sow at pregnant and farrowing time.
7. Write short note on:
   a) Creep ration b) Layer ration c) Pakhribas black pig
   d) Flushing
8. Write the various factors influencing efficient incubation of eggs.
9. Give the criteria for the selection of good sow.

Final examination- 2073

EASSY TYPE QUESTION 6

1. Why poultry rearing is being a major enterprise in Nepal? Write your own opinion. And also list down the major constraints of swine production in Nepal.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Write down zoological classification of pig and poultry.
3. List down the swine breeds grown in Nepal. And also discuss why Pakhribas black is considered as a suitable breed of swine for eastern hill of Nepal.
4. Write the process of artificial brooding of chicks and also discuss about its importance on poultry production.
5. Briefly discuss about care and management of newly born piglets.
6. What are the considerations to be taken during poultry feed formulation?
7. What are the factors essential for best hatching of eggs?
8. Write short notes on:
   a. Albumen b. Farrowing c. Layers
9. Explain the complete metamorphosis with an illustration.

Final examination- 2072

EASSY TYPE QUESTION 6

1. With the help of a neat diagram, explain the working of the reproductive system of hen. What endocrine mechanism is involved in the formation of egg?

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. How lighting hours effect egg production? Explain.
3. Discuss the care and management of broiler up age of slaughter.
4. What are the principle points considering white formulat ing rations for poultry feed?
5. Write the advantages of pig farming in Nepalese context.
6. Write short notes on the following:

a) Debeaking b) Identification of pig by ear notching

7. Discuss about methods and merits of deep litter system of poultry housing.
8. Explain the component of biosecurity can be maintained at commercial farm.
9. Write short notes on:
   a) Landrace b) Rhode Island Red

Final examination- 2071

EASSY TYPE QUESTION 6

1. Explain the general management practice of broiler farm.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Describe the reproductive system of a hen with diagram.
3. Explain the care and management of newly born piglets.
4. Why temperature management necessary for baby chicks?
5. Describe any three indigenous and exotic breeds of pigs with their characteristic features.
6. What do you mean by biosecurity? Explain its components.
7. Why debeaking is done in layers? Write the importance of vaccination is poultry.
8. What is piglet Anaemia? Explain its cause and preventive.
9. Write short notes on:
   a. Ear notching b. De-beaking c. Candling of eggs
   d. New castle disease

Final examination- 2070

EASSY TYPE QUESTION 6

1. How broiler is managed under deep litter system. Explain each step from purchase of chicks up to their sale.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Explain the egg formation structure of a hen with a labelled diagram.
3. Explain the care and management of pregnant sow.
4. Describe the relationship of temperature in brooding for chicks.
5. Describe any three indigenous and exotic breeds of pigs with their characteristic features.
6. What do you mean by bio-security? Explain its components.
7. Why debeaking is done in layers? Write the impor tance of vaccination in poultry.
8. What is piglet anemia? Explain its causes and prevention.
9. Write short notes on:
   a. Breeding boar b. Candling of eggs
   c. Landrace d. Chwanche

Final examination- 2069

EASSY TYPE QUESTION 6

1. Explain the importance, scope and constraints of poultry farming in contest of the Nepalese farming system.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Write the zoological classification of Japanese quail.
3. Write about the factors influencing composition of egg.
1. Write about the effect of lighting on egg production.
2. What are the principle points considered while formulating rations for poultry.
3. Write about care and management of new born piglets.
4. Write short notes on:
   a. Air cell b. Cage system of poultry housing
5. How bio-security can be maintained at commercial poultry farm?
6. Write short notes on:

a. Vaccination of chicks b. Identification of pig by ear notching

7. Write short notes on:
   a. Yorkshire b. Plymouth rock
8. Write short notes on:
   a. Needle teeth clipping b. Moulting
9. Write the care and management of chicks from 0-8 weeks of age.

Final examination- 2068

EASSY TYPE QUESTION 6

1. "Poultry enterprise is becoming popular in Nepal". Justify this statement along with its scope.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Write about general care and management of pregnant sow.
3. Why housing is important for poultry? Write about one common poultry housing system, which is popular in Nepal.
4. What do you mean by brooding? Also, write about temperature management in brooder.
5. What is the importance of light in laying birds? Also, mention the light management in layers.
6. Write general breed characteristics of following breeds (any two):
   a. Pakhribas black b. Hampshire
   c. New Hampshire
7. Draw a well labelled diagram of egg laying system of poultry.
8. What are the factors essential for best hatching?
9. Write short notes on (any two):

a. Structure of egg b. Incubation c. Biosecurity

TRIBHUVAN UNIVERSITY
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2070

Level: B.Sc. Ag. 3rd Semester — F.M. 20, P.M. 8

Subject: Introductory Ichthyology — Time: 1:30 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

EASSY TYPE QUESTION 6

1. Describe respiratory system of fish and explain mechanism of respiration.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Discuss the role of fish in human nutrition.
3. Differentiate between chondrichthyes and osteichthyes.
4. Enlist different orders of fishes of Nepal with one example of each order.
5. Draw a neat and well labelled diagram of teleost skin and write its functions.
6. Explain female reproductive organs of a fish.
7. Describe process of digestion in fish.
8. Discuss different types of caudal fin.
9. Write short notes on any two of the following:

a. Cycloid and ctenoid scales
b. Fish ghee and isinglass
c. Accessory respiratory organs

Final examination- 2069

EASSY TYPE QUESTION 6

1. Define 'fish' and 'Ichthyology'. Give the taxonomic classification of fishes of Nepal up to orders with their characters and at least two examples of each (order).

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Draw a well labelled diagram of a fish showing its external features, and write down the functions of skin.
3. Write the location in the body cavity and functions of the following organs of fish: (i) Gonads (ii) Gills (iii) Heart and (iv) Kidneys. Illustrate your answer with suitable rough sketch.
4. Discuss the different types of fin found in a teleost.
5. Describe the structure of respiratory organ in fish with suitable diagram.
6. Write notes on accessory respiratory organ in singhi (Heteropneustes fossilis).
7. Describe the structure of any one gonad of fish studied by you.
8. Differentiate the following pairs: (i) Cycloid and ctenoid scales; (ii) Alimentary canal of herbivorous fish and that of carnivorous fish.
9. Write short notes on:

a. Economic importance of fishes b. Digestive glands in fishes

Final examination- 2070

EASSY TYPE QUESTION 6

1. What is respiration? Describe the structure of the gills of a Teleost and explain the mechanism of respiration.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Discuss the roles of fish in human nutrition.
3. What is placoid scale? How is it differentiated between cycloid and ctenoid scale.
4. Define fish. Differentiate between chondrichthyes and Osteichthyes.
5. Enlist different orders of sub-class Actinopterygii present in Nepal with one example of each order.
6. Explain the mechanism of digestion in carnivorous fish.
7. Discuss the female reproductive organ of a Teleost.
8. Write short notes on any two of the following:

a. Fish glue and isinglass
b. Fish meal
c. Functions of skins and fins

9. Write the common and scientific names of the following:

a. Largest and smallest fishes of the world and Nepal
b. Any two predatory fishes

Final examination- 2068

EASSY TYPE QUESTION 6

1. Draw and label alimentary canal of cyprinids and explain mechanism of digestion.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Define ichthyology and state how fish is different from other terrestrial animals.
3. Explain the nutritional importance of fish.
4. Write down the characteristics of teleosts and discuss with example order siluriformes.
5. What do you understand by bony ridge scale? Differentiate between the cycloid and ctenoid scales.
6. What do you mean by paired fin and explain different types of caudal fin?
7. Write down the structure and function of skin of cyprinid.
8. Draw, label and explain in brief the male reproductive organ of a oviparous fish.\
9. Short notes:

a. Accessary respiratory organ b. Feeding habit and relative gut length

Final examination- 2067

EASSY TYPE QUESTION 6

1. What is digestion? Describe mechanical, chemical and enzymatic activities for digestion in fish with description of different parts of alimentary canal.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Define fish. Differentiate between Chondrichthyes and Oesteichthyes.
3. Discuss the role of fish in human nutrition.
4. Enlist the different orders od sub-class Actinopterygii represented in Nepal with one example of each order
5. Describe the structure of cycloid scale and compare it with ctenoid scale.
6. Explain structure of gills of a bony fish and explain the mechanism of respiration.
7. What is reproduction? Describe the male reproductive organs of a teleost.
8. Write the scientific names of following:

a. Largest and smallest fishes of the world and Nepal
b. Any two fishes having two dorsal fins

9. Write short notes on:

a. Accessory respiratory organ in Clarias species.
b. Functions of skin and fins

Final examination- 2066

EASSY TYPE QUESTION 6

1. Describe economic importance of fishes.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Define fish. Differentiate between chondrichthyes and osteichthyes.
3. Describe the structure of skin of fishes.
4. Enlist the different orders of sub-class Actinopterygii represented in Nepal with one example of each order.
5. Mention the functions of scale of fish. Differentiate between cycloid and ctenoid scales.
6. Explain homocercal type of caudal fin. Discuss the functions of different types of fins in fishes.
7. Describe mechanical, chemical and enzymatic activities for digestion in fish.
8. Differentiate between the cypriniformes and siluriformes.
9. Explain structure of gills of a teleost and discuss the mechanism of respiration.

Final examaination- 2065

EASSY TYPE QUESTION 6

1. What is respiration? Describe mechanism of respiration in fish.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Write important characters of class Dipnoi and give two examples.
3. Classify: Andha bam, Katle, Singhi, Buhari.
4. Explain digestion process in stomach of fish.
5. What are the functions of fins? Explain.
6. What are the differences between cycloid and ctenoid scale? Explain.
7. Explain briefly functions of skin.
8. Draw the diagrams of female reproductive organs and describe oogenesis process.
9. Write short notes on following:

a) Swim bladder b) Lateral line

Final examination- 2063

EASSY TYPE QUESTION 6

1. What is digestion? Describe mechanical, chemical and enzymatic activities for digestion in fish with description of different parts of alimentary canal.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Define ichthyology. Differentiate between cypriniformes and siluriformes.
3. What is gonado somatic index (GSI)? Describe annual variation of GSI of ovary in carps.
4. Enlist different types of scales in fishes. Describe structure of ctenoid scales. Mention the functions of scale.
5. Describe the structure of skin of a fish.
6. Explain homocercal type of caudal fin. Discuss the functions of different types of find in fishes.
7. Write the locations and functions of the following organs:

a) Pharyngeal teeth b) Swim bladder c) Spleen d) Intestine

8. Describe accessory respiratory organs of Clarias species.
9. Explain role of fish in human nutrition.

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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 4th Semester F.M. 40
P.M. 16
Subject: Farm power and Machinery Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Write about the prospect of mechanization in our country. Explain with sketch how power generated by a tractor engine is transferred up to rear wheels?

Short Questions(Attempt any Ten) 10*3=30

2. What is the most crucial requirement for zero tillage practice? Describe the different unit of operations applied in modern thresher.
3. Point out the drawbacks of indigenous plough in tillage action. Explain with figure about the adjustment of depth of plough by hitch orders in a animal drawn indigenous plough.
4. Present the diagrammatic features of tyne harrow and cultivator showing their difference in operation.
5. Differentiate the rotary action in rotavator and disc harrow and write the application and purpose of cage wheel in a tractor.
6. "A knowledge of pump characteristic curve help in selection of centrifugal pump". Justify the statement.
7. What is the function of metering device in a seed drill? Explain about the procedure for the calibration of a seed drill.
8. What is the main determining factor for selection of duster or sprayer? Explain about the construction detail of a power sprayer.
9. Why is tractor called so? What is the principle of opera tion in clutch system and brake system and how they differ from one another?
10. Machine X has a cost of Rs. 10,0000 and expected to produce cash flow of Rs. 3,000 per year for 4 years and Rs. 2,500 on the fifth year. Similarly machinery Y with cost 25,000 is expected to produce cash flow of Rs. 7,400 per year for 3 years and Rs. 8,000 and 6,500 for fourth and fifth year. Assuming the interest of capital is 12%, which machine is cost effective for selection if they are mutually exclusive?
11. Explain about the valve opening and closing mechanism of 4-stroke engine. Find out the compression ratio if the engine cylinder having stroke boar ratio is 1.25 having cylinder diameter of 55 cm clearance volume 105cc.
12. What is the main difference between a generator and a motor? Calculate the field efficiency of 3 bottom MB plough having a furrow width of 26 cm, depth of plough of 22 cm and forward speed of 5 km/hr. if the time loss is 20% and overlapping width is 12 cm.

FINAL EXAMINATION - 2073

Essay Type Question: 10

1. Define tillage with its objectives. List the functions of Mould Board plough. Describe its different parts with the help of neat sketches.

Short Questions(Attempt any Ten) 10*3=30

2. How can mechanization help in the development of agriculture in hilly regions of Nepal? Discuss in brief.
3. What is seed drill and write its functions? Calculate the seed rate per hectare of 5×18 cm seed drill whose is main drive wheel is 120 cm diameter and total weight of grain collected in 20 revolutions is 0.5 kg.
4. Write the methods of spraying. Explain a knapsack sprayer in brief.
5. What are different types threshing cylinders used in power thresher? Explain them with the help of diagrams.
6. Describe the working principle of centrifugal pump with a neat sketch.
7. Compare between CI and SI engines with diagrams.
8. What is power transmission system or power train of a tractor? Write its components with figures.
9. Explain the reaper with its essential components.
10. What power is required to pull 1.2 meter reaper working at a speed of 4.8 km/hr, if there is a load of 50 kg/m length of the reaper and field efficiency is 80%.
11. Find the cost of using a tractor per Hp-hr when the cost of 35 Hp tractor is NRs. 12,00,000/- life of tractor is 10 years, rate of interest 10% and working hours per year are 1000 hrs. Make necessary assumptions, if any.
12. Discuss the uses of electricity in farm. Also write the alternative sources of electricity.

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. Explain the working principle of four stoke Spark Ignition engine. Also describe the working principle of differential with a diagram.

Short Questions(Attempt any Ten) 10*3=30

2. Explain the scope and status of farm mechanization in Nepal.
3. Describe the different component of tractor drawn MB plough.
4. Explain the procedures of calibration of seed drill.
5. A pair of bullocks weights 600 kg and can pull about 1/ 10th of their body weight. Find out the power required and the power available to operate this seeder when each of the 5 furrow openers makes a rectangular furrow cross section of 5 cm wide × 5 cm deep. The soil resistance on the seeder is 0.4 kg/cm2.
6. Describe the working principle of vertical conveyer reaper.
7. A farmer purchased 35 hp tractor for Rs. 11,45,000.00 . Its total working life is 12000 hours with the annual use of 1000 hours. The annual interest rate is 7%. The tractor is being used with an eleven tine cultivator costing RS. 18000.00. The shovel spacing is 24 cm. Speed of cultivation is 5 km/hr and field efficiency is 80%. Calculate the cost of tractor in RS/hr.
8. Write the working principles of threshers with a neat diagram.
9. Describe the working principle of reciprocating pump.
10. Define sorting and grading. Explain the color sorting method with a diagram.
11. Differentiate between motor and generator.
12. Enlist the types of laboratory tests of farm tractor and machinery.

FINAL EXAMINATION - 2071

Essay Type Question: 10

1. What are the functions or purposes of cooling system in tractor engine? With the help of neat diagram explain the working of forced circulation water cooling system and also write down the function of thermostat value in this system.

Short Questions(Attempt any Ten) 10*3=30

2. How do you see farm mechanization can help in development of agriculture in terai and hills of Nepal?
3. What is the principle of friction clutch? Explain the working of single plate clutch.
4. Explain the working of Flutted Roller seed metering mechanism? List different parts of tractor drawn seed drill.
5. Explain the working principle of centrifugal pumps.
6. What may be the reasons if the tractor engine does not start at all?
7. Calculate the time required for sowing of 5 ha of land by a tractor drawn seed drill with 11 furrow openers spaced 20 cm apart. The drill is operated at the speed of 5 km per hour. Take field efficiency 90%.
8. What are the main considerations for selection of electric motors?
9. What is the difference between single action disc harrow? List different parts of disc harrow.
10. What are the functions of combine harvester? Name different parts of combine harvester.
11. Describe the working of manually operated Knapsack sprayer.
12. What are the different types of threshing cylinders used in threshes?

FINAL EXAMINATION - 2068

Essay Type Question: 10

1. Explain the working principle of 4-stroke diesel engine and 2-stroke petrol engine with necessary diagrams.

Short Questions(Attempt any Ten) 10*3=30

2. Why is air cleaning important in tractor system? Discuss forced circulation type water cooling system.
3. If the cost of tractor having 12 years life is Rs. 7,00,000 find the cost of operation per unit hour if the rate of interest is 10% and working hours is 1000 per year. Assume necessary data.
4. Write the classification of sprayers. Describe the components of power sprayer.
5. Describe working procedures of power thresher with a suitable diagram.
6. Mention the classification of water pumps. How can we select them for irrigation purposes?
7. What is zero tillage and minimum tillage? Differentiate between disc plough and disc harrow.
8. Discus the types of seed metering mechanism used in seed cum fertilizer drill.
9. Describe the possible reasons behind the overheating of an I.C. engine. Explain the hitching systems of a farm tractor.
10. Mention the functions of lubrication system in I.C. engine. Compare a water cooling system with a air cooling system.
11. Write the functions of the following:

a. clutch b. PTO c. carburetor

12. Write short notes on:

a. rotavator b. chaff cutter c. jointer

FINAL EXAMINATION - 2070

Essay Type Question: 10

1. Explain the working principle of two strokes and four strokes spark ignition engines. What are the different types of lubrication system in I.C. engine? Write down the working mechanism of fuel supply system in disel engine. What are the common engine troubles.

Short Questions(Attempt any Ten) 10*3=30

2. What are the sources of farm power? Explain the tractive and stationary operations. How non-conventional source of energy is being utilized in Nepalese agriculture?
3. Write the importance and operation of pre-cleaner and tractor engine. List the types of water cooling systems. What are the advantages and disadvantages of air cooling system?
4. Explain the mechanism of mechanical brake. What is differential lock in tractor system?
5. Specify the objectives of primary and secondary tillage operations. Calculate the area covered per day of 8 hrs by a tractor drawn four bottom 35 cm plough if the speed of ploughing is 6 km/hr, the time lost is turning is 6%.
6. Describe the popular types of furrow openers in cultivator with a diagram. How can penetration be improved in a disk harrow? What are the uses of chisel plough and subsoiler?
7. List different mechanism of seed metering mechanism in seed drill and planter. The seed rate indicator of 12×20 cm seed drill was kept to show 65 kg per hectare. If the radius of ground wheel is 30 cm, what should be correction factor to multiply the indicated value if half of the grain drill gives 26 kg at 1000 rpm?
8. What are principal function of sprayer? Describe different types of duster. What are the components associated with power sprayer?
9. What is registration of a mower? Mention the components of power thresher. What are the major operations per formed in combine harvester?
10. Define different types of primary processing operations. What are the different types of screen cleaner?
11. Explain the principle of reciprocating pump. What are the prospects of farm electric use?
12. Write short notes on: (any two)

a. Depreciation b. Mould plough

c. Radiator d.Self propelled rice transplanter

FINAL EXAMINATION - 2067

Essay Type Question: 10

1. What are the functions or purposes of cooling system in tractor engine? With the help of neat diagram explain the working of forced circulation water cooling system and also write down the function of thermostat valve in this system.

Short Questions(Attempt any Ten) 10*3=30

2. What is the principle of friction clutch? Explain the working of single plate clutch.
3. What may be the reasons if the tractor engine does not start at all?
4. What is the difference between single action and double action disc harrow? List different parts of disc harrow.
5. Explain the working of Flutted Roller seed metering mechanism? List different parts of tractor drawn seed drill.
6. Describe the working of manually operated knapsack sprayer.
7. What the functions of combine harvester? Name different parts of combine harvester.
8. What are different types of threshing cylinders used in threshers?
9. What are the major considerations for selection of electric motors?
10. Explain the working principle of centrifugal pumps.
11. Calculate the time required for sowing of 5 ha of land by a tractor drawn seed drill with 11 furrow openers spaced 20 cm apart. The drill is operated at the speed of 5 km per hour. Take field efficiency 90%.
12. How do you see farm mechanization can help in development of agriculture in terai and hills of Nepal?

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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 4th Semester F.M. 40
P.M. 16
Subject: Commercial Crops Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Explain the planting methods adopted in sugarcane highlighting the procedure if land preparation, areas of adoption and amount of seed materials required for planting.

Short Questions(Attempt any Ten) 10*3=30

2. What are the in deal conditions for jute retting? How can we increase the efficiency in retting process?
3. What is curing? Enlist the methods of curing and discuss about flue-curing.
4. Explain the nutrient management on tobacco with respect to types and properties of tobacco leaves.
5. Write the physio- morphological differences and differences in cultivation practice of the two species of Chorchorus.
6. Enlist various planting material in sugarcane. How do you manage weeds in sugarcane plantation specially during the early crop stages?
7. What are the roles of major nutrients in cotton? How will you manage the plant nutrition in cotton.
8. Explain the pollination behavior and fiber formation in cotton.
9. Write short notes on:

a) Defects in jute fiber b) Role of N, P and K in cotton

10. Discuss about nursery management in tobacco. Write about the climatic and edaphic requirement of sugarbeet.
11. Write short notes on:

a) Sugar extraction from sugarbeet
b) Nicotine c) Hybrid cotton

Final Examination- 2072

Essay type Question: 10

1. Enlist various methods of planting of sugarcane. How are the improved methods of sugarcane planting over superior over conventional methods? Also write about the post-harvest considerations in sugarcane ratoon management.

Short Questions (Attempt any ten) 10*3=30

2. Write about climatic and edaphic requirements of sugar beet.
3. Enlist various planting materials in sugarcane. How do you manage weeds in sugarcane plantation specially during the early crop stages?
4. Give the differences in the morphology as well as the cultivation practices of the two species of jute.
5. Discuss about the nursery management in tobacco.
6. What are the roles if major nutrients in cotton? How will you manage plant nutrition in cotton?
7. Write about the process of harvesting in tobacco.
8. Write about the defoliation and desiccation in cotton as well as its harvesting.
9. Explain the process of jute stalk retting and also discuss the defects of jute fiber.
10. What is curing? Enlist the methods of tobacco curing and describe the process of flue- curing.
11. Write on following heading

a) Role of plant population in seed cotton yield
B) Topping in cotton

12. Write on the following headings:

a) Sugar extraction from the sugar beet
b) Effect of light on growth and development of jute
c) Leaf quality in tobacco

Final Examination- 2073

Essay Type Question 10

1. Write the different planting times of sugarcane in Nepal. Discus shte importance of various-by-products if sugarcane in Nepalese Economy.

Short Questions (Attempt any Ten) 10*3=30

2. Write about the climatic requirements and soil for higher yield of cotton.
3. Discuss the qualities and defects of Jute fibers.
4. Give the planting season, seed rate and chemical weed control in Jute.
5. Define the term curing. Write about the process of flue-curing in tobacco.
6. Write about the dose and time for NPK fertilizer application for the cultivation of the sugarcane.
7. How do you raise the tobacco seedling in nursery?
8. What are the different panting materials used in sugarcane, also mention the preparation of sets for planting of sugarcane.
9. Discuss about the topping and defoliation in cotton.
10. What are the advantages and disadvantages ofratoon crop in sugarcane:?
11. Enlist the different methods of sugarcane planting. Also describe any one popular method used in Nepal.
12. Write short notes on (any three)

a) Retting of Jute b) Harvesting of Tobacco
c) Gossypol d) Rayungans.

Final Examination 2072

Essay Type Question 10

1. Mention the scope and constraints if sugarcane cultivation in Nepal and describe one popular method of planting Nepal.

Short Questions (Attempt any Ten) 10*3=30

2. Briefly describe the climatic requirement of sugarcane.
3. Describe the crop rotation for the successful tobacco cultivation.
4. Write the effects of NPK fertilizers for the productionof seed cotton,
5. Write the merits and demerits of summer planting sugarcane.
6. Write short notes om: (any three)

a) Stubble shaving b) Nicotine
c) Seed preparation of Cotton d) Retting

7. Describe the flue curing method of tobacco and give reasons that the desirable top quality tobacco can be obtained from this curing method.
8. Write the defects of Jute fibers.
9. Why defoliation is done in cotton.
10. Explain the fiber development in cotton
11. How do you suggest he farmers for the application of nitrogen fertilizer in Tobacco.
12. Write about the process of harvesting in tobacco.

Final Examination-2070

Essay Type Question 10

1. Enlist the different planting materials used for planting sugarcane and describe in brief the best planting material thatyou will recommend to the Sugarcane growing farmers. Give reasons for your recommendation.

Short Questions (Attempt any Ten) 10*3=30

2. Describe the process of Jute Rotting.
3. Discuss the defoliation and dessications in Cotton.
4. Enlist the factors that affect the quality of Jute Fibre.
5. Give planting season, seed rate, spacing and plant population in sugrabeet.
6. List the recommended varieties of jute, cotton, sugarbeet, sugarcane and tobacco.
7. Define curing. Write about the flue curing method of tobacco leaves.
8. How sowing and harvesting is done in cotton?
9. What are the different growth stages of sugarcane?
10. Write short notes on: (any three)

a) Rayangans
b) Wrapping and propping of sugarcane
c) Top one third portion of cane
d) Topping and desuckering in tobacco

11. Explain in brief the carious precautionary measure that you will recommend to raise the healthy seedlings of tobacco.
12. Explain the following terms (any three)

a) Gossypol
b) Yield attributes of cotton
c) Fertilizers in sugarcane farming
d) Mollases

Final Examination 2068

Essay Type Question 10

1. Write the different planting time of sugarcane in Nepal and discuss the importance of various by products of sugarcane in Nepalese economy.

Short Questions (Attempt any Ten) 10*3=30

2. Write about the harvesting of tobacco
3. Describe the cotton fibre.
4. List the recommended varieties of Jute, cotton, tobacco and sugarcane in Nepal.
5. Write the suitable climatic requirements and soil for higher yield of cotton.
6. Give the planting season, seed rate and chemical weed control in Jute.
7. Define the rem curing. Write about the process of tobacco flue- curing.
8. How do you raise the tobacco seedlings in nursery?
9. Explain the reasons of obtaining low yield of ratoon crop in sugarcane.
10. Write about the dose and time of NPK fertilizer application for ®®the cultivation of sugarcane.
11. Write about the defoliation of cotton, topping and desuckering in tobacco and molasses.
12. Write short notes (any three)

a) Retting of jute
b) Priming in tobacco
c) Gossypol
d) Rayungans

Final Examination-2070

Essay Type Question 10

1. Write about the sowing of cotton and jute.

Short Questions (Attempt any Ten) 10*3=30

2. Write about the effect of soil on growth and development of tobacco.
3. Write the effect of N, P and K on growth and development of cotton.
4. Write the effects of N, P and K fertilizer application for tobacco cultivation,
5. Describe the pit (ring) method of planting sugarcane.
6. Write about cotton on the following headings:

a) Effect of light on its growth and development
b) Topping and Harvesting

7. Describe the process of steeping in jute.
8. Explain the different factors which should be taken into consideration for the improvement in yield of ratoon crop of sugarcane.
9. Define curing in tobacco and explain the process of its air curing.
10. Write about the sugarcane on the following headings:

a) Top one third portion
b) Dethrasing
c) Intercropping

11. Describe Jute fibres with its defects.
12. Write about the sowing and plant population in sugarbeet.

Final Examination 2065

Essay Type Question 10

1. Explain the importance and use of sugarcane and its byproducts in brief. As an agronomist, give your suggestion. How can we increase the productivity of sugarcane in Nepal

Short Questions (Attempt any Ten) 10*3=30

2. Briefly explain the seed rate, sowing time, spacing and fertilizer management in jute,
3. Write down the method so harvesting of tobacco
4. What are the seed materials of sugarcane briefly explain the seed selection, preparation and treatment of set of top 1/3 portion of sugarcane.
5. Write down the climatic requirements of cotton crop.
6. Define retting and briefly explain the method of stalk retting in Jute.
7. Enlist he different methods of cutting in tobacco and briefly explain the method of sun curing
8. Explain in brief the topping, defoliation and desiccation process in cotton.
9. Enlist the different methods of sugarcane planting. Briefly explain the trench method of planting.
10. Briefly explain the intercultural operations in sugarbeet.
11. Classify and briefly explain the cultivated cotton crop.
12. Write short notes on:

a) Desuckeringb)Propping in sugarcane c) Gossypol
d) Nicotine

TRIBHUVAN UNIVERSITY
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RAMPUR, CHITWAN
FINAL EXAMINATION - 2075

Level: B.Sc. Ag. 4th Semester F.M. 40
P.M. 16
Subject: Principles and practices of seed technology Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Define seed and seed technology. Describe in brief the agronomic principles of upland rice seed production.

Short Questions(Attempt any Ten) 10*3=30

2. Explain briefly the pollination and fertilization process during seed formation of maize seed.
3. Write short notes on:
a) Seed vigor b) Hybrid seed c) Routine test
4. Define seed dormancy. Write down the types of seed dormancy. How you can remove the seed dormancy in Dhaincha(SesbaniarostrataI).
5. Briefly explain the importance of quality seed to increase the productivity of a crop.
6. "Quality seed is the carrier of new technology". Justify this statement with examples.
7. Briefly explain the seed selection, seed treatment, time of sowing, seed rate and weed management in lentil seed production.
8. What do you mean by seed certification? Write down the seed certification in sequence in Nepal with appropriate examples.
9. Define seed germination and write down the pattern of seed germination.
10. Define seed processing. Write down the steps of seed cleaning to get quality seed.
11. What is seed upgrading? How can we do seed upgrading by using different machines/ explain briefly.
12. Define Intellectual Property Rights (IPRs). Write briefly the different forms of IPR protections.

Final examination- 2074

Essay Type Question: 10

1. Define seed technology. Describe in brief about the problems and opportunities of quality seed production of grain legumes and oilseed in Nepal.

Short Questions(Attempt any Ten) 10*3=30

2. Explain briefly the pollination and fertilization process during seed formation of rice.
3. Write short notes on:
a) Seed materials b) Micro-sporogenesis c) Field inspections
4. Define seed vigor. How the seed vigor affect on plant stand establishment under field condition?
5. Define seed germination. Briefly explain the seed formation process of soyabean seed.
6. Briefly explain the basic requirements for the quality seed determination.
7. Enlist the agronomic principles of seed production of maize.
8. Briefly explain the practices of seed selection, seed treatment, time of sowing, isolation distance and pest management during rice seed production.
9. Define seed certification. Write down the process of seed certification of wheat.
10. Define seed upgrading. How can you upgrade the maize seed by using different machines?
11. What is Intellectual Property Rights (IPRs)? Briefly explain the different forms of IPR found in Nepal.
12. Write down the quality seed production and distribution systems of wheat seeds in Nepal.

Back examination- 2073

Essay Type Question: 10

1. Define seed germination. Discuss about the factors affecting germination and processes of germination in detail.

Short Questions(Attempt any Ten) 10*3=30

2. Define double fertilization. Give the processes of embryo development with figures.
3. Define quality seed. Discuss how you can maintain quality seed in Nepalese situation in brief.
4. What are the causes of seed dormancy? Discuss how dormancy can be broken in brief.
5. What are the objectives of field inspection? Write about seed legislation in Nepal.
6. Differentiate between seeds and grains in a legical way.
7. Define seed and discuss about the nutritional value of seed in brief.
8. Classify the seed based on its storability. Give the ways how we can increase their longevity for further use.
9. What is physiological maturity period of seed? Discuss how we can detect its physiological maturity period in field condition in brief.
10. Define seed processing. Give the five machines used in seed processing and discuss about their uses it in brief.
11. Give the techniques of seed production of rice and discuss in brief.
12. Write short notes on (any three):
a) Hybrid seed b) Breeder's property right c) World Trade Organization (WTO) d) Farmer's right in seed

Final examination- 2072

Essay Type Question: 10

1. What is seed? What factors are responsible for deteriorating the seed quality in storage? Describe in brief.

Short Questions(Attempt any Ten) 10*3=30

2. Draw a well labelled diagram showing microsporogenesis and microgametogenesis.
3. What is megagametophyte? Briefly write about the types of endosperm development.
4. What do you mean by scarification? What are the contaminants to be observed during field inspection?
5. Climate is considered as both constraint and opportunity for seed production. How?
6. How do you maintain genetic purity in seed crops?
7. Explain about the fertilizers, seed rate, sowing time, sowing depth and spacing in wheat seed production.
8. What are the seed standards for rice seed?
9. What are the objectives of field inspection? Write about the types of seed legislation.
10. Define the following terms (any three):
a) Triple fusion and double fertilization b) Grow out test c) Seed disinfestations d) Roughing
11. What are the importance of quality seed?
12. Describe about the following terms (any three):
a) Isolation distance for highly cross pollinated vegetables
b) Seed classes c) ISTA d) Intellectual Property Right

Final examination- 2072
Essay Type Question: 10
1. Describe the basic principles of seed technology.
Short Questions(Attempt any Ten) 10*3=30
2. Define seed technology. Differentiate between seed and grain.
3. Discuss the process of megasporogenesis and megagametogenesis.
4. What is seed dormancy? What are the factors affecting seed dormancy?
5. Define seed germination. Explain briefly the chemical changes occurring during seed germination.
6. Explain the seed certification process in Nepal.
7. What are the general principles of seed storage? Also discuss about the factors affecting seed longevity in storage.
8. Write short notes on (any two):
a) Intellectual Property Right b) Seed Quality c) harvesting and threshing of seed maize
9. What are the seed distributions systems in Nepal? Explain.
10. Explain briefly the (Package of Practice) POP for seed material production of potato.
11. Write short notes on:
a) Time isolation in Maize b) Process of seed cleaning c) National seed act
12. Write the principles of field inspection during seed production.

Final examination- 2070
Essay Type Question: 10
1. What is the importance of seed dormancy in crop production? Discuss the factors that affect seed dormancy.
Short Questions(Attempt any Ten) 10*3=30
2. Write in brief about different phases of germination.
3. Define improved seed. Briefly explain the various classes of improved seed.
4. Define seed viability. Briefly discuss various methods to measure seed viability.
5. What are the principles of seed drying?
6. What do you mean by the determinants of seed quality?
7. Define seed processing. What are the objectives of seed processing?
8. What are the objectives of seed testing?
9. Describe in brief various types of seed storage and their significance in agriculture.
10. Write down the differences between grain and seed production.
11. Differentiate between the followings (any three):
a. Apomixis and parthenogenesis
b. Scarification and stratification
c. Nuclear and cellular endosperms
d. Mesobiotic and microbiotic seeds
12. Write down the general principles of seed production of grain legumes.

Final examination- 2070
Essay Type Question: 10
1. Define seed and seed technology. Describe the problems and scope of quality seed production in Nepal.
Short Questions(Attempt any Ten) 10*3=30
2. Explain briefly the megasporogenesis and megagametogenesis process during seed formation.
3. Write short notes on: a) Seed dormancy b) Seed Act 1998 c) ISTA d) Field inspections
4. What is seed germination? Write down the process of seed germination in brief.
5. Briefly explain the requirements for the determination of seed quality.
6. Write down genetic principles of seed proportion.
7. Define field standard and seed standard. Briefly explain the seed standards of rice seed in Nepal.
8. Briefly explain seed selection, seed treatment, time of sowing, seed rate and water management in wheat seed production.
9. Define seed processing. Write down the factors affecting seed longevity.
10. Write down the seed production and distribution systems in Nepal.
11. Define seed certification. Enlist the fundamental concept of seed certification.
12. Briefly explain the Intellectual Property Rights (IPRs).

Final examination- 2068
Essay Type Question: 10
1. How do you produce quality seed of cereal crop? Write in detail step by step.
Short Questions(Attempt any Ten) 10*3=30
2. Define seed dormancy and briefly explain the methods of breaking dormancy.
3. Discuss the importance of quality seed.
4. What is archesporial cell? Explain the process of microgametogenesis.
5. Define improved seed. Briefly explain the various classes of improved seed in your views.
6. Define seed germination and explain the patterns of seed germination.
7. Write short notes on:
a. Physiological maturity of seed b. Plant breeder's right
8. How does plant nutrition affect seed production? Discuss.
9. Writ down the principle differences between grain and seed production.
10. Write short notes on (any three):
a. Quescence b. Seed vigor c. Seed purity d. Stratification
11. Briefly describe the Nepal Seed Act 1998 and its important features.
12. Differentiate between the following (any two):
a. Seed and improved seed b. Nucleus seed and Breeder seed
c. Constitutive dormancy and enforced dormancy

TRIBHUVAN UNIVERSITY
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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 4th Semester F.M. 20
P.M. 8
Subject: Principles of Aquaculture Time: 1:30 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

EASSY TYPE QUESTION 6

1. What type of fish is called a brood fish? Describe the artificial breeding of Chinese carp?

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. How dissolved oxygen and temperature is essential for the growth and development of fish?
3. Is liming essential for the semi- intensive fish culture system?
4. How do you know about semi- intensive fish culture systems?
5. Define fish disease. Write the casual organism, disease symptoms and control measures of white spot disease?
6. Enlist the reasons of fish mortality in transportation. Describe the methods of packaging of fish seed during transportation?
7. What is pig- fish farming? What are its advantages?
8. What are the desirable characters of fish for culture?
9. What do you know about duck- fish farming system? What are it merits?

FINAL EXAMINATION - 2072

EASSY TYPE QUESTION 6

1. Define fish breeding. Explain the importance of artificial breeding and semi-artificial breeding and role of hormones?

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Differentiate Aquaculture and Fisheries? Mention the characters which make the fish suitable for culture.
3. List "Exotic" and "Indigenous" fish species that are cultured in Nepal with their common and scientific name.
4. What is thermal stratification? Discuss the role of temperature and dissolved oxygen in aquaculture
5. Define the fish farming system. "Polyculture is better than monoculture" Justify the statement.
6. "Integrated Fish Farming is more economical" Gove reasons.
7. Define brood fish. Mention the characteristics of good brood fish.
8. Write notes on:
a) Predatory and weed fishes
b) Hypophysation
9. What is white spot disease? Describe its casual organism symptoms and control measure.

FINAL EXAMINATION - 2073

EASSY TYPE QUESTION 6

1. What is Brood Fish? How will you manage it scientifically? How does small brood fish differ from female?

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. What do you mean by fisheries? How does enhanced fisheries differ from capture fisheries?
3. What is aquaculture? Enlist the desirable characters of fish to culture in a scientific pond.
4. What is polyculture?
5. How does monoculture differ from composite fish farming?
6. What is cage fish farming? How does it differ from pen fish farming?
7. What is water mould disease? Write its causal organism, disease symptoms and control measures.
8. What is intensive fish faring? How does it differ from extensive fish farming? What system do you recommend to the fish farmers and why?
9. Explain the Diel fluctuation of dissolved oxygen in pond water during sunny and cloudy days
10. What is pH? Discuss the approaches to manage unfavorable pH environment of fish pond.

FINAL EXAMINATION - 2070

EASSY TYPE QUESTION 6

1. Enlist indigenous and exotic aquaculture species that are cultured in Nepal with their common and scientific name. Describe desirable characters of Silver and Bighead carp for culture.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Define aquaculture. Classify aquaculture systems based on culture methods.
3. Discuss the role of water temperature and dissolved oxygen in aquaculture.
4. What is pond fertilization? Discuss the favorable action of organic manure over chemical fertilizers.
5. Define fish farming system. Describe rationale behind duck-fish farming.
6. Define and classify plankton. Discuss the role of plankton in fish production
7. Define brood fish. How do you differentiate mature males from female brood of common carp?
8. Discuss causal organism, symptoms and control measures of Dactylogyroses and Argulosis.
9. Write short notes on:
a) Liming of the fish pond
b) Predatory and weed fishes.

FINAL EXAMINATION - 2073

EASSY TYPE QUESTION 6

1. Enlist aquaculture species that are cultured in Nepal with their common and scientific names. Describe desirable characters of Common and Bighead Carps of culture.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Discuss the role of dissolved oxygen and pH in aquaculture.
3. What do you mean by thermal stratification? How does it occur in fish pond?
4. Describe scope of rice-fish farming in Nepal.
5. Define and classify plankton. Discuss the role of zoo-plankton in fish culture.
6. What do you mean by brood fish? What are the management practices required before breeding?
7. Discuss the causal organism, symptoms and control measures of water mould disease.
8. What do you mean by neutralizing value of liming materials? How calcium oxide has more neutralizing value than calcium carbonate?
9. Write short notes on:

a) Semi- artificial breeding of common carp
b) Control measures of predatory fish

FINAL EXAMINATION - 2067

EASSY TYPE QUESTION 6

1. Enlist indigenous and exotic aquaculture species that are cultured in Nepal with their common and scientific name. Describe desirable characters of Silver and Bighead carp for culture.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Define aquaculture. Classify aquaculture systems based on culture methods.
3. Discuss the role of water temperature and dissolved oxygen in aquaculture.
4. What is pond fertilization? Discuss the favorable action of organic manure over chemical fertilizers.
5. Define fish farming system. Describe rationale behind duck-fish farming.
6. Define and classify plankton. Discuss the role of plankton in fish production
7. Define brood fish. How do you differentiate mature males from female brood of common carp?
8. Discuss causal organism, symptoms and control measures of Dactylogyroses and Argulosis.
9. Write short notes on:

a) Liming of the fish pond
b) Predatory and weed fishes.

FINAL EXAMINATION - 2068

EASSY TYPE QUESTION 6

1. What is rice fish farming? What are its advantages and disadvantages? How does pond refuge rice fish farming differ from trench refuge?

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. Define aquaculture. What are the desirable characters of fish for culture in fish ponds.
3. Enlist the cultivated species of carp in fish ponds of Nepal along with scientific names,
4. Hat is turbidity? How will you control mud turbidity in new fish ponds?
5. Describe fish farming system. How does extensive fish farming differ from intensive system?
6. What is Saprolegniasis? Write casual organism, symptoms and treatment of water mould disease.
7. Describe brood fish. How does male brood fish if common carp differ from female?
8. Define asphyxiation. What is its sign? How will you control it in cloudy day?
9. How does monoculture differ from polyculture? What system do you recommend to the fish farmers?

FINAL EXAMINATION - 2067

EASSY TYPE QUESTION 6

1. What is principle behind pond fertilization? What are the major nutrients for a fish pond> explain role of organic and inorganicfertilizers. Describe how you fertilize a 1 bighapond.

SHORT QUESTIONS (ATTEMPT ANY SEVEN) 7*2=14

2. List "Exotic" and "Indigenous" fish species that are cultured in Nepal with their common and scientific name.
3. Why common carp is considered a popular fish for culture?
4. Why dissolved oxygen is considered as most critical water quality parameter for fish culture? How dissolve oxygen does fluctuate in green pond during 24 hours (day)? Explain with reasons.
5. Why do you need to lime in fish pond?
6. What is cage culture? describe cage culture system practices in Nepal.
7. What is "brood fish"? How do you breed common carp?
8. What is white spot disease? Describe its casual organism symptoms and control measure.
9. Write short notes on:

a) Zooplankton b)Turbidity

TRIBHUVAN UNIVERSITY
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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 4th Semester F.M. 40
P.M. 16
Subject: Agricultural Statistics Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. What is simple regression? Obtain the simple regression equation which passes through (x?, y?), and interpret the equation. y= 1+2x and / if r = 1

Short questions (Attempt any TEN) 10×3 = 30.

2. Define statistics in reference to agriculture and state its limitations.
3. What is a sample? State the characteristics of a good sample along with examples of good sample.
4. "Arithmetic mean is the best measure of central tendency", comment on this statement.
5. Consider the measurements on yield and plant height of a paddy variety.
Yield: Mean yield = 50 kg, SD = 10 kg
Height: Mean height = 55 cm, SD = 5 cm
6. What are the methods of representing data? Which method(s) is suitable to represent categorical data?
7. Define the correlation coefficient and find its value for the following observations.

x	1	2	3	4	5
Y:	2	4	6	8	10

8. State the multiplication theorem of probability. In a cattle farm, one cattle has to be selected from 50 cattle, among them 20 were Holestein, whereas 30 were Jersey, 10 of them had fat percentage more than 5 and remaining had less than 5%, 15 of them were cross breed and remaining were pure breed. What is the probability of selecting a cross breed Holestein having fat percentage more than 5%?
9. What are the parameters of Binomial distribution? If in a lot of wheat grains, 20% are of inferior quality and the rest are of superior quality, determine the probability that out of 4 grains chosen at random from this lot (a) none (b) one (c) at the most two grains will be of inferior quality.
10. Define chisquare (X2) test. Assuming the ratio of male birth to female birth to be 1:1, test the following data and see whether the data agree with expectation. There are 200 calves born and 120 of them were females.
11. Complete the following ANOVA table and answer the following questions.

SOV	df	SS	MSS	F Cal	F tab at 5%
Treatments	2	8	---	---	5.14
Replications	3	18	---	---	4.76
Error	6	10	---		
Total	11	36			

(i) Mention the design (ii) How many treatments are tested
(iii) Summarize the result
12. Write short notes on:
(i) Sampling error (ii) Coefficient of variation (CV)
(iii) Blocking or local control

FINAL EXAMINATION - 2073

Essay Type Question 10

1. Define statistics. Mention the use of statistics in your field. Describe in brief the presentation of statistical data diagrammatically.

Short questions (Attempt any TEN) 10×3 = 30.

2. What is meant by central tendency? State the limitations of mean and median.
3. Define population and sample with illustration. State any two characteristics of a good sample.
4. State the need of sampling in agriculture research. How do you conduct simple random sampling in agriculture fields?
5. Calculate lower quartile, mean and upper decile of the data given below.
6, 8, 10, 12, 9, 16, 18, 9, 15, 11, 10
6. In two pig farms following are the information regarding the weight. Find which farm shows greater consistency in weight of pigs.

Farm	Mean weight	Standard deviation
A	30 kg	4.5 kg
B	50 kg	7.6 kg

7. Find out the Karl Pearson's coefficient of skewness and interpret the result from the following information of the number of rice seed per panicle (NSPP)/NOP=No. Of Panicle

(NSPP)	200	220	230	240	250	260	270
NOP	5	7	10	15	8	5	3

8. Calculate the coefficient of correlation and interpret the result for the following observations.

X	1	2	3	4	5	6
Y	3	5	8	10	12	11

9. What do you mean by hypothesis testing? Discuss the application of X2 test.
10. In a lot of wheat seeds 30% are of inferior quality and the rest are of superior quality. Determine the probability that out of 5 grains chosen at random from this lot,
a) None of the grains will be of inferior quality
b) At least 3 grains will be of inferior quality
11. Complete the ANOVA table and summarize the result.

SOV	df	ss	ms	F	F at 5%	F at 1%
Bt varieties	4	1552	--	--		
Error (within treatments)	15	52.0	--			

12. Estimate the value of X when Y = 7 from the following data.

X	6	7	8	9	10
Y	15	10	11	9	6

Back examination-2073

Essay Type Question 10

1. Describe the different measures of variability in their sequential order of development and hence decide the best measure.

Short questions (Attempt any TEN) 10×3 = 30.

2. What are the limitations of statistics?
3. Write about the properties of binomial distribution and its parameters.
4. The frequency distribution of weight in grams of mangoes of a given variety is given below. Calculate the arithmetic mean and standard deviation.

Wt(gm)	410-419	420-429	430-439	440-449	450-459	460-469	470-479
Number	14	20	42	54	45	18	7

5. Find the regression line of the type y= a+bx for the following values:
   x: 1, 2, 3, 4, 5 y: 3, 5, 7, 9, 11
6. A researcher claims that the number of filled grains per panicle is more in a new variety of Ghaiya- 1 compared to that of old variety Ghaiya- 2. To verify his claim a random sample of 40 plants of Ghaiya-1 and 50 plants of Ghaiya- 2 were selected from the experimental fields. The following results were obtained.
Mean of Ghaiya- 1 sample mean = 139.4 grains/panicle and S = 26.864
Mean of Ghaiya- 2 sample mean = 112.9 grains/panicle and S = 20.10
7. Briefly explain the significance of t-test in agricultural research.
8. The distribution of dairy milk yield of a cow follow the normal distribution with mean 15 kg and standard deviation 2 kg. find (i) the probability with which the yield per day exceeds 18 kg (ii) the probability with which the yield per day falls less than 11 kg.
9. Make a comparative study of CRD, RBD, and LSD.
10. Define the following terms (any three):
a) Standard error b) Standard deviation
c) Randomization d) X2 test
11. Complete the following ANOVA and interpret the result.

SOV	df	SS	MSS	F- value	P- value
Between Treatment	2	231.2	--	--	0.011
Within Treatment	8	82.8	--		
Total	10	314.0			

12. Differentiate between the following terms (any three):
a) Type- I and Type- II error b) Statistics and Parameter
c) RCBD and CRD d) Coefficient of determination and coefficient of correlation

Back examination-2072

Essay Type Question 10

1. What is variability (Dispersion)? Give some reasons of variability in biological observations and discuss in short the different measures of variability in the sequential order of their development and also point out the best ones with reasons.

Short questions (Attempt any TEN) 10×3 = 30.

2. Define statistics and state its limitations.
3. What is a sample? State the characteristics of a good sample.
4. State the importance of sampling in your field of study and explain the simple random sampling (SRS) in brief.
5. Find the mean, median and mode of the following observations: 4, 1, 8, 10, 9, 5, 5, 6, 7, 6, 3, 2, 6, 7, 8
6. Consider the following observations on height of adults and children.

	Mean height	Standard deviation
Adults:	160 cm	10 cm
Children:	60 cm	5 cm

Whose height shows greater variation?
7. What is correlation? Give the methods of determining correlation.
8. Given the following values on yield and annual rainfall;

	Mean	Standard deviation
Yield (in kg)	10	8
Annual rainfall (in inches)	8	2

Correlation: 0.5
Estimate the yield when the rainfall is 9 inches.
9. State the Addition theorem of probability. A herd has 4 Haryana calves and 4 Tharparker calves, all of the same sex and almost of the same age. Find the probability that
i. One calf selected at random is Haryana
ii. Two calves selected at random are both of same breed
10.Define the X2 (chi-square) test. Assuming the ratio of male birth to be 1:1, test the following data and see whether the data agrees with this ratio or not. There are 20 calves born and 120 of them were females. (Given $X2 = 3.84$, $X2 = 6.64$)
1(.05) 1(.01)
11.What is ANOVA? Complete the following ANOVA and answer the questions.

SOV	df	SS	MS	Fcal	F tab at 5%
Trtmnt	2	8	---	---	F(2,6) = 5.14
Repl^n	3	18	----	---	F(3,6) = 4.76
Error:	6	10	---		
Total:	11				

12.Write short notes on (any three):
(i) Degrees of freedom (df) (ii) Coefficient of variation (cv)
(iii) Replication (iv) Normal distribution

Final examination- 2072

Essay Type Question 10

1. What is sampling? Explain the importance and purpose (aims/ objectives) of sampling in brief along with the characteristics of a good sample. Also define the simple random sampling (SRS) and the situation in which it is applicable.

Short questions (Attempt any TEN) 10×3 = 30.

2. What are the different ways for measuring the central tendency of data? Which one you consider the best one and why? Obtain the measures of central tendency of the following observations: 4,1, 8, 10, 9, 5, 5, 6, 7, 6, 3, 2, 6, 7, 8

3. Define the standard deviation (SD) and the coefficient of variation (CV) along with conditions (S) of their application. What do you they measure?

4. The following observations on two varieties of paddy A and B are given. Discuss their efficiency and consistency.

	Mean yield	SD
A:	60 kg	10 kg
B:	50 kg	9 kg

5. Which method is suitable for representing categorical data/ differentiate between the Bar diagram and Histogram.

6. Define the rank correlation. Ten farmers who were participating in a debate on a farming system were ranked by two judges A and B as follows. Find the rank correlation between the judges and interpret it.

Farmers:	1	2	3	4	5	6	7	8	9	10
A:	4	10	2	5	1	9	6	3	7	8
B:	5	9	3	4	2	10	7	1	6	8

7. Find the regression equation of y on x for the following observations.

x	1	2	3	4	5
y:	3	5	7	9	11

8. State the addition theorem of probability. A herd has 4 Haryana calves and 4 Tharparker calves, all of the same sex and almost of the same age. Find the probability that

i. One calf selected at random is Haryana

ii. Two calves selected at random are both of same breed

9. What are the parameters of Normal distribution? Draw a neat and clean diagram of standard normal curve and state its properties, particularly the area properties.

10.Define the t-test and write the conditions for its application. Just write the cases of application.

11.Complete the following ANOVA table for 5 varieties testing with 4 replications and answer the questions:

SOV	df	SS	MSS	Fcal	F at 5%
Trtmnt	4	359.30	--	--	3.06
Error	-----	311.25	--		
Total	19	670.55			

i. Mention the design ii) Mention the H0 iii) Summarize the result

12.Write short notes (any two):

a) Blocking/ local control b) Types of error and level of significance c) F-test

FINAL EXAMINATION - 2065

Essay Type Question 10

1. Explain about the basic principles of field experimentation

Short questions (Attempt any TEN) 10×3 = 30.

2. In a sample survey on the yield of two varieties of paddy, say A and B, the mean yield were found A= 2500 and B= 1500 kg/ha. The standard deviation were 95 and 80 kg/ha respectively. Which variety is subjected to more variation?

3. Explain briefly about mutually exclusive and complementary events.

4. Certain drug was found to be effective in 25% of the cases in animals when administered over a long period of time. If a doctor is now administering the drug to 5 animals, what is the probability that it will be effective for at least 3 of the animals?

5. The mean weight of 500 male pigs in a certain pig shed is 151 lbs and the S.D. is 15.0 lbs. assuming that the weights are normally distributed, find how many pigs do weigh between 120 and 155 lbs.

6. The following data are for the amount of water supplied in inches and yield of alfa alfa in tons/ acre:

Water (X)	12	18	24	30	36
Yield (Y)	5.3	5.7	6.5	7.2	8.2

Find the regression of yield on water. Assuming that the relation between the two is linear, calculate the expected yield when the amount of water supplied is 20 inches.

7. Why arithmetic mean is superior than other measures of central tendency?

8. Two laboratories carry out independent estimates of fat content for ice-cream made by certain firm. A sample is taken from each batch, halved, and the separate halves sent to the two laboratories. They obtained the following results:

Batch no.	1	2	3	4	5
	6	7	8	9	10
Lab A	9	8	7	3	8
	6	9	4	7	6
Lab B	7	8	8	4	7
	7	9	6	6	8

Is the testing reliable?

9. In the cross of peas, the F2 progeny gave the following data on shape and colour.

	Round	Wrinkled	Total
Yellow	315 (1)	101 (3)	416
Green	108 (2)	32 (4)	140
Total	423	133	556

From the result, can it be said that the segregation (1 to 4) follows the Mendalian ratio of 9:3:3:1?

10.The calculated values of six varieties of rice in 4 randomized blocks are given below:

Varieties of rice	A	B	C	D	E	F
Mean yield (kg/plot)	15.0	5.5	9.0	8.0	13.0	8.0

Correction factor (CF) = 2420

Total sum of squares (T.S.S) = 297

Replication or block sum of squares (B.S.S) = 12

Treatment sum of square = 237

Analyze the data and state your conclusions.

11.Differentiate between CRD and RCBD.

12.Write short notes on:a) Type of error b) Null hypothesis

TRIBHUVAN UNIVERSITY
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 4th Semester F.M. 40
P.M. 16
Subject: Vegetable and Spice Crop Production Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Define solanaceous vegetable crops with suitable examples and describe the Brinjal under following headings (a) Climate and soil (b) Nursery Raising (c) Promising Varieties (d) Harvesting and seed extraction.

Short questions (Attempt any TEN) 10×3 = 30.

2. What do you mean by cole crops? Enlist the popular cole crops with their botanical name and family.
3. Define root crops with examples and put your reason why carrot is grown in Kathmandu Valley.
4. Discuss growing time, climate, seed rate and varieties of Okra.
5. Define seed spices and describe turmeric or ginger with respect to soil, propagule, harvesting and curing.
6. Briefly describe the cultivation practices of spinach and swiss chard.
7. Describe potato on (i) Plantin method (ii) True Potato seed (TPS) (iii) Late Blight Disease
8. Discuss about the maturity judgement of sponge gourd, cucumber, water melon and musk melon
9. Differentiate between: (a) Cumin and Coriander (b)Sweet potato and tree tomato (c) Kitchen garden and truck garden
10. Write short notes on (any three): (a) Legume Vegetables (b) Pointed gourd (c) Colacasia (d) Knolkhol
11. Briefly describe the importance of preserving indigenous vegetable seeds.
12. Write about the following in short:

a) Use of plant growth regulators in vegetable crops
b) Importance of isolation distance in seed production
c) Blanching

FINAL EXAMINATION - 2072

Essay Type Question 10

1. What is the scope and importance of vegetable and spice crops in Nepal? Discuss the total package of cultivation including off-season production of Tomato.

Short questions (Attempt any TEN) 10×3 = 30.

2. Discuss cauliflower on (i) Promising varieties including hybrids (ii) Disorders
3. Discuss the planting method and planting material of potato.
4. Discuss the climate and soil for growing carrot and radish including varieties.
5. Discuss about the maturity indices of fruits of cucurbits.
6. Discuss onion and garlic in (i) major varieties (ii) harvesting and curing of bulbs
7. Describe ginger or turmeric on preparation of planting materials and processing.
8. Give the importance of leafy vegetables, briefly describe the methods of cultivation and any one major leafy vegetable.
9. Discuss botany and cultivars of okra and pea.
10. Briefly mention your own view about the crop improvement of chili and coriander,
11. Differentiate between (any three):

a) Kitchen garden and roof garden b) Vegetable and fruits
c) Pest and pesticide d) Seed and seedlings

12. Write short notes on (any six)

a) Chayote b) Pointed gourd c) Drumstick
d) Asparagus e) Knolkhol f) Yam g) Cassava

FINAL EXAMINATION - 2073

Essay Type Question 10

1. Describe the scope and vegetable and spice crops in Nepal and discuss the cultivation of tomato under the following headings.

a) Climate and soil
b) Off season production techniques
c) Disease and pests
d) Seed extraction methods

Short questions (Attempt any TEN) 10×3 = 30.

2. Briefly discuss the seed production method of cabbage
3. What do you mean by sex ratio in cucurbits? How will you regulate the sex ratio in cucurbits?
4. What do you mean by spic crops? Discuss ginger or turmeric on planting and processing
5. Enlist the leafy vegetables grown in Nepal. Discuss briefly the cultivation of Rayo.
6. Discuss the varieties and disorders of cauliflower
7. What do you mean by root vegetable> discuss about the climatic requirement and varieties of Carrot and Radish.
8. Briefly describe about Okra and Broad Bean on following headings

a) Climate and Soil b) Varieties

9. Describe onion and garlic under following headings:

a) Soil and climate b) Varieties c) Harvesting and curing of bulbs

10. Briefly discuss about the cultural practices of cumin and coriander
11. Give short notes on: (any six)

a) Chayote b) Asparagaus c) Yam d) Tree tomato
e) Knolkhol f) Pointed gourd g) Sweet potato h)Cassava

12. Write about the following in short (any three)

a) Blanching
b) Use of plant growth regulators in vegetable crops
c) Importance of TPS in potato production programmes
d) Importance of roguing in vegetable seed production

FINAL EXAMINATION - 2072

Essay Type Question 10

1. There is a great scope for vegetable and spice crop production in Nepal" Justify the statement in the present context.

Short questions (Attempt any TEN) 10×3 = 30.

2. What do you mean by cole crops? Briefly discuss about the seed production techniques of cabbage.
3. What is the most serious problem encounters during nursery raising of vegetable and how it can be controlled.
4. Describe in brief the cultivation of tomato under the following heads?

a) Climatic requirement
b) Fertilizer requirement and its method of application
c) Harvesting and seed extraction techniques

5. Write short note son (any two)

a) Disorders in cauliflower
b) Propagation of pointed gourd c) Chayote

6. What are the major leafy vegetable grownthrougout the world? Describe Broad Leaf Mustard with respect to:

a) Soil and climate b) Time and method of planting

7. Differentiate between (any two)

a) Insitu and transplanting method of radish seed production
b) Weeding and roguing c)Asiatic and European type carrot varieties

8. Discuss the following points (any two):

a) Harvesting of water melon b) Vegetable forcing
c) Hardening of seedlings

9. What do you mean by seed spices? Describe coriander with respect to botany, varieties and harvesting.
10. Describe pea with respect to soil and climate, popular cultivars, seed rate and spacing.
11. What is the present status of vegetable production in Nepal? Give your valuable inputs to increase the production to meet the country requirement.
12. Describe in brief the cultivation of okra with respect to:

a) Popular cultivars b) Sowing time and seed rate
c) Harvesting and yield

FINAL EXAMINATION - 2071

Essay Type Question 10

1. What is the status and scope of vegetable and spice crops in Nepal? Discuss the production package including off- season production as well as production problems of tomato in Nepal

Short questions (Attempt any TEN) 10×3 = 30.

2. Give shrot note son (any three)
a) Chayote b) Drumstick c) Tam d) Asparagus
3. Enlist major spice crops grown in Nepal.Discuss ginger of turmeric or land preparation, planting and processing.
4. Discuss the cultivation practices and major varieties of Rayo
5. Discuss the flower regulation/ sex regulation in cucurbits.
6. Enlist the varieties of carrot and radish, and also mention theland preparation, manuring and fertilization
7. Discuss cauliflower on (i) Botany (ii) Varieties (iii) Disorders
8. What do you mean by Bulb crops? DIiscuss onion (i) climate and soil (ii) harvesting and curing of bulbs
9. Discuss about the maturity indices of cole crops and cucurbits.
10. What is the popularity of cumin and coriander in Nepal? Also mention the cultural practices and harvesting
11. Write about the following in short:
a) Importance of TPS in potato
b) Use of plant growth regulators in vegetable crops
c) Propagation techniques in sweet potato and pointed gourd
12. Discuss about Okra and French bean on (i) varieties (ii) major production problems.

FINAL EXAMINATION - 2070

Essay Type Question 10

1. What is status and scope of vegetable and spice crops in Nepal? Discuss the production package including off- season

Short questions (Attempt any TEN) 10×3 = 30.

2. Enlist major spice crops grown in Nepal. Discuss ginger of turmeric or land preparation, planting and processing.
3. What is the importance of leafy vegetables? Discuss the cultivation practices and major varieties of Rayo
4. Enlist the varieties of carrot and radih, and also mention th eland preparation, manuring and fertilization
5. Discuss cauliflower on (i) Botany (ii) Varieties (iii) Disorders
6. Discuss the flower regulation/ sex regulation in cucurbits.
7. What do you mean by bulb crops? Discuss onion on (i) climate and soil (ii) harvesting and curing of bulbs
8. Discuss about Okra and French bean on (i) varieties (ii) major production problems.
9. Discuss about the maturity indices of cole crops and cucurbits
10. What is the popularity of cumin and coriander in Nepal? Also mention the cultural practices nad harvesting
11. Give short notes on (any three):
a) Chayote b) Drumstick c) Yam d) Asparagus
12. Write about the following in short.
a) Importance of TPS in potato
b) Use of plant growth regulators in vegetable crops
c) Propagation techniques in sweet potato and pointed gourd.

FINAL EXAMINATION - 2070

Essay Type Question 10

1. Describe in brief, the package of potato cultivation practices being employed in Nepal

Short questions (Attempt any TEN) 10×3 = 30.

2. Discuss the seed production techniques of cabbage.
3. Describe the coriander with respect to soil and climate, soloing time, harvesting and curing.
4. Explain the following terms
a) Blanching b) Pricking c) Stecklings d) Scooping
5. Describe the pea with respect to soil and climate, seed rate and seed treatment, manuring and fertilization.
6. Classify onion cultivars on the basis of shin color. Describe off season production of onions by onion set.
7. Enlist leafy vegetable (with botanical name) and describe spinach with request to time of socoing varieties, seed rate and spacing
8. Give short introduction of the following minor vegetables
a) Drum stick b) Tree tomato c) Knolkhol d)Beet root
9. Describe in brief a) Maturity judgement for harvesting of watermelon b) Downy mildew of bitter gourd
c) Little leaf disease of brinjal
10. Distinguish between:
a) Hot pepper and sweet pepper
b) Determinate and indeterminate tomato
c) Asian type and European type carrot
11. Describe the botany and major insect pest Radish and Turnip
12. What do you mean by Cole crops? Describe major nutritional disorders of Cole Crops

FINAL EXAMINATION - 2068

Essay Type Question 10

1. There is great importance and scope of vegetable and spice crops in Nepal" Comment on this statement in the present context.

Short questions (Attempt any TEN) 10×3 = 30.

2. What do you mean by cole crops? Describe cabbage under the following heads:
a) Climatic and edaphic requirements
b) Improved varieties c) Major diseases and pests
3. Describe in brief on seed production techniques employed in radish
4. Describe cucumber with respect to:
a) Improved varieties b) Seed rate and spacing
c) Manure and fertilizer requirement d) Seed extraction
5. Write short notes on:
a) Chayote b) Seed extraction techniques of tomato
6. Write in brief about the disorders of cauliflower along with their possible remedies.
7. What are the important leafy vegetable grown in Nepal? What should be done in crop improvement program in leafy vegetables?
8. Differentiate between:
a) Determinate and indeterminate type of tomato
b) Weeding and roguing c) Hoeing and ploughing
9. Enlist solanaceous vegetable crops grown in Nepal. Describe any one with the reference to:
a) Important varieties
b) Time and method of sowing/ planting
c) Fertilizer requirement and its application techniques
10. What is seed species? Describe any one of them with reference to:
a) Field preparation b) Sowing technique
c) Seed rate and spacing
11. Write short notes onL
a) Propagation of pointed gourd
b) Hardening of seedlings in nursery
12. Enlist some popular cultivars of onion and give your valuable suggestion to reduce the post-harvest loss during storage.

TRIBHUVAN UNIVERSITY
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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 4th Semester F.M. 40
P.M. 16
Subject: Introductory plant breeding Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Explain in detail operations involved in production of hybrids showing relevant crossing scheme. What are basics steps in hybridization procedure?

Short questions (Attempt any TEN) 10×3 = 30.

2. A plant breeder found two inbred lines with genotypes AAbb and aaBB. A and B alleles are dominant. These two inbred lines were crossed and F1 hybrid was obtained. The F1 was selfed to produce F2. Each dominant gene, in homozygote condition contributes 13 cm towards the panicle length of the hybrid. In the absence of dominant, each homozygote recessive gene contributes 10 cm towards the panicle length of the hybrid. Similarly, the gene in heterozygote condition contributes 15 cm towards the panicle length of hybrid.

i. Calculate Heterosis and Inbreeding depression indicating hypothesis involved. ii. Interpret the results.

3. Estimate heritability from the following data.

Population	Variance
P1	11
P2	10.32
F1	5.23
F2	90.35
BC1	47.35
BC2	54.29

4. Enlist method of crop improvement for inbreeders. How do you transfer a disease resistant recessive gene from wild species to local cultivar?
5. Mention different factors that affect gene and genotype frequencies. A population consisting 10,000 individuals, 25 individuals are of 'aa' genotype. If the population is in hardy-weinberg equilibrium, find the gene and genotype frequencies of that population.
6. Calculate gametic and phenotypic frequencies of GGGg individuals after selfing. Also, write types of genotype and phenotype.
7. What are advantages of partial diallel cross? Make a partial diallel scheme involving 8 parents.
8. What are major conclusions from pureline theory? Describe Johannsen experiment in detail.
9. Enlist defence mechanisms of host against pathogen. Describe and differentiate; vertical and horizontal disease resistance.
10. For a quantitative trait in a random matign population, the mean and variance are 60 cm and 81 cm2 respectively. The narrow sense heritability of this trait is 0.5. Truncation selection is practiced with a selection differential 10. What is the genetic gain? Also, find the expected mean in the next generation.
11. Define gene pool and classify it. State the law of homologous series in variation.
12. What is G×E interaction? Mention significance and causes of G×E interaction.

Back examination- 2074

Essay Type Question 10

1. Define plant breeding. State different breeding methods in self and cross pollinated crops. Explain with diagram breeding methods that are practiced in self-pollinated crops.

Short questions (Attempt any TEN) 10×3 = 30.

2. Write about the objectives of plant breeding.
3. Briefly explain the self-pollination enforcing mechanisms. What are the genetic consequences of self-pollination?
4. Define cytoplasmic male sterility. Show the cross how male sterile line in maintained during production of single cross hybrid and double cross hybrid?
5. Define heterosis. Write the causes of heterosis and theories governing heterosis.
6. Explain how genetic variation can be originated in a population.
7. For a quantitative trait in RMP, mean is 100 and variation is 240. The regression of the offspring on mid-parent value is 0.25. Truncation selection is practiced with a selection differential of 32. What is the expected mean in the next generation?
8. Explain gene for gene relationship between a host and a pathogen governing susceptible or resistance reaction.
9. Define intellectual property right. Explain it forms.
10. Differentiate qualitative and quantitative traits.
11. Explain the role of environment on quantitative character.
12. Write about the status of rice breeding in Nepal.

Final examination- 2073

Essay Type Question 10

1. How do you transfer disease resistant gene from uncultivated genotype to cultivated cultivar, which is susceptible? Explain in detail.

Short questions (Attempt any TEN) 10×3 = 30.

2. Explain briefly the various mechanism which promote self and cross pollination in crop plants.
3. Differentiate between gametophytic and sporophytic systems of self-incompatibility.
4. How do you produce single, double and three way cross hybrids using cytoplasmic male sterility? Explain.
5. Explain pureline theory given by Johannsen.
6. Briefly explain about hypothesis governing heterosis.
7. What are the defence mechanisms of host against natural enemy? Explain.
8. What is patent? Explain its requirements.
9. Mention current research activities carried out by NARC in the improvement of wheat crop.
10. Write main achievements of plant breeding in the context of Nepal.
11. Enlist different breeding methods used in Rice and Maize crops.
12. How transgressivesegregants are produced? Present with the help of suitable figure

Final examination- 2072

Essay Type Question 10

1. What do you mean by heterosis and inbreeding depression? A plant breeder crossed two genotypes of wheat AAbb and aaBB to get F1. The F1 was selfed to obtain F2. On the basis of hetrosisgoverning theories (dominance and over dominance), find all kinds of heterosis and inbreeding depression. Each of the dominant homozygote, heterozygote and recessive homozygote contributes 4 ton, 6 ton and 2 ton per hectare in yield respectively. The commercial variety of wheat yield 5 ton/ha.

Short questions (Attempt any TEN) 10×3 = 30.

2. Write in short about the different activities in plant breeding directed to release a superior cultivar.
3. A cultivated variety of wheat became susceptible to a fungal disease which drastically reduced the yield. However, a wild variety is resistant to this fungus. If the resistance is a dominant trait governed by 'R' gene, is it possible to transfer this trait to the cultivated variety? Give procedure with you logics.
4. State Hardy-Weinberg Law. A population consisting of 10,000 individuals, 49 individuals are of 'aa' genotype. If the population is in Hardy-Weinberg equilibrium, find the gene and genotype frequencies of that population.
5. State law of homologous series in variation by N.1 Vavilov. Discuss the relationship between primary, secondary and tertiary gene pools with respect to their combining ability.
6. Explain pureline theory in the basis of Johansen's experiment. What might be the applications of this theory in breeding program?
7. For a quantitative trait in a RMP, the mean is 100 and the variance is 240. The regression of the offspring on mid parent value is 0.25. Truncation selection is practiced with a selection differential of 32. What is the expected mean in the next generation? Also, find the heritability of that trait.
8. What is intellectual property right? Write the requirements of patent.
9. List different breeding methods used in wheat and maize crops. Give your logics why generally a long time is required to release a variety in self-pollinated crops as compared to cross pollinated crops?
10. Briefly explain the different defence mechanisms of host against pathogen/parasite. Which of horizontal or vertical resistance is desirable in a commercial cultivar, why?
11. How do you produce single, double, and three way cross hybrids? Explain with the help of suitable figures.
12. Differentiate between qualitative and quantitative traits.

Back examination- 2072

Essay Type Question 10

1. What is G×E interaction? Explain the various methods of estimating G×E interaction.

Short questions (Attempt any TEN) 10×3 = 30.

2. Define plant breeding. What are the major objectives of Plant Breeding?
3. Differentiate between:
a) Self incompatibility and male sterility
b) Self-pollinated crops and cross pollinated crops
4. What is male sterility? List the various types of male sterility found in plants.
5. Explain the Pureline theory of Johansen.
6. What is inbreeding depression? Describe the effect of inbreeding.
7. What are the merits and demerits of mass selection?
8. Differentiate between:
a) Horizontal resistance and vertical resistance
b) Disease resistance and disease escape
9. Differentiate between:
a) Autopolyploid and allopolyploids
b) Aneuploid and euploid
10. Write your view on Breeder Rights and Farmers Right.
11. Define mutation. List the different types of mutagens.
12. What should be the maize breeding objectives for Nepal?

Final examination- 2070

1. Suppose two inbred lines A and B are crossed to produce F1 hybrid. The F1 is selfed and F2 is produced. The genotype of inbred line A is AAbb and the genotype of inbred B line is aaBB. A and B are the dominant genes and each contribute 12 cm towards the spike length of the hybrid. In the absence of dominants, each recessive gene contributes 8 cm towards the spike length of the hybrid. The spike length of the best commercial variety is 22 cm.
i. Find the spike lengths of the parents, F1 and F2 progeny
ii. Find all kinds of Heterosis and Inbreeding depression
iii. Interpret the results.
2. How do you develop single and double cross hybrids using cytoplasmic male sterility? Explain.
3. Differentiate between gametophytic and sporophytic system of self-incompatibility with the help of well labeled figures.
4. Enlist various types of breeding methods used in self-pollinated crops. And, how a disease resistant dominant gene is transferred from uncultivated genotype to cultivated cultivar? Outline the breeding procedure.
5. The mean days to maturity and variance are 120 and 144 respectively. A plant breeder selected the top 5%plants from base population and found mean days to maturity 110 in the next generation .Find the genetic gain and heritability of this trait.
6. On the basis of following table ,answer the following questions:

Cultivar	Virus concentration	Yellowing	Yield with virus	Yield without virus
A	100	8	80	90
B	60	0	97	100
C	50	0	90	70

a. Which cultivar is the most susceptible and why?
b. Which cultivar is the most resistant and why?
c. Which cultivar is the most tolerant and why?
d. Which cultivar is the most sensitive and why?

7. Give the conclusive remarks of pureline theory given by Johannsen on the basis of his study in French bean.
8. What is the frequency of the heterozygote (Bb) in a random mating population, if the frequency of recessive phenotype (bb) is 0.04?
9. Differentiate between full sib and half sib selection. Which selection scheme is the most effective in breeding maize? Logically explain.
10. What do you mean by Plant Breeder Right (PBR)? What are the main points to be considered in getting PBR?
11. Briefly explain applications of allopolyploids with the help of suitable examples.
12. Present current research activities carried out by Nepal Agriculture Research Council (NARC) for the improvement of wheat crop.

Final examination- 2068

Essay Type Question 10

1. Suppose two inbred lines A and B are crossed to produce F1 hybrid. The F1 is selfed and F2 is produced. The genotype of inbred line A is AAbb and the genotype of inbred B line is aaBB. A and B are the dominant genes and contribute 12 cm and 10 cm towards the spike length of the hybrid respectively. In the absence of dominants, each recessive gene contributes 4 cm towards the spike length of the hybrid. The spike length of the best commercial variety is 25 cm.
(i) Find the spike lengths of the parents, F1 and F2 progeny (ii) Calculate average heterosis, heterobeltiosis, economic heterosis and inbreeding depression. (iii) Interpret the results.
2. In a random mating population, the mean plant height and variance are 120 cm and 121 cm2 respectively. A plant breeder selected the top 5% plants from the base population and found mean plant height 110 cm in the next generation. Find the genetic gain, selection differential and the heritability of this trait.
3. Half sib and full sib selection breeding methods are used in crop improvement of cross pollinated crops like maize. Which one is the most effective and why?
4. How do you produce double cross hybrid using genetic male sterility? Outline the procedure.
5. What different types of progeny will occur in gametophytic and sporophytic system of self-incompatibility from the following cross? In which system, homozygous progeny can occur and why? The dominance relation operates like S1> S2>S3> S4.

Parents		Gametophytic SI		Sporophytic SI	
Male	Female	Reaction	Progeny	Reaction	Progeny
S1S3	S1 S2				
S1 S2	S1 S3				
S2 S3	S1 S4				

6. State Hardy- Weinberg law. Compute gene and genotypic frequencies from the following data and mention how many plants are disease resistant. Note that the susceptible gene, R is dominant over resistant gene, r.

Genotype	RR	Rr	rr
Frequency	32	48	20

7. What is gene for gene hypothesis? Write compatible (+) and incompatible (-) reaction with the help of following information. Which are the most resistant and most susceptible reaction types and why?

Host genotypes	Pathogen genotypes				
$R_1 R_1R_2 R_2 R_3R_3$	$a_1a_1a_2a_2a_3a_3$	$A_1A_1 a_2a_2a_3a_3$	$A_1A_1 A_2A_2 a_3a_3$	$a_1a_1a_2a_2A_3A_3$	$A_1A_1 A_2A_2 A_3 A_3$
$R_1 R_1r_2 r_2 R_3R_3$					
$r_1r_1 R_2 R_2r_3r_3$					
$r_1r_1 r_2r_2 R_3R_3$					
$r_1r_1 r_2r_2 r_3r_3$					

8. Make a partial diallel crossing scheme involving 11 parents and a three way cross involving 3 parents. Parents are represented like P1, P2, P3… P12.
9. How do you release a superior variety of rice (Oryza sativa) if the existing variety yields 3.5 t/ha and is 75% disease resistance.
10. How do you produce hybrid seed using on self-incompatible (P1) and another self-compatible (P2) parents?
11. Write various breeding methods used in self-pollinated crops. How do you transfer a disease resistant dominant gene, R from non-cultivated genotype to a commercially cultivated variety which is disease susceptible? Outline the breeding procedure.
12. Briefly explain about research activities that are being carried out by Nepal Agriculture Research Council for the improvement of wheat (Triticumaestivum) in the context of Nepal.

TRIBHUVAN UNIVERSITY
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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 4th Semester F.M. 20
P.M. 8
Subject: Soil physics, genesis and classification Time: 1:30 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 6

1. What do you mean by soil taxonomy? Explain the major soils found in Nepal with their uses.

Short questions (Attempt any Seven) 7×2 = 14.

2. How does maize field differ with rice field in terms of soil water movement?
3. Define capillary rise and briefly explain the effect of soil texture on water conductivity with suitable figure.
4. Explain soil moisture release and retention curve with suitable figure and discuss its significance in water management.
5. How can you manage soil temperature in the agricultural land?
6. How does human activities affect soil aeration?
7. Enlist the surface diagnostic horizons and differentiate between mollic and umbricepipedons.
8. Enlist the major soil moisture regimes and discuss the characteristics of Udic soils.
9. Write short notes on (any two):
a) Cryic soils b) Carbonation c) Soil water energy

BACK EXAMINATION - 2073

Essay Type Question 6

1. Explain the factors affecting soil aggregate formation and write the methods to improve soil structure in field cultivated.

Short questions (Attempt any Seven) 7×2 = 14.

2. Define soil moisture characteristic curve and discuss it significance in water management in crop field.
3. Enlist the surface diagnostic horizons and describe the characteristics of the Ochricepipeon.
4. What is soil classification? Describe the nomenclature system of suborder with examples.
5. Entisols from the terai region differ from the hilly region, how? Describe with reasons.
6. Discuss the hydration and hydrolysis weathering of rocks and minerals. Justify with chemical reactions.
7. Discuss the characteristics of soils found in Siwalik Region of Nepal.
8. Differentiate between mesic and isomesic soil temperature regimes.
9. Write short notes on (any two):
a) Soil moisture control section b) Hysteresis
c) Fluvaquents

FINAL EXAMINATION - 2073

Essay Type Question 6

1. Explain the major types of soils found in Nepal with their uses.

Short questions (Attempt any Seven) 7×2 = 14.

2. Define soil moisture characteristic curve and discuss its significance in water management.
3. Enlist the surface diagnostic horizons and describe the characteristics of the Ochricepipedon.
4. What do you mean by soil classification? Describe the nomenclature system of suborder with suitable examples.
5. Entisols formed in terai region differ with that formed in hilly region, how?
6. Discuss the hydration and hydrolysis in relation to weathering of rocks and minerals.
7. Discuss the characteristics of soil found in Mustang region.
8. Describe the methods of soil structure improvement in the crop field.
9. Write short notes on (any two):

a) Soil Aggregation b) Darcy's Law c) Fluvaquents

FINAL EXAMINATION - 2070

Essay Type Question 6

1. What is the basis of classifying soils in Soil Taxonomy? Explain the characteristic features of major soils found in Nepal.

Short questions (Attempt any Seven) 7×2 = 14.

2. Define capillarity. How adhesion and cohesion are responsible for capillary movement of soil water?
3. Differentiate between saturated and unsaturated flow of soil water. How dos water flow under field condition?
4. How dos the vegetation influence soil aggregation? Describe.
5. What are the impacts of poor aeration in cultivated land? Explain the measures to improve soil aeration.
6. What are the processes of weathering of rocks and minerals? How do human beings influence the weathering process of rocks and minerals?
7. List out the master horizons and explain diagnostic horizons induced by human beings.
8. Define soil moisture control section (SMCS). Differentiate between Mesic and Thermic Soils.
9. Define:

a. Alfisols

b. Hyste

FINAL EXAMINATION - 2072

Essay Type Question 6

1. Define soil moisture retention curve (SMRC). Explain the factors that could affect the SMRC. Also, explain the practical application of this curve in soil water management for crop production.

Short questions (Attempt any Seven) 7×2 = 14.

2. Explain the energy concept of soil water. Why is matric potential of soil water always negative?
3. Explain the salient features of Comprehensive system of soil classification. List the criteria used to classify soil at different levels of generalizations.
4. Define soil physics and derive the relationship between the volumetric and gravimetric water contents of soil.
5. What Darcy's law and derive the Darcy's equation under saturated vertical movement of water in soil.
6. Define infiltration and why does the rate of infiltration decrease with time?
7. Describe the mechanism of formation of stable soil aggregates.
8. List the major soil orders found in Nepal and briefly explain the 'inceptisols' found in Nepal.
9. Describe the general properties of this soil family: loamy, mixed, mesic, TypicArgiustoll.

FINAL EXAMINATION - 2070

Essay Type Question 6

1. Explain soil moisture characteristic curve (SMCC) in different textured soil. Discuss the practical implications of SMCC and hysteresis effect on the curve with figure.

Short questions (Attempt any Seven) 7×2 = 14.

2. Define soil water potential. Interpret the relationship between potential energy of pure water and soil water with the help of a graph.
3. What is hydraulic conductivity? Discuss the relationship between matric potential and hydraulic conductivity in different textured soil.
4. Define:

a. Field capacity b. Infiltration rate c. Capillarity

5. Why is soil aeration important? Discuss the measures to improve soil aeration and heat movement in cultivated land.
6. Define weathering of parent material. Discuss the roles of various forms of water and temperature in soil profile development.
7. Explain the horizon designation in a soil profile with a diagram.
8. Mention the unique features of comprehensive system of soil classification. Discuss the structure of classification system with implication of the name TypicArgiaquolls, fine, mixed, mesic, active.
9. Discuss the status of classification of Nepalese soil with properties of inceptisols

Final examination- 2066

Essay Type Question 6

1. Define soil moisture retention curve. Explain the factors that affect the soil moisture retention curve (SMRC). Also, explain the practical application of this curve in soil water management for crop production.

Short questions (Attempt any Seven 7×2 = 14.

2. Describe the salient features of comprehensive system of soil classification. List the criteria used to classify soils at different levels of generalizations.
3. Explain the reasons why presence of stratified layer of sand in lower horizon of clay soil impede the downward movement of water?
4. Describe the master soil horizons and layers of soil profile and list the importance of studying soil profile.
5. List the reasons of decreasing infiltration rate with time. Describe the factors that affect the rate of infiltration.
6. Define energy concept of soil water and briefly explain the matric-potential (?m) of soil- water.
7. Explain DARCY's equation for the saturated flow of water in soil. Also, differentiate between saturated and un-saturated flow of water in soil.
8. What is weathering of rocks and minerals? Describe in brief the physical weathering of rocks and minerals.
9. List the major soil orders found in Nepal. Briefly explain the inceptisols.

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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 4th Semester F.M. 20 P.M. 8

Subject: fodder production & pasture management Time: 1:30 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 6

1.Discuss feeds and feeding in relation to pasture situation in Nepal. What could be the appropriate techniques and ways to overcome feed deficit situation of Nepal?

Short questions (Attempt any Seven) 7×2 = 14.

2.Discuss critical factors associated to nutrition of grazing animals ?
3.Write the common principles of pasture establishment.
4.Write down the major chemical changes during silage formation.
5.What are non-carbohydrates? How they are valued in feed?
6.Discuss silvipastoral system in relation to feed supply.
7.Discuss on the production and management of Stylo.
8.What is the preservation of forage? Write about the mechanism of silage preservation.
9.Write short notes on:
a. Hay b. Nutrition of grazing animals
c. Sward d. Stocking density

Final examination- 2073

Essay Type Question 6

1.Describe the factors affecting nutritive value of forages /pasture in relevance to livestock feeding.

Short questions (Attempt any Seven) 7×2 = 14.

2.Describe the feeds and livestock feeding situation in Nepal.
3.Explain the following terms .
a. fodder b. pasture c. rangeland d. forbs
4.What are the difference between the temperate and tropical fodder grasses?
5.Why does legumes yield less biomass than grasses species?
6.What are the factors affecting fodder and pasture productivity ?
7.What are the basic difference in hay, haylage and silage? Illustrate the chemical changes during silage making.
8.What are the requirements for pasture establishment?
9.Describe in short the cultivation practices of Napier and White Clover.

Final examination- 2073

Essay Type Question 6

1.Explain the importance and scope of fodder production in Nepal.How pasture can be managed to improve productivity of our livestock?

Short questions (Attempt any Seven) 7×2 = 14

2.How soil can be as important factor on fodder production ?Explain.
3.How forage is converted into silage? Explain.
4.Discuss briefly about the cultivation practices of Stylo.
5.What are the Factors affecting chemical composition / nutritive value of fodder crops?
6.What do you mean by silvipasture .Write its advantages.
7.Give your opinion about significance of practicing alternative feeding resources in our situation with examples.
8.What are the characteristics of good quality hay ? Write about the advantages and appropriate plant stage for hay making.
9.Write short notes on:
a.Teosinte b. Pasture establishment
c. Grazing system d. Effect of climate on fodder production

Final examination- 2072

Essay Type Question 6

1.Explain the situation of feed supply in the different region of Nepal.And discuss the strategy and guidelines to overcome the feed deficiate for the improve livestock in Nepal.

Short questions (Attempt any Seven) 7×2 = 14

2.Write about important factors affecting chemical composition of forage.

3.Write the cultivation practices of stylo and Berseem on the following headline.

a.Seed rate b.Sowing method
c.fertilizers use d.yield

4.What do you mean by silvipastoralsystem? Write its importance and give the selection criteria of tree for silvipastoral system.

5.How can you improve the protein value of straw?Write its process.

6.Describe the grassland management IN following headline: Reseeding ,introduction of legume ,fertilizer application ,grazing management.

7.Write short notes on:

a.Alternative feed resources b.Nutrition of pasture

8.How the silage is preserved ?Write the changes occurs in silage after ensiling.

9.Write short notes on ;

a.Wastelage b.Grass tetany
c.Cell and cell wall content d.Hay

Final examination- 2068

Essay Type Question 6

1.What are the factors that affect fodder production ? Explain each factors in detail.

2.There is feed deficit in Nepal.Discuss how we can overcome from the existing forage deficit situation for the improvement of livestock production .

3.Explain the chemical composition of forage.

4.Write the process of silage making .Explain the chemical and bacterial changes after sealing the green masses.

5.Write the cultural practices of Berseem and Napier in the following headline : climate , soil ,sowing time , method of sowing ,seed rate and yield.

6.Define silvipastoralsystem.Write its importance and give the selection criteria of tree of silvipastoral system.

7.Describe in brief the nutritional disorders and deleterious effect of pasture on animal.

8.Explain grass land management in the following headline:Reseeding ,introduction of legumes ,fertilizer application.

9.Write short notes on:

a. Nutrition of pasture b. Alternative feeding resources

Final examination- 2072

Essay Type Question 6

1.Describe the cultural practices in grassland management in the following headline reseeding ,selection of pasture crop ,introduction of legume ,fertilizer application and control of shrubs.

Short questions (Attempt any Seven) 7×2 = 14

2.Describe factors that affect the chemical composition of forages.

3.Write in detail on cultivation practice of Lucerne on climate ,land preparation ,seed rate and cutting management.

4.Define silvipastoralsystem.Write its important and give the selection criteria of tree of silvipastoral system.

5.Write short note on : a)Haylage
b)Hohenheim grazing system.

6.Explain the chemical and bacterial change during silage making.

7.What do you mean by alternative feed resources and write about its important on livestock production system in Nepal.

8.How does climate and soil Factors affect on fodder production?

9.Describe the nutritional deficiency diseases of pasture animals.

Final examination- 2067

Essay Type Question 6

1.Discuss variation in livestock feed availability across the region in Nepal. Write about possible scientific guidelines and approaches to satisfy the growing need of ruminants feed.

Short questions (Attempt any Seven) 7×2 = 14

2.Define the terms -herbage, silage and rangelands.

3.Write about major environmental resources and the forage plant processes that determine the productivity.

4.Outline how the components of ingestive behaviors are interrelated? How such behavior is related to selective grazing?

5.Discuss on the production and management of Napier grass.

6.How do you relate nutritive value of forages with the availability and present feeding practices in rural Nepal?

7.How do you think new pasture could be better established?

8.What is preservation of forage? Write about the mechanism of silage preservation.

9.Write summary points of cultivation practices of Stylosanthes.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 5th Semester F.M. 20 P.M. 8
Subject: Animal nutrition and feeding practices Time: 1:30 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 6

1. Explain the digestion of carbohydrate and protein in ruminants.

Short questions (Attempt any Seven) 7×2 = 14

2. What do you mean by quality of protein and write the function of protein.
3. Write the general function of minerals and enlist the essential macro and micro elements.
4. Describe the digestion of protein in non-ruminants.
5. Write down the function and deficiency symptoms vitamin A.
6. What do you mean by digestibility coefficient and write the factors affecting digestibility coefficient of feed.
7. Describe by pass protein. Why it is important for high yielder ruminant.
8. What are amino acids? Clarify the concept of essential amino acids and limiting amino acids.
9. Write the desirable characteristics of a ration for cattle.

FINAL EXAMINATION - 2073

Essay Type Question 6

1. Classify protein and write down the functions, deficiency symptoms and source of protein.

Short questions (Attempt any Seven) 7×2 = 14

2. Write down the digestion of carbohydrates in ruminants.
3. Compare and contrast the composition of plant cells and animal cells.
4. Write down the functions and deficiency symptoms of water.
5. Write short notes on the followings(any two):

a. Macro elements b. feeding standard c. TDN

6. What are the points to be considered while formulating a diet? Explain.
7. Write down the digestion and absorption of lipids in non-ruminant.
8. Write down the functions and deficiency symptoms of Vit. A, Vit. D and Vit. B complex.
9. What do you mean by metabolism? How do you determine metabolic energy of feed stuff? Explain with example.

FINAL EXAMINATION - 2073

Essay Type Question 6

1. Describe the digestive physiology of ruminants and state how digestive system of ruminants in different than that of non-ruminants.

Short questions (Attempt any Seven) 7×2 = 14

2. Describe the basic differences in plant and animal cells and tissues.
3. Illustrate the functions of proteins in farm animals. What are amino acids?
4. Outline the classification of feed ingredients. Describe the importance of maize and fish meal in animal nutrition.
5. What are the basic functions of proteins? Classify proteins in short.
6. How minerals and vitamins are absorbed in animals? Describe functions of vitamin A and K.
7. Why fats yield more energy than protein and carbohydrates? Describe fat metabolism in short.
8. Describe the importance of vitamin E and selenium in immune system of animals.
9. Classify carbohydrate in short. What are structural carbohydrates?

FINAL EXAMINATION - 2074

Essay Type Question 6

1. Mention the peculiarities of digestive system of fowl. Describe the process of protein digestion in ruminants and non-ruminants.

Short questions (Attempt any Seven) 7×2 = 14

2. Define nutrition. Mention the difference between ration and feed.
3. Enlist the functions and deficiency of vitamin E.
4. What are the difference between probiotics and prebiotics.
5. Write in brief about some common feeding standards being used in Nepal.
6. Mention the difference in composition of plant and animal tissue?
7. Describe the process of carbohydrate digestion in rumen.
8. Mention the deficiency symptoms of iron in farm animals?
9. Write short notes on(any two):

a. Role of calcium in dairy cattle
b. Essential amino acids
c. Concentrate

FINAL EXAMINATION - 2072

Essay Type Question 6

1. Discuss in detail about the nutritional condition of farm animals.

Short questions (Attempt any Seven) 7×2 = 14

2. What do you mean by VFAs. Explain about their importance and site of production.
3. Classify protein with examples. Explain its function in farm animals.
4. What are the function of lipids in animal? Describe the digestion process of fat in non-ruminant animals.
5. Discuss about the fate of glucose after absorption in animal body with flow chart diagram.
6. Classify feed ingredients. Describe any three energy rich and protein rich concentrates of animal feedstuffs.
7. Compare and contrast between animal and plant cells and tissues.
8. What do you mean by essential and non-essential fatty acids? Describe the properties of lipids.
9. Write short notes on:

a. Feeding standard b. Macro and micro minerals
c. Water soluble vitamins d. Deficiency symptom of protein

FINAL EXAMINATION - 2070

Essay Type Question 6

1. Draw a clean labeled diagram of digestive system of ruminant and discuss the digestion process of nutrients in rumen of ruminant animals.
2. Compare and contrast chemical composition of animal and plant cells and tissue
3. Write about function and deficiency symptom of calcium in animal body.
4. Classify carbohydrate with examples.
5. Write about the function of protein in animal body.
6. Write about the characteristics, nutrient content and utilization of maize and mustard cake.
7. Define the following:

a. Metabolic water b. essential fatty acid c. TDN d. hydrolysis

8. Write about the function and deficiency symptom of vitamin A.
9. Explain the importance of animal nutrition.

FINAL EXAMINATION - 2071

Essay Type Question 6

1. Classify the feedstuffs with example. Discuss major and available feedstuffs with their value to feed animal.

Short questions (Attempt any Seven) 7×2 = 14

2. Compare the composition of plant and animal cells and tissues with examples.
3. Classify carbohydrate and write its functions.
4. Write down the functions and deficiency symptoms of protein.
5. What do you mean by lipid? Why is it necessary to include lipid in animal diet?
6. Differentiate between macro and micro elements and write down the functions of calcium ,phosphorous and iron in animal.
7. What do you mean by feeding standards? Write down the feeding standard of poultry or pigs.
8. Define or explain the following(any three):

a. TDN b. metabolism c. digestion d. ME

9. What are the challenges in the field of animal nutrition? Write in brief.

FINAL EXAMINATION - 2069

Essay Type Question 6

1. Draw a clean labeled diagram of digestive system of poultry and explain the digestion of feed nutrient in non-ruminant animal.

Short questions (Attempt any Seven) 7×2 = 14

2. Explain digestive of crude fiber in ruminant animal.
3. Write down function of protein.
4. Classify carbohydrates with examples.
5. Explain the properties of lipids.
6. Write down the characteristics, nutritive value and utilization of any four plant protein rich feed ingredients.
7. Write down in brief about the importance and scope of animal nutrition.
8. Define the followings: a. Tranguilizer b. Metabolic water c.Crazy chicks disease d. Pica
9. Write down composition of nutrient in plant and animal cell and tissue.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 5th Semester F.M. 20
P.M. 8
Subject: Animal nutrition and feeding practices Time: 1:30 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 6

1. Describe the plant profile, chemical constituents and economic importance of fox glove and periwinkle.

Short questions (Attempt any Seven) 7×2 = 14

2. List the various extraction methods of essential oils. Describe any two of them.
3. Write about the history of MAPS.
4. Give the economic importance, chemical constituents and biological actions of sweet flag.
5. Classify the alkaloids with examples. Describe any on extraction method of alkaloids.
6. Give the scientific name, family and biological actions of the following plants:

a. Gurjo b. ghodtapre c. jatamasi d. panchauwle
e. yarshagumbha f. burn plant

7. what is CITES? Give the objectives and appendices with examples.
8. Describe briefly the importance of medicinal plants.
9. Define phytogeography. Briefly mention the distribution of MAPs on the basis of climatic zones of Nepal.

Level: B.Sc. Ag. 5th Semester

FINAL EXAMINATION - 2074

Essay Type Question 6

1. Why are medicinal plants called as biological mine of noble products? What are the constrans of medicinal plants cultivation in Nepal?

Short questions (Attempt any Seven) 7×2 = 14

2. Classify aromatic plants based on parts used.
3. What is CITES? Explain its appendices.
4. Define doctorine of signature and TRAFFIC.
5. Define extraction. Which method of extraction of medicinal plants is best and why?
6. What are various raw materials for extraction of perfume?
7. What ia value chain? Show existing value chain of medicinal plant in Nepal?
8. What are medicinal uses of rauvolfia and neem?
9. State management of lily of desert and citronella.

FINAL EXAMINATION - 2073

Essay Type Question 6

1. Define exaction. What are the different extraction processes available for aromatic plants? What are the criteria of selecting these process?
2. Write about plant profile, active constituents, origin and distribution of periwinkle.
3. Write about the history and importance of medicinal plants.
4. Classify aromatic plants based on scented parts used.
5. What are existing marketing channels of MAOs? How can it be improved?
6. Write uses and active constituents of Aloe Vera.
7. Write crop management practices and actions of citronella.
8. What are agricultural uses and current research potential of Neem.
9. Write short notes on;

a. Doctorine of signature b. CITES c. MAPDON

FINAL EXAMINATION - 2072

Essay Type Question 6

1. Define MAPS. Enlist the methods for extraction of essential oils. Describe any two of them.

Short questions (Attempt any Seven) 7×2 = 14

2. Classify aromatic plants on the basis of scented parts?
3. Define alkaloid. How will you extract alkaloid from medicinal plant?
4. Write about CITES.
5. How can medicinal and aromatic plants be stored? What are the characteristics of good packaging material?
6. What are chemical constituents and therapeutic uses of Aloe and Periwinkle?
7. Why is neem used very much in the clinical research these days? Mention its plant profile
8. What are the different uses of lemon grass, vetiver and sweet flag.
9. Write about any two of the following:

a. MAPDON b. Research status of MAPS in Nepal
c. Trade of MAPS in Nepal

FINAL EXAMINATION - 2071

Essay Type Question 6

1. Why there is need of research and development of MAPS? Explain about the causes of unorganized marketing of MAPS n Nepal ?

Short questions (Attempt any Seven) 7×2 = 14

2. Classify aromatic plants on the basis of scented plant parts.
3. Write about CITES.
4. Write the steps for preparation of crude drugs in brief.
5. Give the plant profile of Neem and mention its medicinal, industrial and agricultural uses.
6. Write about the harvesting of Digitialis and lemon grass. Mention the therapeutic uses of Digitialis.
7. Write about the history of MAPS.
8. Write about the chemical evaluation of snakeroot(Rawolfia) and Holy basil? Mention the plant profile of Rawolfia.
9. Write short notes on:

a. MAPDON b. Enfleurage c. Trade of MAPS

FINAL EXAMINATION - 2071

Essay Type Question 6

1. Describe the history, status and trade of medicinal and aromatic plants in Nepal .

Short questions (Attempt any Seven) 7×2 = 1

2. Write in short status of MAPS research in Nepal .
3. Describe in brief the process of extraction alkaloids.
4. Describe the harvesting technique of Aloe.
5. Write about the distribution and importance of Neem in Nepal .
6. Describe the cultivation practice of citronella.
7. How do you extract essential oil from a plant? Explain.
8. Describe the important chemical compounds found in Rauvolfia.
9. What are the various ways of classifying medicinal plants?

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 5th Semester F.M. 40
P.M. 16
Subject: Principles and practices of insect-pest management. Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Define IPM and FFS. Explain how IPM concept was evolved and also mention its significance and principles.

Short questions (Attempt any ten) 10×3 = 30

2. Explain diagrammatically with examples that how insect pests were classified on the basis population level and extent of damage?
3. What are the reasons that insect pests status is changing over a period of time?
4. How culturally insect pest can be managed? Described briefly with examples.
5. What do you mean by entomopathogenic fungi and write down its mode of action. Also describe about white and green muscardine fungi.
6. What do you mean by legal means of pest control and how this concept of pest control has been established in our country?
7. Normally insecticides having systemic mode of entry are considered more effective to piercing and sucking types of insect pests, why? But seeing the mode of entry of recent developed pesticides, do you think this concept has been changed? If yes, what might be your logic?
8. Discuss about the mode of action of insecticides.
9. Describe about the different factors that affect the host plant resistance to insect pests.
10. What do you mean by insect attractants? Describe different types of insects attractants that are being used in insect pest management.
11. Differentiate between:

a. Monophagous and polyphagous insect pest
b. Predator nad parasitoids

FINAL EXAMINATION - 2071

Essay Type Question 6

1. Define medicinal plants and aromatic plants? Point out different methods of extraction of medicinal plants. Give different parameters for selecting appropriate extraction method.

Short questions (Attempt any Seven) 7×2 = 14

2. Describe in brief the history of MAPS of Nepal.
3. List out the five medicinal plants and aromatic plants with the scientific names and family.
4. Point out different research areas of MAPS of Nepal.
5. Describe in brief plants description and cultivation practices of rose.
6. Explain how essential oils are extracted by hydro distillation process.
7. List the chemicals found in Datura and Aloe. Why Neem is useful for AIDs patient. Explain brief.
8. Give the origin and distribution of khus. Explain anti fertility effect of Tulsi.
9. Point out different aromatic plant extract. Describe any two.

FINAL EXAMINATION - 2073

Essay Type Question 10

1. Define and differentiate natural and biological control methods. Explain the strategies of biological control method. Describe about biological control agents with suitable examples.

Short questions (Attempt any ten) 10×3 = 30

2. List major insecticide formulations. Describe any five types of insecticide additives.
3. Define and classify pests. Define gain and economic thresholds in pest management decision.
4. Describe major resistance mechanism of host plants. Also mention the degree of host plant resistance.
5. Why organocholride insecticides are replaced by organophosphate? Give any two names of insecticides from each group.
6. Define and classify semiochemicals. Also differentiate allomones and kairomones.
7. Name major five plants suitable for botanical pesticides. Why neem (Azadiractaindica) is called as the tree of future pest control.
8. Differentiate between physical and mechanical control measures. List major cultural control methods.
9. What do you mean by innovative control measures? Describe insect pheromones use in pest management /monitoring.
10. What is SPS agreement? Mention the different classes of insect legislation.
11. Define the following:

a. Insect equivalents b. Autocidal control method
c. Farmer field school

12. Differentiate(any two)

a. Parasites and parasitoids b. Cuelure and helilure
c. Deflocculators and deodorants.

FINAL EXAMINATION - 2073

Essay Type Question 10

1. Which insect pest control method would you think is the best for the Nepalese farmers? Give reason with appropriate examples.

Short questions (Attempt any ten) 10×3 = 30

2. What are biological control agents commercially available in Nepal?
3. Classify insecticides based on nature of chemical with examples.
4. Why the concept of injury level is essential for insect pest management? Describe.
5. Describe about common pesticide formulations available in Nepalese market.
6. Give universal and specific antidote in case of organochlorine and Carbamate poisoning.
7. Describe mechanisms of Host Plant Resistance
8. Write the importance of microbial insect pest management technique with examples.
9. What is the IPM dissemination tool which has been employing by Department of Agriculture in Nepal? Describe briefly.
10. Explain Mechanical method of insect pest management with suitable examples.
11. Write short notes on:

a. Pest residue b. key pest c. pesticide resistane

12. Differentiate between:

a. Natural and Applied control
b. Parasitoids and parasites

FINAL EXAMINATION - 2071

Essay Type Question 10

1. Why are the insect-pest becoming a challenging problem in Agriculture and how cultural operations are helpful in insect-pests management? Explain with suitable examples.

Short questions (Attempt any ten) 10×3 = 30

2. Classify the insecticides based on their chemical nature with two examples of each.
3. Enlist the characteristics of an ideal microbial insecticide.
4. What are the major considerations for effective use of insecticides in pest management?
5. Briefly explain thefactor that affect plant resistance against insects.
6. Enlist advantages and disadvantages of physical methods of pest control.
7. Briefly explain the significance of economic injury level and economic threshold level in insect-pest management.
8. What is farmer field school? Also mention its significance in pest management.
9. How the fungus can damage the insect-pest? Explain.
10. What are the major features of integrated pest management? Explain with examples.
11. Write short notes on:

a. LD50 b. Key pests c. pest resurgence
d. cue-lure

12. Differentiate between (any three):

a.Horizontal resistance and vertical resistance
b. Trichogramma and trichoderma
c. Dry and liquid formulations
d. Predators and parasites

FINAL EXAMINATION - 2073

Essay Type Question 10

1. What are the significance of economic injury level and economic threshold level in insect-pest management? How cultural operations are helpful in insect-pests management? Explain with examples.

Short questions (Attempt any ten) 10×3 = 30

2. Define the term LD50 and classify the generation of insecticides with examples.
3. Enlist the characteristics of an ideal microbial insecticide.
4. What are the techniques or approaches of biological control? Explain with appropriate examples.
5. Briefly mention the factors that affect plant resistance against insect.
6. Enlist advantages and disadvantages of physical methods of insect- pest control.
7. Describe mechanical method of insect-pest management with appropriate examples.
8. What is farmer field school? Also mention the significance of its in pest management.
9. How the entomopathogenic fungus can damage the insect pest?
10. What are the major features of integrated pest management?
11. Write short notes on:

a. parasitoids b. Key pests c. pest resurgence
d. cue-lure

12. Differentiate between (any three):

a.Horizontal resistance and vertical resistance
b. Predators and parasites c. Dry and liquid formulations
d. Trichogramma and trichoderma

FINAL EXAMINATION - 2070

Essay Type Question 10

1. What do you mean by plant resistance in pest management? Describe the mechanisms and factors affecting in plant resistance along with suitable examples.

Short questions (Attempt any ten) 10×3 = 30

2. Why the insect-pest are becoming a challenging problem in agriculture?
3. Briefly explain the significance of economic injury level and economic threshold level in insect pest management.
4. Classify the generation of insecticides with examples.
5. What are the techniques of biological control? Explain with appropriate examples.
6. What are the modes of action of insecticides?
7. How cultural operations are helpful in insect-pest management? Explain with examples.
8. What is farmer field school? Also mention its significance in pest management.
9. How the entomo-pathogenic fungus can damage the insect pest?
10. What do you mean by integrated pest management?
11. Write short notes on:

a. I.D50 b. key pests c. Pest resurgence

12. Differentiate between:

a. Horizontal resistance and vertical resistance
b. Predators and parasites
c. Trichogramma and trichoderma

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 5th Semester F.M. 40 P.M. 16
Subject: FUNDAMENTALS OF AGRICULTURAL EXTENSION Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Define extension education. Discuss the principles of extension education, also write about the importance of principles in extension delivery system.

Short questions (Attempt any ten) 10×3 = 30

2. What are theories of teaching learning psychology?
3. What is group approach? Why group approach is effective in teaching-learning system?
4. Define TOT and explain innovation diffusion process .
5. Define leadership and explain Fielder model of contingency theory of leadership in brief.
6. What are the philosophies of extension education?
7. Discuss about the adopters categories with example.
8. What is programme planning? Briefly describe about project cycle.
9. Describe extension teaching methods focusing to demonstration.
10. Explain Morrial and Hatch act in development of extension in USA.
11. Discuss about the role of agricultural professionals as main actors in promotion of agriculture.
12. Write short notes on:

a) Agricultural extension b) Monitoring and evaluation
c) Leader and leadership
d) Extension service of DOA & DLS
e) Technology transfer process
f) Appropriate technology

FINAL EXAMINATION - 2073

Essay Type Question 10

1. What do you mean by Adoption of an Innovation? What are the factors affecting the rate of adoption in a given farm community?

Short questions (Attempt any ten) 10×3 = 30

2. Write about the extension education process with suitable example.
3. Who are leaders? What functions can be expected from local leaders in agricultural extension?
4. What do you mean by indicators? Write about the different types of indicators for monitoring of agricultural projects.
5. Classify the teaching methods according to their use. Discuss which method of teaching is more useful in agricultural extension.
6. Write about S-R theory of learning and the laws associated with it.
7. Enlist different extension approaches practiced in Nepal and discuss the effectiveness of group approach in agricultural extension.
8. What do you mean by appropriate technology? What are the attributes of an appropriate technology?
9. What do you mean by program planning? Write about extension program planning.
10. Write about the process of Agri-clinic conduction in farm communities.
11. What roles can extension agents play in adoption and diffusion of agricultural innovations.
12. Write short notes on(any 3):

a) Participatory rural appraisal b) Cone of experience
c) Philosophy of extension d) Non-formal education

Back EXAMINATION - 2074

Essay Type Question 10

1. What do you mean by programme planning? Enlist the types of extension programme planning? Explain about the importance of decentralized programme planning in agricultural extension.

Short questions (Attempt any ten) 10×3 = 30

2. What is extension? Write about the extension education process.
3. Who are leaders? What functions can be expected from local leaders in agricultural extension?
4. What are the differences between monitoring ansd evaluation?
5. Classify teaching methods according to their use. Discuss on importance of result demonstration in agriculture.
6. Write about the S-R theory of learning and the laws associated with it.
7. Enlist different extension approaches practiced in Nepal and describe on effectiveness of Group approach in extension.
8. What do you mean by appropriate technology? What are the attributes of an appropriate technology?
9. Write about the methods of discovering leaders in a given community.
10. What is innovation-decision process? Describe its stages with diagram.
11. Write about types of adopters with typical characteristics. Also explain how communication channels can be used in the different stages of adoption.
12. Write short notes on: (any three)

a) Participatory rural appraisal b) Adoption and diffusion
c) Importance of line agencies in extension
d) Non- formal education

Back EXAMINATION - 2073

Essay Type Question 10

1. Define agriculture extension. How do you deal with farmers to diffuse innovation in a new normal society as an extension personnal?

Short questions (Attempt any ten) 10×3 = 30

2. Which teaching method will you use to teach broadcasting of fertilizer in Berseem? Explain
3. Define FSR/E and evaluate it as an extension approach.
4. Why extension is different from publicity, advertisement and propaganda?
5. Describe TOT and write characteristics of appropriate technology.
6. Define leadership and explain elements of leadership in brief.
7. What are the elements of teaching and learning process?
8. What are the differences between monitoring and evaluation?
9. Explain programme planning cycle in brief.
10. Explain Smith lever act in development of extension in USA.
11. Write short notes on:

a. Objectives
b. Non formal education
c. Philosophy

12. Define following terms:

a. Extension education
b. Education
c. Programme planning
d. Technology
e. Innovation

FINAL EXAMINATION - 2072

Essay Type Question 10

1. How can you differentiate monitoring and evaluation? What are the approaches of evaluation? Explain what type of approach can be used in different situation of evaluation?

Short questions (Attempt any ten) 10×3 = 30

2. Conceptualize leadership and management. Differentiate the concept of leaders and managers in the context of agriculture development.
3. What is teaching method? Discuss teaching methods with best example according to teaching learning process?
4. Elaborate the concept of decentralized agriculture planning and justify its working modality at the VDC level.
5. What is extension education? Write the importance of extension in agriculture development.
6. Differentiate between method and result demonstration with appropriate example.
7. What do you mean by teaching and learning? Explain about theories of learning.
8. State the diffusion of innovation theory with sketch of graph showing different adopters categories.
9. What are the determining variables of rate of adoption ?
10. Enlist the function of technology transfer and explain the process of technology transfer with specific example.
11. How principle of extension education developed? Enlist and explain any one of its principle with specific example.
12. Write short notes on (any 3):

a) Adopters categories
b) Advantage of group approach of extension
c) Types of extension program objectives
d) Extension system used in Nepal

FINAL EXAMINATION - 2070

Essay Type Question 10

1. What do you mean by extension education? How do you justify its application in the field of agriculture?

Short questions (Attempt any ten) 10×3 = 30

2. Enlist the principles of extension education and briefly describe the principle of grass root approach.
3. Where does the extension education in agriculture find its scope?
4. What do you mean by teaching and learning and write down the step in teaching and learning process?
5. Briefly describe the individual extension teaching method with example.
6. Differentiate between PRA and RRA.
7. Define innovation decision process with suitable example.
8. Write down the farming system research and extension in briefly.
9. What do you mean by program and planning? Enlist the steps.
10. Define the term leader and leadership. Write down the roles of a good leader in agricultural development.
11. Differentiate between monitoring and evaluation of agricultural extension programme.
12. Clarify then concept of land grant college system of agricultural college or university.

FINAL EXAMINATION - 2071

Essay Type Question 10

1. What is innovation- decision period? Classify adopters based on innovativeness and write down the characteristics of adopter.

Short questions (Attempt any ten) 10×3 = 30

2. Describe teaching-learning process.
3. Discuss the importance of Group approach in agricultural extension.
4. Define demonstration. Write about different types of demonstration with appropriate example.
5. Differentiate between workshop and panel discussion.
6. What is participatory and decentralized program planning in agriculture extension? Discuss.
7. List down the philosophy of extension education.
8. What do you mean by monitoring of extension program?
9. List down the methods of discovering local leaders and explain performance test method.
10. What are the characteristics of innovation and role of innovators in agriculture development.
11. Describe program planning process in brief.
12. What is KAS change in educational process?

FINAL EXAMINATION - 2070

Essay Type Question 10

1. Describe innovation decision process. What are the perceived characteristics of an innovation? Write about the five stage model of adoption process.

Short questions (Attempt any ten) 10×3 = 30

2. What is extension? Describe any two principles of extension education in brief.
3. Give the classification of extension teaching methods and describe the importance of result demonstration in agriculture extension.
4. What is learning? List out the major theories of learning and describe any one of tehm.
5. What do you mean by 'group approach' of extension delivery system? What are the reasons for focusing on group approach?
6. Write about the extension education process with suitable examples.
7. What do you mean by leader? Describe the role of local leader in extension.
8. Write down the philosophy of extension education in brief.
9. What do you mean by technology? Describe appropriate technology.
10. Write the difference between monitoring and evaluation of agriculture extension program.
11. What is program planning? Write in brief about extension program planning process.
12. Write short notes on(any 3):

a) Participatory monitoring and evaluation
b) Social audit c) Credibility of extension worker
d) Types of adoption diffusion

TRIBHUVAN UNIVERSITY
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 5th Semester F.M. 40 P.M. 16
Subject: Genetics of population Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. What do you mean by recombinant DNA technology? Explain in detail about the formation of recombinant DNA with the help of suitable figures.

Short questions (Attempt any ten) 10×3 = 30

2. What do you understand by PCR? Explain briefly.
3. What is multiple factor hypothesis? Explain in brief.
4. Write the significance of restriction enzymes.
5. Differentiate southern , northern and western bolting.
6. Differentiate maternal effect from maternal inheritance with example.
7. Write about most accepted chromosome model.
8. Explain in brief about Johansen's pure line theory.
9. What do you mean by heterosis and inbreeding depression?
10. Explain one gene one polypeptide hypothesis.
11. Illustrate Hardy- Weinberg equilibrium. What factors affect this equilibrium.
12. Write short notes on:

a. Immunogenetics b. Cancer

FINAL EXAMINATION - 2073

Essay Type Question 10

1. Explain in detail Adrobacteriumtumefaciansmethod of gene transfer in a given crop with the help of suitable figure(s).
2. How recombinant DNA (rDNA) is formed? Present with the help of well labeled diagrams.
3. What are restriction enzymes? Enlist any 5 restriction enzymes with their cleavage sites. Why restriction enzyme type two is more beneficial than others? Give your logical views.
4. Explain about one gene one polypeptide hypothesis with suitable examples if necessary.
5. Differentiate between inbreeding depression and hybrid vigour with the help of suitable examples.
6. State and illustrate Hardy_Weinberg law with the help of a suitable example.
7. In a random mating population the allelic frequencies are found A=0.5 and a=0.5. if the inbreeding coefficient (F) equals 0.1, find the genotypic frequencies of AA, Aa and aa in this population.
8. Define heterosis. The F1 hybrid is the cross of two different pure lines 1 and 2. The spike lengths of pure line 1, pure line 2 and commercial variety are 20 cm, 25 cam, 27 cm respectively. You found spike length of F1 hybrid 30 cm by crossing these two pure lines 1 and 2. What type of heterosis do you find? Give your logical answer.
9. Two pure lines of rice are crossed. In the F1 the variance in number of grains per panicle is 0.5. the F1 is selfed. In the F2 the variance in number of grains per panicle is 2.5. estimate broad sense heritability of number of grains per panicle.
10. What is genotype* environment interaction? How does it affect in the field of crop improvement? Present your logical views.
11. Explain polygenes in discontinuous traits with suitable figures.
12. Mention genetic structures of different types of populations with examples.

FINAL EXAMINATION - 2074

Essay Type Question 10

1. What is rDNA technology? Describe in detail tools and techniques of gene manipulation.

Short questions (Attempt any ten) 10×3 = 30

2. What are the limitations of one gene one enzyme hypothesis? Discuss enzymatic explanation of genetic ratio with few examples.
3. Describe briefly experiment on modern theory of fine structure of gene and explain its findings.
4. Describe genetics of cancer and immunogenetics briefly.
5. What is multiple factor hypothesis? Polygenes, in some instances govern discontinuous traits. Explain this statement illustrating appropriate experiment.
6. State Hardy- Weinberg equilibrium. How do you validate H-W law?
7. What is inbreeding depression? Suppose 2 inbred lines Ana B are crossed to produce hybrid. The genotype of A is AAbbccDD and the genotype of B is aaBBCCdd. A,B,C and D are the dominant genes. If dominant homozygote contributes 2 ton/ha, recessive homozygotes contribute 1 ton/ha heterozygote contributes 2.5 ton/ha, Find the grain yields pf parent A, Parent B and F1 hybrid on the basis of over dominance hypothesis. Suppose thet you have taken one pair of chromosomes.
8. What is Gel Electrophorosis? Explain blotting techniques of Nucleic acids.
9. Explain the model that best explains the chromosome architecture. Mention genetic control mechanisms in eukaryotes.
10. What is LOD score? Describe the method for its calculation.
11. Write the significance of G*E interaction? Explain types of G*E interaction with diagrams.
12. What is heritability? Explain in brief methods of estimating heritability.

FINAL EXAMINATION - 2073

Essay Type Question 10

1. State and illustrate Hardy- Weinberg law. Enlist the factors that affect Hardy- Weinberg equilibrium.

Short questions (Attempt any ten) 10×3 = 30

2. In a large open pollinated population of maize the alleles M and m at the M/m locus occur with frequencies 0.6(M) and 0.4(m). What are the frequencies of genotypes MM, Mm and mm in this population?
3. What do you mean by heterosis? The F1 hybrid cross of parent A and parent B. the 1000 seeds weights of parent A, parent B and the best commercial variety are 100g,200g and 275g respectively. You found 1000 seeds weight of F1 hybrid 300g by crossing these two parents A and B. what type of heterosis do you find? Give your logical views.
4. Explain polygenes in discontinuous traits with suitable figures.
5. Explain Johannsenspureline theory with the help of Johannsens experiment.
6. Write an explanatory note on variegation in biological tissues.
7. Define vector. Enlist different types of gene cloning vectors. Shortly explain about the methods of gene cloning.
8. What is recombinant DNA (rDNA)? How r-DNA is formed? Present with the help of well labeled diagrams.
9. What are restriction enzymes? Briefly explain different types of restriction enzymes with examples.
10. Briefly explain about one gene one polypeptide hypothesis.
11. Explain different types of genotype x environment interaction with suitable figures.
12. What is heritability? Briefly explain about estimation of heritability.

FINAL EXAMINATION - 2072

Essay Type Question 10

1. State and illustrate the Hardy Weinberg Law with one gene two alleles.

Short questions (Attempt any ten) 10×3 = 30

2. Explain one gene one polypeptide hypothesis.
3. Briefly explain about fluorescence in situ hybridization(FISH) technique and its uses.
4. How recombinant DNA is formed? Explain in brief about various vectors used in gene cloning.
5. 'R' represents resistance and 'r' represents susceptible and 'R' is dominant over 'r'. Compute gene frequencies and sort the following cultivars on the basis of resistance. You are given the number of individuals (in percentage) with different genotypes for resistance gene as follows.

Groups	RR	Rr	Rr
Cultivar 1	81	18	1
Cultivar 2	26	50	24
Cultivar 3	10	30	60
Cultivar 4	25	50	25

6. What are restriction enzymes? Explain their types.
7. Explain G*E interaction with suitable figures.
8. What is the frequency of heterozygote (Aa) in a random mating population if the frequency of recessive phenotype (aa) is 0.16?
9. Estimate broad sense heritability with the help of following information.

SV	RR	Rr	MSS
Genotypes	24	240	.....
Replications	3	6.3	.....
Error	72	6.48	.....

10. Show inheritance of color in bread wheat to illustrate multiple factor hypothesis.
11. In a random mating population the allelic frequencies are of A=0.6.Iif the inbreeding coefficient (F) equals 0.2, find the genotypic frequencies in this population.
12. What do you know about Johannsen'spure line theory? Write two major conclusions of this theory.

FINAL EXAMINATION - 2070

Essay Type Question 10

1. State and illustrate the Hardy Weinberg law.

Short questions (Attempt any ten) 10×3 = 30

2. What is Enzymatic Explanation of Genetic Ratio.
3. Describe the multistranded model of chromosome
4. What are the special type of chromosome and describe the Gaint chromosome.
5. What do you mean by formation of recombinant DNA?
6. Define the restriction fragment length polymorphisms. (RFLP) and what are its important features?
7. Define vectors and explain the type of cloning vectors.
8. What do you mean by PCR (Polymerase Chain Reaction)? Discuss the different stage of PCR.
9. Write short notes on:

a. Southern hybridization b. DNA fingerprint

10. Discuss polygene of discontinuous trait in threshold character.
11. No. of individuals in population indifferent blood groups: O=78, A=71, B=17 and AB= 7. What is the frequency of O A B in this individual?
12. Suppose 2 inbred lines Ana B are crossed to produce a hybrid. The genotype of A is AAbbccDDEEff and the genotype of B is aaBBCCddeeFF. A,B,C,D,E and F are the dominant genes. If dominant heterozygote contributes 2 ton/ha, recessive homozygotes contribute 1 ton/ha, heterozygote contributes 2.5 ton/ha, Find the grain yields of parent ABF.

FINAL EXAMINATION - 2071

Essay Type Question 10

1. State and illustrate the Hardy Weinberg Law. Explain about natural forces affecting Hardy-Weinberg equilibrium.

Short questions (Attempt any ten) 10×3 = 30

2. What is one gene one polypeptide hypothesis? Explain.
3. What do you know about PCR? Write its significance in plant breeding.
4. How is recombinant DNA formed? Explain with figure.
5. Differentiate between southern and northern blotting.
6. What is the frequency of heterozygote (Aa) in random mating population if the frequency of recessive phenotype (aa) is 0.16?
7. In a random mating population the allelic frequency of A is o.6. if the inbreeding (F) equals 0.2. find the genotypic frequencies in the population.
8. What do you know about Johannsen's theory? Write major two conclusions of this theory.
9. Show inheritance of color in bread wheat to illustrate multiple factor hypothesis.
10. What do you mean by G*E interaction? Write its significance in plant breeding.
11. What are the sources of genetic variation? Explain in brief.
12. Write short notes on:

a. LOD score b. Inbreeding depression

c. Reproductive isolation mechanism

FINAL EXAMINATION - 2069

Essay Type Question 10

1. State and illustrate the Hardy Weinberg Law. Explain
1. State and illustrate Hardy- Weinberg law and equilibrium with one gene two alleles.
2. In a large open pollinated population of population of maize the alleles B and b at the B/blocus occur with frequencies 0.2(B) and 0.8(b). What are the frequencies of genotypes BB, Bb and bb in this population?
3. What is frequency of the heterozygote (Tt) in random mating population if the frequency of recessive phenotype (tt) is 0.04?
4. In a random mating population the allelic frequencies are found A=0.5 and a=0.5. if the inbreeding coefficient (F) equals 0.1, find the genotypic frequencies of AA, Aa and aa in this population.
5. Two pure line of rice are crossed. In the F1 the variance in spike length is 1.5. the F1 is selfed. In the F2 the variance in spike length is 4.5. estimate broad sense heritability of spike heritability of spike length in rice.
6. Estimate broad sense heritability with the help of following information.

Source of variation	df	SS	MSS
Genotype	24	240	……
Replication	3	6.3	……
Error	72	6.48	……

7. Compute the gene and genotype frequencies of the following cultivars. Where R represents resistance and r represents susceptible, R id dominant over r.

cultivars	Genotypes		
	RR	Rr	rr
Cultivar 1	10	30	60
Cultivar 2	1	18	1
Cultivar 3	25	50	25

8. What is restriction enzyme? Explain its types.
9. Explain pure line theory of Johannson.
10. Explain polygenes in discontinuous traits with suitable figures.
11. Explain G*E interaction with suitable figures.
12. Briefly explain about one gene one polypeptide hypothesis.

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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 5th Semester F.M. 40
P.M. 16
Subject: AGROFORESTY Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Define agro-foretry and mention the various components of agro-forestry system suited to the Nepalese agricultural system.

Short questions (Attempt any ten) 10×3 = 30

2. What is SALT? Mention the suitable SALT technology commonly practiced in Nepal.
3. Agro-forestry is the ways to augment soil fertility and crop productivity. Justify the statement.
4. Describe the suitable characteristics of tree-crop species in the selection of scientific agro-forestry system.
5. How does agro-forestry diagnosis and design (D&D) Look importance in agro-forestry system planning and development? Mention the scientific steps of D & D adopted in agro-forestry.
6. Scientific agro-forestry system only can moderate micro and macro climate, conserve biodiversity and sequestrate organic carbon. Mention the basics over this statement.
7. Agro-forestry is the vital in bio-fuel and bio- energy production. Can you convince the farmers in this saying?
8. Mention briefly the problems, prospects and opportunities Of agro-forestry in Nepales context.
9. Write the common and scientific names of three tree speciesx commonly suitedin terai, mid-hills and high-hills of nepal.
10. Write short notes on:

a. Land capability classification b. Farm-forestry
c. Tyanga cultivation system
d. Quantitative assessment of woody species

11. What is crop- tree competition ? show various relations overlooked in agro-forestry system and suggest the scientific ways to measure productivity, profitability and diversity of various agro-forestry systems.
12. Classify agro-forestry on the basis of structure and function.

FINAL EXAMINATION -2071

Essay Type Question 10

1. What are the basic components of agro-forestry system(AFS)? Discuss the conditions for sustainable development of AFS.

Short questions (Attempt any ten) 10×3 = 30

2. How does agro-forestry system improve and /or maintain soil fertility- productivity? Explain.
3. Define the following:

a. Alley cropping b. Multi-storied system
c. Spatial arrangement d. Taungya e. Farming system f. PRA

4. Outline the variation of slopy-agricultural land technology(SALT) and give the methodology of establishing SALT method.
5. Give the basic steps of diagnosis and design of AFS with brief activities and outputs.
6. Why classification of AFS is done? Discuss the structural classification of AFS.
7. Discuss shifting cultivatiom with its merits and demerits in context of nepal.
8. What is the nature of tree-crop interaction (TCI)? Discuss briefly on how TCI are quantified.
9. Discuss briefly various soil and water conservation measures as a strstegy in agroforestry development.
10. Discuss about the contribution of forestry sector in livelihood of people of Nepal.
11. What is an agroforestry system(AFS)? Discuss various factors affecting AFS development.
12. Differentiate between the following:

a. Farming system development and resesrch
b. Top- down and bottom-up research
c. Farm based and forest based AFS

BACK EXAMINATION - 2074

Essay Type Question 10

1. Describe the characteristics of plants suitable for agroforestry system. What are factors affecting choice of species? Describe.

Short questions (Attempt any ten) 10×3 = 30

2. Classify agroforestry system with their examples.
3. Describe the different methods of quantitative assessment of woddy species.
4. Calculate the volume of the log having 20 cm diameter and 1o cm length by using Hubners formula.
5. Describe the stages of technology development.
6. Describe FSRE approach of agroforestry system development.
7. Describe the different components of agroforestry system.
8. How the productivity increased through agroforestry system?
9. What is the implication of D and D in agroforestry system?
10. What is improved fallow system of agroforestry system what are the advantages of improved fallow over shifting cultivation?
11. Define agroforestry system with their advantages.
12. Write short notes on:

a. Agrisilvipasture
b. Improved fallow
c. Taungya

FINAL EXAMINATION -2072

Essay Type Question 10

1. Discuss the 'Taungya system' of Agroforestry practices under the following headings.

a. Meaning/definition
b. Objectives charactersistics
c. Types of Taungya
d. Advantages ana
e. Disadvantages

Short questions (Attempt any ten) 10×3 = 30

2. Discuss the environmental and economic benefits of agro forestry.
3. Enlist the different criteria for tree se;ectiom for agroforestry system.
4. Discuss the advantages of tree/crop interface studies and also list out the tree/crop interaction effects.
5. Discuss the criteria of desirable agroforestry design.
6. Enlist the agroforestry models and explain the salient features of Nelder wheel model of agroforestry system.
7. Enumerate the model landuse as alternative to shifting cultivation with figures.
8. Discuss the contour hedge row intercropping model of agroforestry system.
9. What is SALT? And discuss its objectives and types.
10. What are the agroecosystem properties or the criteria for measurements to reduce the trade off in agroecosystem.
11. Calculate the spacing of plants, if there are 4oo agroforestry species in a hectare of plantation raised on square planting pattern.
12. Write short notes on:

a. Xylometric method of volume measurement
b. Pollarding c. Buttressings
d. Multistory cropping

BACK EXAMINATION - 2070

Essay Type Question 10

1. Define agroforestry. Discuss its objectives importance and concepts.

Short questions (Attempt any ten) 10×3 = 30

2. Enlist the goals of sustainable agriculture.
3. Write the characteristics features of FSRE.
4. Discuss the features of Nelder wheat model in agroforestry system.
5. Write the objectives and options of SALT model.
6. Discuss the characteristics features taungya system in agro-silvo system of agroforestry.
7. Name six agroforestry species used in SALT model.
8. Briefly describe the tree-crop interfaces.
9. Under what conditions wood lots are developed? Explain.
10. Write down the criteria for crop selection in agroforestry system.
11. Calculate the volume of 10 feet long when its combined diameter was measured 24.24" inch. Also calculate the sawing cost, when the cost is Rs.450 per cubic feet.
12. Write short notes on:

a. Pollarding
b. Carrying capacity
c. Sapling

FINAL EXAMINATION - 2070

Essay Type Question 10

1. Define agroforestry. Describe the importance and scope of agroforestry in Nepal with examples.

Short questions (Attempt any ten) 10×3 = 30

2. What are the attributes and feature of agroforestry? Describe briefly.
3. Classify agroforestry system on the basis of arrangement of components with example.
4. What could be the criteria snd how will you design ally cropping intervention?
5. Mention the concept of D & D. How D & D is different from FSRE?
6. What is SALT technology? What are the basic step followed in SALT technology?
7. Enlist indigenous and modern agroforestry system. Describe any two modern agroforestry system.
8. What is shifting cultivation? Mention the advantage and disadvantage of shifting cultivation.
9. Explain the basis for tree selection in agroforestry system.
10. Write short notes on:

a. Shelter belts
b. Tuangya
c. Home garden

11. How will you quantify tree-crop interaction in agroforestry system? Explain briefly.
12. Describe tree- crop interaction that occurs in agroforestry system.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 5th Semester F.M. 40
P.M. 16
Subject: Introduction to PLANT PATHOLOGY Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Define pathogenesis. Explain how the pathogens survive in absence of their main crop hosts.

Short questions (Attempt any ten) 10×3 = 30

2. Explain the host as an important factor of disease pyramid. How the human activities can influence the occurrence and spread of plant diseases in an agro-ecosystem.
3. Explain the symptoms of plant diseases observed due to the visible pathogens.
4. Define monocyclic disease. Why monocyclic can't spread in endemic scale with in a single season after the entry to a new location? Explain.
5. Enlist the general characteristics of fungi and explain the harmful effects of fungi to human beings.
6. Draw a well labeled sketch of bacterial cell and explain the function of its organelles.
7. Define plant virus. How plant virus get multiplied in plant system? Explain.
8. Enlist the general characteristics of root rot nematode and root knot nematode.
9. Describe the possible physiological alterations caused by plant diseases.
10. Differentiate between :

a) Horizontal diseases resistance and vertical diseases resistance.
b) Symptom and sign

11. Enlist characteristics of following genera:

a. Alternaria b. Pythium c. Xanthomonas

12. Write short notes on:

a. Diseases forecasting b. Bengal famine c. Spiroplasma

BACK EXAMINATION -2074

Essay Type Question 10

1. Define forecasting of plant diseases and explain various forecasting methods in detail.

Short questions (Attempt any ten) 10×3 = 30

2. Differentiate between diseases and disorder and enlist the biotic causes of plant diseases.
3. Enlist typical symptoms of plant diseases caused by the pathogens.
4. Define fungi and explain their importance in agriculture.
5. Explain about sexual fruiting bodies of fungi.
6. Write about Xanthomonas, Erwinia and Agrobacterium.
7. Discuss about genera Anguina, Heterodera and Meloidogyna.
8. Explain the use of mechanical transmission of virus particles.
9. Explain about genera Plasmodiophora, Phytophora and Erysiphe.
10. Define pathogenicity and draw the chain of a typical disease cycle.
11. Define epidemic of a diseases and explain the analysis of epidemic given by van-der plank.
12. Differentiate between enzymes and toxins.

FINAL EXAMINATION -2073

Essay Type Question 10

1. What do you mean by defence mechanism? Discuss about various defence mechanisms governed by the host plants.

Short questions (Attempt any ten) 10×3 = 30

2. Explain about biotic causes of plant diseases briefly.
3. Enlist symptoms due to some effects or changes in the host plant.
4. Explain about sexual fruiting bodies of fungi.
5. Draw and label a typical structure of a Gram negative bacterial cell.
6. Write about pseudomonas,streptomycesand C orynebacterium.
7. What do you mean by virus? Writ about spireplasma.
8. Explain about reproduction of nematodes.
9. Explain about Puccinia, Alternaria and Albugo.
10. Explain the role of hosts in survival of the pathogen and enlist the agents of autonomous dispersal of the pathogens.
11. Explain about the physiology of infected hosts.
12. Write about pathotoxins and phytoalexins.

FINAL EXAMINATION -2072

Essay Type Question 10

1. Define plant pathology and discuss inanimate and animate causes of plant diseases with suitable examples.

Short questions (Attempt any ten) 10×3 = 30

2. Differentiate the following(any 2)
a. Simple and compound interest diseases
b. Obligate and facultative parasites
c. Perithecium and pycnidium
3. Define bacteria and draw and label a typical bacterial cell.
4. Define parasexual cycle and discuss asexual reproduction in fungi.
5. What is a viroid? How viruses are transmitted in plant? Explain in short.
6. Enumerate the characteristics of root rot nematode and seed gall nematode.
7. Explain briefly the principles of plant disease management.
8. Define pathogenecity and describe pathogenesis.
9. Define the following terms (any 6)
a. Symptom b. Local lesion c. Cyst d. Exudation
d. Fungicide f. enzyme g. Hyperplasia
10. How pathogens survives in absence of their main host? Explain
11. Explain the induced biochemical defense mechanisms in plant.
12. Give classification and important characteristics of Pythium, Colletotrichum and Pyricularia

BACK EXAMINATION -2073

Essay Type Question 10

1. Define fungi. Enlist its beneficial and harmful effects to human life. Describe the different modes of reproduction in fungi with suitable example.

Short questions (Attempt any ten) 10×3 = 30

2. Describe the major physiological changes caused by disease in host plants.
3. Provide the taxonomic positions of Erysiphe plasmodiophora and Pseudomonas.
4. Enlist any five non infectious diseases of crop plants. Do the plant nutrition may affect the incidence of biotic diseases? How?
5. Discuss the characteristic features of Helminthosporium, Meloidogyne and Xanthomonas.
6. Define epidemics of a disease and explain the analysis of epidemic given by Vander plank.
7. Explain the six principles of diseases management.
8. Discuss the mode of transmission of virus from diseased plants to the healthy plant.
9. What do you mean by diseases forecasting. What are the bases for effective forescasting?
10. Describe the different survival techniques utilized by plant pathogens.
11. Compare and contrast between the followings:
a. Ascomycota and Oomycota
b. Systemic acquired resistance and induced systemic resistance
12. Write short notes on any three among following.
a. Exotoxin b. Direct penetration
c. Quarantine d. Heterokaryon

FINAL EXAMINATION -2071

Essay Type Question 10

1. Define disease and disease resistance. How plant defend themselves against pathogens by their morphological modification explain.

Short questions (Attempt any ten) 10×3 = 30

2. Describe about asexual the reproduction of fungi with suitable examples.
3. How pathogen propagules are disseminated by animate agents? Explain
4. Give the systematic position of the pathogen causing yellow rust of wheat and give its important characters.
5. Write down the causal oraganisms of the following diseases:
a. Root rot of rice b. soft rot of potato c. Bacterial wilt of tomato
e. Rive blast e.Little leaf of brinjal f. Powdery mildew of pea
6. What resting structure are made by the microorganism for their survival? Describe with suitable examples.
7. Differentiate between pathogenicity and pathogenesis and write about koch's postulates.
8. Define cyst. How knots are formed in healthy roots of the plants by Meloidogyne spp.?
9. Define plant virus and explain how they are transmitted fro, infected plant to healthy plants.
10. Draw a well labeled structure of bacteria amd mention plant pathogenic genera.
11. Why is it always a challenge for plant pathologist to mange plant disease? Classify fungicides on the mode of their application.
12. Define the following terms:
a. Disease tetrahedron b. Pathotoxin c. Disease forecast
c. Oospore e. perithecia f. sign

FINAL EXAMINATION -2070

Essay Type Question 10

1. How koch's postulates help to prove pathogenicity? Explain in detail about the sequential events occurring during the diseases development.

Short questions (Attempt any ten) 10×3 = 30

2. Define the following terminologies:
a. Sclerotia b. Blight c. Enzymes d. Witche's broom
e. Cyst f. Toxin
3. Define fruiting body? Explain with figures the asexual fruiting bodies.
4. Give the systematic position of the pathogen causing club root of curcifers with its important diagnostic characters.
5. Write down the etiology of the following diseases:
a. Damping off b. Brown rust of wheat c. Citrus canker
d. Fire blight of apple e. Ear cockle of wheat
f. Root knot of vegetables
6. Explain with figures and examples about the locomotion of bacteria.
7. What are the modes of transmission of plant viruses? Explain in brief.
8. How infected host acts as a reservoir of inoculums for the survival of pathogens?
9. Explain in brief how seed and soil helps for the active dispersal of the pathogens.
10. Define epiphytology? What are the essential components to cause epiphytotic condition? Explain briefly.
11. Plants defend themselves against the pathogens with their structural modification in the post infection period. Justify.
12. Explain about the principles of the plant diseases management in brief.

FINAL EXAMINATION -2069

Essay Type Question 10

1. Enlist abiotic, biotic and meso-biotic causes of plant diseases. Describe importance and general morphological characteristics of fungi.

Short questions (Attempt any ten) 10×3 = 30

2. Write the characteristics of the phylum Ascomycota and discuss any two genera of it.
3. Draw and label a typical structure of plant pathogenic bacterial cell.
4. Discuss about the general Plasmodiophora, Pythium and Erwinia in brief.
5. Briefly describe the general morphological characters of plant pathogenic nematode in reference of Heterodera and Anguina.
6. Explain about the vector mediated plant virus transmission.
7. Define pathogenecity and describe briefly about disease cycle in general.
8. Explain briefly post exposed defense mechanisms in plants.
9. Explain about the asexual fruiting bodies of fungi.
10. List the names of diseases caused by Puccinia, Uromyces, Helminthosporium, Pyricularia, Cercospora and Collectotrichum with their hosts.
11. Describe briefly about the physiology of infected host plant.
12. Write short notes on (any 3)
a. Pathogenesis
b. Koch's postulates

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 5th Semester F.M. 40
Subject: INTRODUCTION SOIL CONSERVATION AND WATERSHED MGMT. P.M. 16
Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Explain the mechanisms of soil erosion by water. Discuss the factor affecting soil erodibility.

Short questions (Attempt any ten) 10×3 = 30

2. Define soil conservation and discuss the major causes of soil degradation in Nepal.
3. How does wind transport the soil particles? Explain with suitable diagram.
4. Enlist the different method of soil loss estimation by erosion and explain the runoff plot technique for such loss.
5. How does soil erosion affect soil fertility and productivity? Explain with suitable examples.
6. What are the principles of protecting soils from water erosion? Enlist the major soil conservation measures for the agricultural land in midhills of Nepal.
7. What is bioengineering? Why it is becoming more important in Nepal?
8. Define Watershed and discuss the principles of integrated watershed management.
9. How do the agricultural activities influence the water quality? Describe in brief.
10. Describe the objectives of Department of soil conservation and watershed management.
11. Define Land capability classifications. Discuss the general characteristics of land capability classes that can be used for cultivation purposes in Nepal.
12. Write short notes on:
a. Spillway b. Shelterbelt c. Hydrological cycle

BACK EXAMINATION: 2074

Essay Type Question 10

1. What is soil erosion? Describe in brief the types of soil erosion by water.

Short questions (Attempt any ten) 10×3 = 30

2. Describe in brief the factors affecting wind erosion.
3. Compare among the various type of soil erosion by water and which one is the most hazards to the Nepalese soil?
4. Discuss the empirical method for soil loss estimation caused by erosion.
5. What are the different processes of wind erosion? Describe in brief.
6. Describe in brief the on-site and off-site consequences of soil erosion by Water.
7. Describe in brief soil erosion control in agricultural lands.
8. Explain in brief soil conservation practices of forest lands.
9. What are the measures to solve landslide problem in Nepal? Describe
10. Describe in brief the concept of integrated watershed management in Nepal.
11. Discuss in brief the institutional arrangement for soil conservation and watershed management in Nepal.
12. Write short notes on:
a) land slide in Nepal
b) hydrology

FINAL EXAMINATION- 2073

Essay Type Question 10

1. Explain the major consequences of soil erosion by water in the Himalayan Region of Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. Under what conditions the visual method of soil erosion is observed? Discuss in brief.
3. Describe the mechanisms of soil erosion by water in brief.
4. Discuss the factor affecting the condition conducive for soil erosion by wind.
5. Sketch the hydrological cycle and level its components and processes.
6. Explain the approaches adopted by Department of soil conservation and watershed management by Govt, of Nepal for controlling soil erosion.
7. Write a short note on the concept of integrated watershed management.
8. Define the terms:

a) soil conservation
b) landslides
c) watershed management
d) bioengineering measures

9. Describe the soil erosion control practices on forest lands of Nepal.
10. How natural vegetation and soil fertility are linked with land degradation? Explain
11. Describe soil erosion related terms used in Universal soil Loss Equation.
12. Discuss in brief the sources of water pollution and its consequences in agriculture.

FINAL EXAMINATION- 2072

Essay Type Question 10

1. Define soil conservation. Explain the soil erosion control measures in agricultural lands with special reference to the Nepalese condition.

Short questions (Attempt any ten) 10×3 = 3

2. There was a severe land slump in pokhara valley recently. What do you think would be the reasons behind this?
3. Define Eutrophication. Discuss the cause and effect of water pollution.
4. "Sheet erosion is also a selective process". Justify the statement.
5. Discuss the erosion status of Nepal.
6. Enlist the methods of soil loss monitoring and estimation. Enumerate the universl soil loss equation (USLE) With its practical limitations.
7. What are the special forms of erosion? Discuss in brief stream bank erosion with its control measures.
8. Describe the process of wind erosion.
9. Define and delineate watershed with figure. Enlist the major watersheds in Nepal.
10. Differentiate between rill and gully erosion. Describe the gully development process in hilly areas of Nepal.
11. Enlist the institutions involved in soil conservation and watershed management in Nepal. Discuss the activities carried out by the Department of Soil conservation and watershed Management(DSCWM)
12. Describe the benefits of integrated watershed management.

BACK EXAMINATION- 2073

Essay Type Question 10

1. What is soil conservation? Describe the most effective methods of soil conservatiom measures required to be followed in Nepal. Give scientific reasons for applicability of each method in Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. Define watershed and explain briefly the watershed approach of soil conservation.
3. How does afforestation help in soil and soil fertility conservation?
4. How does human influence in hydrological cycle?
5. In Bagmati river flowing through the Kathmandu valley is clean? If not what are the sources of its pollution.
6. What is conservation tillage? Describe the importance of conservation tillage in soil and soil fertility conservation.
7. What are the socio-economic consequences of soil erosion in down streams?
8. Describe briefly the mechanisms of wind erosion.
9. What is Universal soil loss equation? Define each symbols used in universal soil loss equation.
10. Write down the factors affecting soil erosion caused by rain water? Describe the effects of perennial cropping in soil and nutrient conservation.
11. Describe briefly the importance of bio-engineering to reduce soil loss situation in nepal?
12. If you were appointed as a district soil conservation officer for a mountain district, what would you do for your District?

FINAL EXAMINATION -2071

Essay Type Question 10

1. Differentiate between soil erodability and rain fall erosivity. Enlist the methods of soil loss monitoring and estimation.

Short questions (Attempt any ten) 10×3 = 3

2. Hydrological cycle is influence by human. Discuss it with example.
3. Discuss the soil erosion control measures in agriculture lands under Nepalese condition.
4. Human are the primary causes for the land degradation. What would be the reasons behind this?
5. How does agriculture and industries responsible for water pollution? Describe.
6. "sheet erosion is also a selective process". Justify the statement.
7. Nepal is hilly region erosion prone. How is terai affected by this?
8. Describe the erosion status of Nepal.
9. Write short notes on(any two):

a) SALT b) CHIAT c) Avalanches

10. Differentiate between rill and gully erosions. Discuss the gully development process in hilly area or Nepal.
11. Enlist the institutions involved in soil conservation and watershed management in Nepal. Discuss the activities carried out by the Department of Soil erosion and Watershed management(DSCWM)
12. Discuss the principles of integrated watershed management with examples.

FINAL EXAMINATION -2070

Essay Type Question 10

1. Define watershed management and explain the causes of watershed deterioration and management options in hilly region of Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. Briefly explain the mechanisms of the soil erosion by water.
3. Differentiate between surface creep and suspension. Describe the factors affecting wind Erosion.
4. Enlist the measures of soil erosion control in agricultural land and explain the role of strip cropping in soil erosion control.
5. Agricultural practices and water quality affect each other, how?
6. What are the significances of hydrological cycle in agriculture?
7. Describe the policies and strategies adopted by Department of soil conservation and watershed management in Nepal.
8. What is afforestation? Describe the soil erosion control in forest Lands.
9. Poor men and poor soil go together, justify.
10. Define universal soil loss equation. How do organic matter and clay particles influences soil erodibility?
11. Explain any two bioengineering technologies that are useful to control soil erosion in Nepal.
12. Write short notes on:

a. Contour hedge row technology
b. Sheet erosion

FINAL EXAMINATION-2069

Essay Type Question 10

1. Define soil erosion by water and describe the factors affecting soil erosion in detail. Explain the effects of soil erosion caused by water in public Health hazard.

Short questions (Attempt any ten) 10×3 = 30

2. Describe various parameters used for land capability classification.
3. Explain watershed characteristics affecting the sediment Yield.
4. Explain sources of water pollution with examples.
5. Describe the importance of hydrological knowledge in natural resource planning.
6. Discuss the consequences of soil erosion in soil fertility loss and land degradation.
7. Describe soil characteristics for better water harvesting.
8. What are the engineering measures for soil erosion control? Describe the terracing method in brief.
9. Mention the legislations and regulations related to soil conservation and watershed management.
10. Classify and discuss the control measures of stream bank erosion.
11. Explain the mechanics of wind erosion.
12. Write short notes on:

a) Wind erosion
b) Shelterbelt

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 6th Semester F.M. 40 P.M. 16

Subject: INEPALESE AGRICULTURE DEVELOPMENT AND POLICY Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Discuss why the pace of agricultural development or growth is very slow in Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. Discuss basic terms to be considered while formulating appropriate agricultural development policies in Nepal.
3. Discuss social and institutional obstacles in hindering agricultural growth in Nepal.
4. Discuss structural obstacles in Nepal from agricultural development point of view.
5. Discuss the importance of cash crops in Nepal.
6. Discuss the importance of livestock development in Nepal.
7. Discuss the importance of water resource in agricultural development of Nepal.
8. Discuss different priorities of agricultural development Strategy (ads) of Nepal.
9. Briefly discuss different development plans of Nepal.
10. Discuss institutes related to teaching and research in agriculture sector of Nepal
11. Critically discuss land reform initiatives of Nepal.
12. Discuss different programs related to poverty alleviation of Nepal.

BACK EXAMINATION-2074

Essay Type Question 10

1. Interrelate Nepal's agriculture with her economy. Discuss on major components of Nepalese agriculture pertaining to their roles in national economy.

Short questions (Attempt any ten) 10×3 = 30

2. Discuss on past trend, present situation and future prospect of food grain production in Nepal.
3. Discuss with evidences whether higher dependency of economy on agriculture is bad or boon to Nepal.
4. Enlist major water resources policies of Nepal. Critically evaluate key policies of Nepal. Critically evaluate key policies in relation to efficiency in water resource utilization,
5. Describe key strategies for increasing agricultural profitability envisaged in Agriculture development Strategy (ADS), 2014 of Nepal.
6. Explain major institutional problems of agricultural production in Nepal. Also suggest suitable policy interventions to overcome those problems.
7. Discuss on role of cooperative organizations for promoting agricultural production and marketing in Nepal.
8. Define land reform. Discuss on present land tenure systems of Nepal.
9. Explain in brief about major research and extension institutions involved in development of agricultural development sector in Nepal.
10. Explain the role of foreign aid as well as their negative consequences in agricultural development of Nepal.
11. Define poverty. Critically evaluate the government efforts for poverty alleviation in Nepal.
12. What are dimensions of food security? Suggest effective measures to overcome food insecurity problem of Nepal.

Final EXAMINATION-2073

Essay Type Question 10

1. Describe major problems in Nepalese agriculture. Briefly discuss the important of irrigation water policy in the agricultural sector development in Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. Critically asses the present scenario of horticultural crops in Nepal.
3. Agriculture as the accelerator if economic development in Nepal. Give your suitable argument.
4. What is APP? Briefly discuss the major inputs and outputs priority in APP.
5. Briefly discuss food security and insecurity scenarios in Nepal.
6. What is three year interim plan? Discuss major priority, achievement and highlight in agricultural sector under TYIP.
7. What are the objectives of NAP, 2004? Briefly discuss any five major policies under objective 1st of NAO, 2004.
8. Enlist major institutions actively involved for agricultural research, extension and development. How does ADB/ Nepal play an important role on agricultural development in Nepal?
9. Define poverty. What are the major causes and consequences of high poverty in the country?
10. What are the strategies under APP? Briefly discuss each strategy.
11. Briefly discuss major land reform and tenure system adopted in Nepal.
12. How to achieve the goal of household food security, profit maximization at farm and improved living standard of the people?

Back EXAMINATION-2073

Essay Type Question 10

1. Critically evaluate food production and poverty alleviation aspects of 10th five year plan and first interim plan (2007/08-2009/10) launched by the Government of Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. Argue graphically how share of agriculture in total GDP is gradually reducing over time.
3. Graphically analyze fruit and vegetable production trend in Nepal.
4. One of the major causes of poor agricultural development is the economic obstacle adhering. Explain it with examples.
5. Give details about major policy implementation role of agricultural extension institutions in Nepal.
6. What do you mean by income poverty? Prepare a list of major organizations involved in poverty alleviation in Nepal.
7. What are the objectives and components implemented in the Integrated Rural Development Programs (IRDPs)?
8. List down the priority inputs and outputs envisaged in the Agriculture Perspective Plan. Explain growth path of per capita GDP from horticultural crops envisaged in the APP.
9. Graphically describe current trend of Nepalese food self-sufficiency status.
10. Critically analyze foreign aid use pattern in Nepalese Agriculture,
11. Write short note on:
a) Role of financial institutions in agriculture
b) Milk production trend
c) Land tenure system
12. State current water resources management policies in Nepal.

Final EXAMINATION-2071

Essay Type Question 10

1. Discuss the importance of agriculture in Nepalese economy. Also highlight various obstacles faced by the sector.

Short questions (Attempt any ten) 10×3 = 30

2. Highlight the role of teaching institutions like IAAS in the agricultural development in Nepal.
3. Discuss the chronological agricultural development in Nepal.
4. How can 3-R approach be an effective tool to fight against food insecurity.
5. What is the significance of National Agricultural Policy 2004 in the agricultural development in Nepal?
6. Explain the harnessing of water resources in Nepal.
7. Describe in brief about APP.
8. Critically evaluate the Land Reform and tenure system in Nepal.
9. Discuss the role of different national plan periods in the agricultural development in Nepal.
10. Highlight the role of foreign aid in agricultural development in Nepal.
11. Discuss various efforts of government of Nepal towards alleviating poverty.
12. Write short notes on (any three):
a) Youth in agriculture
b) Role of women in development of agriculture
c) Cooperatives
d) Agriculture, accelerator of national economy

BACK EXAMINATION-2071

Essay Type Question 10

1. What do you mean by food security? Discuss the dimension, causes and coping strategies of food insecurity in Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. What are the problems of agriculture in Nepal?
3. Define poverty. How do you suggest the Nepal government to solve poverty?
4. Enlist different institution engaged in agricultural development in Nepal. Explain the role of ADB/N.
5. Critically discuss the productivity and production trend of rice.
6. What do you mean by the land reform and land tenure system? Explain in context of Nepal.
7. Briefly discuss the priorities of input and output of APP.
8. Briefly discuss the importance of water resource in Nepal.
9. Discus the role of foreign aid for agricultural development in Nepal.
10. Define the Lorentz curve and Gini coefficient and also discuss its application.
11. Agriculture is the back bone of Nepalese economy, comment.
12. Critically evaluate the national agricultural policy 2004 of Nepal.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 6th Semester F.M. 20
P.M. 8
Subject: Organic agriculture Time: 1:30 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 6

1. Define organic farming and write down positive and negative impact of green revolution in agro-environment.

Short questions (Attempt any Seven) 7×2 = 14

2. Write down the soil conservation practices adopted in Nepal.
3. What is bio-pesticides? Briefly explain the major principles IPM.
4. Write down the principles of fairness in organic farming.
5. Write short notes on (any two):

a) Accreditation b) Importance of bio-fertilizer c) Present status of organic farming in Nepal

6. Write down the importance of indigenous knowledge in organic farming.
7. What is biodiversity conservation? Write down the major practices needed for biodiversity conservation in Nepal.
8. How can you manage the physio-chemical properties of soil in organic farming?
9. Write down the importance and principles of in organic farming in Nepal.

Final examination- 2073

Essay Type Question 6

1. Define organic farming and write down the scope of organic farming in Nepal.

Short questions (Attempt any Seven) 7×2 = 14

2. Briefly explain the negative effect of modern agriculture in Nepal.
3. What is integrated pest management? Enlist the major constraints of organic farming in Nepal.
4. Discuss briefly the principles of health in organic agriculture.
5. Write short notes on (any two):

a) Green revolution b) Accreditation c) Biodiversity conservation

6. Write down the principles of sustainable soil management in organic agriculture.
7. Discuss briefly the importance of animals integration in organic farming.
8. Enlist the major components organic farming and explain the importance of any one in brief.
9. Writ down the organic product certification status in Nepal.

Final examination- 2073

Essay Type Question 6

1. Define organic farming and write down in brief the importance of organic farming in our country.

Short questions (Attempt any Seven) 7×2 = 14

2. How enough nutrients can be provided to the crops by supplying organic material?
3. What is integrated nutrient management? Write down the major constraints of organic farming in Nepal.
4. Write down the principles of sustainable soil management in organic agriculture.
5. Discuss briefly the principles of ecology in organic agriculture.
6. Briefly explain the major negative constraints of organic farming in Nepal.
7. Enlist the major components of organic farming and explain the importance of any one of them.
8. Discuss briefly the importance of animal integration in organic farming.
9. Write short notes on (any two): a) Soil conservation b) Integrated pest management c) Green revolution

Final examination- 2071

Essay Type Question 6

1. Discuss the roles of organic matter for soil health. Suggest means and ways to make the soil rich in organic matter.

Short questions (Attempt any Seven) 7×2 = 14

2. Write down the evolution of organic agricultural movement in the world.
3. What are the positive and negative aspects of green revolution in agriculture?
4. How does biodiversity help to promote organic agriculture in Nepal?
5. Write down the principles of organic pest management write examples.
6. What are the prospects and problems of organic agriculture in Nepal? Explain.
7. Describe the potential of Nepal shift to organic system of cultivation.
8. Write short notes on (any two):

a. Bio fertilizers b. Plants of pesticidal value c. Livestock in organic agriculture

9. Discuss briefly the principles of health in organic agriculture.

Final examination- 2070

Essay Type Question 6

1. Define organic farming and write down the importance of organic farming in Nepal.

Short questions (Attempt any Seven) 7×2 = 14

2. Briefly explain the impact of green revolution on agro-environment.
3. What is organic pest management? Explain the principles of integrated pest management.
4. Write down the ecological principles of organic farming.
5. Write short notes on (any two):

a. Chemical based agriculture
b. Certification of organic products
c. Bio pesticides

6. Describe the importance of biodiversity management in organic agriculture.
7. What is green revolution? Explain the positive impact of green revolution on farmer's livelihood.
8. How can you manage the soil fertility in organic farming? Describe in brief.
9. Discuss the importance of livestock integration in organic farming.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 6th Semester F.M. 40
P.M. 16
Subject: Principles and practices of animal breeding Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Classify livestock mating system in brief. You want to improve the indigenous Parkote breed for the milk purpose in the mid-hill area. What could be your suitable breeding plan?

Short questions (Attempt any ten) 10×3 = 30

2. Write in short about the history of animal breeding development in Nepal.
3. Discuss about the results of mating of Bosgrunnienswith hill cattle.
4. What do you mean by genotype by environment (G×E) interaction? Describe the importance of (G×E) interaction in livestock breeding.
5. Enlist the causes of variation. What is the role of variation in genetic improvement?
6. What do you mean by non-additive gene action? Write any two cases of over- dominance in animals.
7. Define the term selection. Discuss on the genetic effect of selection.
8. What are the advantages of progeny selection over the individual selection? Discuss.
9. Differentiate 'broad sense' and 'narrow sense' heritability and describe the importance of heritability estimates in livestock improvement.
10. What is the worth of AI in country such as Nepal? What are the practices to be considered to increase the success rate of conception through AI?
11. Define the concept of transgenic animals. What are the uses of transgenic technology?
12. Draw a well labelled diagram of female reproductive system of cattle. Write in brief about corpus luteum.

Final examination- 2073

Essay Type Question 10

1. What are different systems of mating? Which of them do you choose to improve local cattle and hilly goat in Nepal? Give enough reasons.

Short questions (Attempt any ten) 10×3 = 30

2. Write short notes on (any two):

a) Heat synchronization b) Nicking c) Achhami cattle

3. Describe the importance and scope of animal breeding in impressing the local stocks in Nepal.
4. Write the causes of variation and why it is important in the selection process?
5. What are the important economic traits of livestock and poultry?
6. What is the breeding value and how can you estimate the breeding value of a bull?
7. Define pedigree record. Write the advantages and disadvantages of pedigree selection.
8. How do you know that a cow is in heat? Enlist the major hormones related to reproduction.
9. Differentiate between A.I. and E.T. technique. Which technique is appropriate to adopt in Nepalese context and why?
10. Draw a well labelled diagram of female reproductive organs and describe ovaries.
11. What is transgenic animal? Write the importance of transgenic animal.
12. Draw a well labelled diagram of mature Graatian follicle.

Back examination- 2074

Essay Type Question 10

1. What is genetic principle of mating systems? Outline and discuss the different mating systems practiced in genetic improvement programs focusing on the application issues and situation.

Short questions (Attempt any ten) 10×3 = 30

2. What are the differences between qualitative and quantitative trait behaviors? Discuss.
3. It is said that selection is the "key of the arch" in animal breeding. Justify.
4. What may be the selection approach for additive and non-additive type of gene actions? Illustrate.
5. What do you understand by probable breeding values (PVB) of an individual and how you estimate the PBV of an individual under different situation?
6. What are the ways or approaches of improving animal productivity? Which approach bring permanent changes? Discuss.
7. What are the differences in the interest of breeder farm and commercial farmers? Discuss in the line of breeding methods.
8. How do you perform selection based on siblings? What are the genetic principles?
9. Estimate relative accuracy of selection under progeny test when heritability of a trait is 30% and the number of progenies (half sibs) tester parent is 10 and conclude the result.
10. Discuss the concept of using crossbred males or females in developing synthetic breed population in animal production systems.
11. 600 half sib progenies of Jersey cattle obtained from 6 sores were reported to have an average g fat of 4.99 %. If the heritability is 53%, calculate the breeding values of each sire and rank them as per their superiority on the basis of following data.

	Sire ID					
	Sire 1	Sire 2	Sire 3	Sire 4	Sire 5	Sire 6
No. of progenies per sire	60	40	100	80	200	120
Avg. fat %	4.48	5.43	5.39	4.46	5.41	4.45

Final examination- 2073

Essay Type Question 10

1. What are the different methods of selection for superior breeding of livestock? Why progeny selection is must preferred to other method of selection?

Short questions (Attempt any ten) 10×3 = 30

2. Discuss on the history of animal breeding.
3. What are the major economic traits of sheep? Explain in brief.
4. What do you mean by gene and environmental interaction and its significance? Explain in brief.
5. In Nepal, there are many local animals which have very low production and productivity, as a student of animal breeding what breeding strategy you followed for increasing the productivity of these animals? Explain with suitable example.
6. What do you mean by heritability? How do you estimate heritability from resemblance between relatives?
7. Define hormone. Explain the role and function of gonadotropic hormone.
8. What do you mean by AV? How do you prepare AV for collection of semen?
9. What is estrus synchronization? What are the methods of synchronization of estrus in farm animals?
10. What do you mean by super ovulation? Write down any two protocols of super ovulation in farm animals.
11. How embryo collection is performed in cattle? Explain.
12. Write short note on following.

a. Most probably producing ability (MPPA) b. Breeding value c. Plateau population d. Coefficient of inbreeding

Final examination- 2071

Essay Type Question 10

1. Explain the meaning of selection and discuss about the method of selection.

Short questions (Attempt any ten) 10×3 = 30

2. Write about phases of estrus cycle.
3. What are the major economic traits of cattle and sheep?
4. What do you mean by variation? What are the causes of variation? Explain.
5. Explain the meaning of heritability and repeatability.
6. Define hormone. Write the important function of FSH, LH and PMSG.
7. What do you mean by AV? How do you prepare AV for collection of semen?
8. What is estrus synchronization? What are the methods of synchronization of estrus in cattle?
9. What do you mean by super ovulation? Write down any two protocols of super ovulation buffaloes.
10. How embryo collection is performed in cattle? Discuss.
11. Write the short note on:

a) Most probable producing ability (MPPA) b) Breeding value c) Semen extenders d) Silent estrus

Final examination- 2070

Essay Type Question 10

1. How does selection contribute in genetic improvement? What are basis of selection, discuss them with their advantages and disadvantages.

Short questions (Attempt any ten) 10×3 = 30

2. Describe briefly about DNA translation.
3. What do you mean by heritability? Describe briefly with example.
4. Why is it important to know the type of gene actions in the selection process?
5. What is variation? What are the causes of variation in livestock? Explain.
6. What are economic traits considered in sheep, swine and poultry for genetic improvement?
7. What are the different biotechnological approaches g=developed in livestock improvement program? Explain in brief.
8. Discuss mating system used to improve the productivity of different livestock species.
9. Define heat synchronization. Give it significance and processes involved in livestock production.
10. Differentiate between AI and ET. How AI is performed in cow? Explain.
11. Define hormone. What are male and females hormones? Discuss their roles and functions in reproduction.
12. Explain with sketch of reproductive system of buffalo.

Final examination- 2071

Essay Type Question 10

1. Explain the meaning of embryo transfer. How embryo transfer is performed in buffalo? Discuss in detail.

Short questions (Attempt any ten) 10×3 = 30

2. What are the advantages of cross breeding? Why do the people still follow in breeding? Give reasons.
3. Explain the meaning of heritability. How does it differ from repeatability?
4. Write about indigenous breeds of cattle, goat and sheep in Nepal.
5. What is variation? What are the causes of variation in livestock? Explain.
6. Write about method of selection.
7. How semen is collected from bull? Describe in brief.
8. What do you mean by estrus? Discuss about phases of estrus cycle.
9. Define hormone. Write the role of FSH, LH and PMSG in livestock reproduction.
10. How do you evaluate semen?
11. What do you mean by heat synchronization? Give it significance and technique involved in livestock production.
12. Write about short notes on the following:

a) Additive and non-additive generation
b) Lethal gene
c) Genetic effect of cross breeding
d) Importance of animal breeding

Back examination- 2070

Essay Type Question 10

1. What are the advantages of out breeding over inbreeding and, vice versa? Why do you the people still follow inbreeding practices in spite of knowing about its consequences? Discuss.

Short questions (Attempt any ten) 10×3 = 30

2. Enlist the indigenous breeds of buffalo and cattle found in Nepal with their major characteristics features.
3. What is E.T? How ET is performed in cattle? Explain.
4. What are male and female reproductive hormone? Discuss their role and function in reproduction.
5. What are the significance of AI in farm animal?
6. What are the basis of selection for genetic improvement of livestock species?
7. Why heredity is more important than environment?
8. Define repeatability. How does it differ from heritability?
9. List method of semen collection from bull and explain one of them.
10. How could you determine if quantitative trait are affected by additives or non- additives or both type of gene action?
11. Write your impression about this course considering practical use.
12. Write short notes on the following:

a. Lethal gene
b. Silent estrus
c. Progeny testing
d. Breeding value

TRIBHUVAN UNIVERSITY
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 6th Semester F.M. 40
P.M. 16
Subject: Economic Entomology Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. List down the major insect pests of cole crops vegetables. Describe identification, nature of damage, life cycle and management of cabbage butterfly and diamond black moth.

Short questions (Attempt any ten) 10×3 = 30

2. Recently there was heavy infestation of one of the insect pest in tomato in Kavre district which belong to Gelichiidae family. identify and describe the managerial aspect of that inset pets
3. How do the Lipaphis erysimi damage crops?
4. Wrote down the non- chemical measures to control storage insects with example.
5. Write down the non-chemical measures to control storage insects with example.
6. Give the names of economically importance insect pests of mango with their scientific name, order, family.
7. Define insect vectors. List the major plant insect pests of mango with the disease they transmit.
8. List any three insects that have two damaging stage and write about their nature of damage.
9. Write about the scientific name, family, order, identification and life cycle of social insect pests for potato.
10. The pest causes significant damage being vector of citrus greening disease. Write down identifying character and the management procedures for the pest.
11. How do you identify Tobacco caterpillar? Write about its damaging symptoms and management procedure.
12. Define the term:

a) Double seeds in cotton b) Dead heart c) Rodent control.

Final examination- 2073

Essay Type Question 10

1. Enlist major and minor insect pest of Solanaceous crops with their scientific names and orders. Among the major pests, describe two of the most economic importance pests with justifications and suggest their management practices as well.

Short questions (Attempt any ten) 10×3 = 30

2. Define economic entomology and how do you differentiate insects from pests.
3. Enlist the major stored grain insects and suggest their management practices appropriate to our rural community.
4. What are the stem and plant heart-damaging insects of maize stem borer.
5. Give the name of sap sucking insects of rice. Describe the life cycle and management practices of Leptocorisa oratorius
6. What do you understand by pseudo stem trapping and for what purpose this is applied?
7. List five major insects of citrus. Write down the biology and management practices of Citrus Pysilla
8. What do you understand by medical and veterinary insect pests? Enlist major veterinary insect pests and describe management practices of one of them.
9. Define insect vectors. Why aphids are considered the most efficient vectors and enlist five plant diseases transmitted by aphids?
10. Write down the major insect pests of cucurbitaceous crops. Describe the life cycle and management practices of Bactorcera cucurbitae Coquillett.
11. Define polyphagous pests. Why polyphagous pets are difficult to manage.
12. Write short notes on:

a) Macropterous b) White head c) Hopper burn

Final examination- 2074

Essay Type Question 10

1. Briefly outline the major economic insect-pests of cucurbits with their common names, scientific name and family.Discuss in detail the effective management strategies to control Cucurbit Fruit Fly.

Short questions (Attempt any ten) 10×3 = 30

2. How do you measure the economic status of insect-pest? Briefly explain with examples.
3. Enlist any five storage grain insect-pests of crucifer crops and their management?
4. How the fruit borer damages in tomato crop?
5. Describe about major insect pest and their management in potato.
6. What are the major insect pet of crucifer crops and their management?
7. How does the five storage grain insect-pests with their host crop and damage symptoms.
8. Briefly explain the life cycle of American bollworm,
9. Briefly describe the life cycle of sugarcane top shoot bores.
10. Differentiate between:

a) Dead heart and white head
b) Fleas and mites
c) Brown plant hopper and green leaf hopper

11. Define the terms:

a) Oligophagous pest
b) Medical entomology
c) Silver shoot

Final examination- 2073

Essay Type Question 10

1. Write down the borer and hopper complex of rice ecosystem? Describe details on brown plant hopper and yellow stem borer of rice highlighting it sustainable management practices.

Short questions (Attempt any ten) 10×3 = 30

2. Write any five important pests of industrial crops? Shortly describe the integrated management of Heliciverpa armigera in cotton crops.
3. Compare and contrast the management practices of soil inhibiting and aerial feeding insects of vegetables
4. The management practice of white grub is difficult in cereal based farming system. Describe details on its biology and management practices in hilly regions of Nepal.
5. How do you differentiate dead heart with white head of rice? Write the short management practices of stem borer in rice crops.
6. How do you justify Pumpkin fruit fly is the destructive pest of cucurbit? Briefly describe its management practices in cucurbit fields.
7. Enlist 5 important pests under homopteran? Shortly describe it nature of damage of sucking insects in vegetable crops. Justify and support with examples.
8. How do you differentiate the leaf webber with the lead folder? Suggest the short life cycle and management practices of Brinjal Leaf webber.
9. Write short life cycle of banana scarring beetle? Scarring beetle reduced the market price of banana. Justify wit examples.
10. Enlist any five major leaf defoliating insect of rice? Shortly describe any one of them.
11. What do you mean by insect vectors? Enlist nay five insects vectors of human beings and plant.
12. Write short notes on:

a) Polyphagous pest b) Soil inhibiting insect

Final examination- 2071

Essay Type Question 10

1. List down the major insect pest of solanaceous vegetables on the basis of the plant parts they feed upon. Describe identification. Nature of damage, life cycle and management of any two leaf feeders.

Short questions (Attempt any ten) 10×3 = 30

2. Write down the identification, nature of damage, life cycle and management of any two leaf feeders.
3. List any six crop damage activities inflicted by chewing insects.
4. Write down the damaging activities of aphids,
5. Write down the measures to control storage insects without using any chemicals.
6. Give the names of economically important insect pest of banana with their scientific name, orders and families.
7. Define insect vectors. List he major plant insect vectors with the disease they transmit.
8. Write down about thaactivitiesdone for rodent control.
9. Write about the scientific names, families, orders identification and life cycle of social insect pest for citrus.
10. Recently there was a heavy infestation of one of the polyphagous insect pest in Banke district whose adult is a dark colored moth with certain patterns of white-wavy marking on the forewings and hind wings are white brown colored margins, their egg masses are covered with brown hairs. Identify and describe the managerial aspect of that insect pest.
11. Write down the management of Leptocorisa oratorius.
12. Define the term:

a) Silvery shoot b)Dead heart c) Hopper burn

Final examination- 2070

Essay Type Question 10

1. Write down the major ten insect pest of cereal crops. Write in detail about the hopper and borer complex of rice crops.

Short questions (Attempt any ten) 10×3 = 30

2. What are the major storage insect pests in your locality? How do you suggest to the farmers to reduce its infestation in storage house?
3. Briefly describe the biology of Lemon Butterfly. Also describe its appropriate management practices in citrus crops.
4. What are the major pests of maize crops.
5. List any five major leaf damaging insects of crucifers. Also describe the biology and management practices of cabbage butterfly.
6. What do you mean by invertebrate pests? Write their nature of damage and appropriate management practices.
7. Give the names of economically important insect pest of mango? Write appropriate management practices of citrus stink bug,
8. Write in detail the life cycle and nature of damage of red pumpkin beetle.
9. "Management of sap sucking insects differ from chewing type of insects." Support with examples.
10. Define insect vectors. List nay five major viral insects with names of viral diseases.
11. List any five major insect pests of temperate fruits. Briefly describe biology and management practices of wooly aphid.
12. Write short notes on:

a) Predators b) Hopper burn c) Deadheart

Final examination- 2071

Essay Type Question 10

1. What are the major economic insect pests of solanceous crops? Discuss in detail the biology and effective management strategies to control tomato fruit borer.

Short questions (Attempt any ten) 10×3 = 30

2. How do you measure the economic threshold level of insect pet? Briefly categorize the insect pest based on host association.
3. Enlist five major insects of rice with management options of borer complex.
4. Briefly describe the life cycle and management of sugarcane top shoot borer.
5. Briefly describe the biology and effective management practice of cucurbit fruit fly.
6. Briefly describe the biology of citrus stink bug. Also describe its appropriate management practices in citrus crops,
7. List any five major insect pests of temperate fruits. Briefly describe the biology and management practices of wooly aphid.
8. Define insect vectors. Define any five viral insect vectors with names of viral diseases.
9. Enlist any five storage grain insect pest. Also describe its integrated management.
10. Describe briefly the biology and management practices of white fly in cucurbit crops.
11. Differentiate between:

a) Dead heart and white head b) Fleas and mites
c) Brown plant hopper and green leaf hopper

12. List any three major insect pest of mango with their effective management options.

Final examination- 2070

Essay Type Question 10

1. Enlist the major insect pests of all cereal crops found in your locality. Write on borer and hopper complex of rice pests describing their life cycle, nature of damage and practical management practices.

Short questions (Attempt any ten) 10×3 = 30

2. Enlist economically important insect pests of sugarcane and mention control measure of any one of them.
3. What are the major insect pest of winter fruits? Explain the damage symptoms and preventive control measure of San Jose Scale in apple.
4. Describe the nature of damage and practical control measure of the following insects:

a) Aphis sp b) Agriotes so c) Agrotis sp

5. What do you understand by vertebrate pets? Write on their effective management in different crops.
6. Enlist the important insect pest of cucurbits. The management of cucurbit fruit fly is difficult, why? Explain.
7. Define HPR. How can you measure the plant resistance against insect? Give suitable examples.
8. Shortly describe the insect vectors of human diseases. Highlight the effective management of important vectors in your locality.
9. Enlist the important insect pests of banana. Describe the nature of damage of fruit and leaf scarring beetle. Why this pest is important to banana farmers?
10. Enlist the important pests of solanaceous and leguminous crops available in your locality.
11. Differentiate between the following:

a) Bug and Hispa damage b) Cabbage butterfly and tobacco caterpillar damage c) Soybean hairy caterpillar and red pumpkin beetle damage,

12. Write short notes on:

a) Dirty trap b) Mc Fell trap c) Farmer field school

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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 6th Semester F.M. 40
P.M. 16
Subject: Agricultural communication Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. What is effective communication? Discuss the role of planning for effective communicationwith respect to the trends, issues and problems

Short questions (Attempt any ten) 10×3 = 30

2. List nine function of communication. Describe nay two reflecting agricultural development.
3. Describe physical and cultural barrier of communication.
4. Explain bullet theory and cognitive dissonance theory of ccommunication
5. What are different approaches of development communication? Explain.
6. What do you mean by kinesics and haptics in communication? Explain
7. Explain individual communication system and its importance in agriculture,
8. What are different communication channels? Which one is better in agricultural development? Give your vies,
9. What are the things to be considered in planning for effective communication?
10. Describe principle of communication in relation to channels and receiver.
11. Give any six problems in South Asian development communication program with their solution measures,
12. Write short notes on (any three) a) Aristotle model b) Leagan's model c) Mirage d) Homogeneity

Final examination- 2073

Essay Type Question 10

1. How feedback in communication is important in technology transfer? Explain the characteristics of feedback with suitable examples. How can we make feedback more effective?

Short questions (Attempt any ten) 10×3 = 30

2. What is the model of communication? In your opinion, which model of communication is best suitable to make teaching learning effective?
3. What are the major typologies of communication barriers? How can it be reduced?
4. How non-verbal communication is effective in extension of teaching learning situation?
5. Enlist the functions of communication and explain major functions of communication in most of the agricultural development organization.
6. Is communication a process? Explain with suitable sketch demonstrating each elements of communication as a process.
7. What are the major differences between the communication approach, ccommunication strategy and communication methods?
8. Define and state the meaning of communication plan. What are the elements of communication we should consider before planning a communication plan?
9. Classify the major types of communication. How can we make verbal presentation effective?
10. What are the major issues of development communication on Nepal?
11. What is communication theory? Enlist the major theory of communication and explain any one of them.
12. Write short notes on: (any three)

a) communication skills b) intrapersonal communication system
c) advantage of group communication system
d) principles of communication

Final examination- 2074

Essay Type Question 10

1. Write down the type of communications system in details and which method of communication is cost effective?

Short questions (Attempt any ten) 10×3 = 30

2. Define the term communication.
3. What are the scope of communication in agricultural development program of Nepal?
4. Write down the process of communication in brief.
5. What do you mean by 'theory' and write down the theory of selective influence in brief?
6. Write down the function of communication planning.
7. What are the effect of communication research in agricultural development?
8. Briefly describe communication strategy model.
9. Write down the non-verbal communication in brief.
10. What do you mean by feedback in communication and its type?
11. Write short note on cultural barrier on agricultural communication.
12. What are the basic communication approaches and write community development approach in detail?

Final examination- 2073

Essay Type Question 10

1. What is theory in communication? Mention the functions of theory and recommend a theory of your own choice to help in solving IAAS problems.

Short questions (Attempt any ten) 10×3 = 30

2. Conceptualize communication in brief.
3. Discuss in brief the roles of communication in agricultural development program.
4. Explain non-verbal communication in brief.
5. Write down the scopes of communication in Nepal.
6. Describe in brief the feedback and its types.
7. Discuss in brief the theories of mass media.
8. Clarify inter personal communication with examples.
9. Differentiate between intensive development approach and self-help cooperative approach of communication.
10. What are the physiological barriers of communication? Describe in brief.
11. List the characteristics of least developing countries with example.
12. Describe the nature of communication strategy model in agricultural development.

Final examination- 2071

Essay Type Question 10

1. What do you mean by communication strategy? Describe the steps involved in planning a communication strategy for an agricultural extension project of your choice. Provide with suitable examples.

Short questions (Attempt any ten) 10×3 = 30

2. What do you mean by feedback? What is its importance in extension education?
3. What are the different elements of communication? Write about the importance of media forums in agricultural extension.
4. What do you understand by media forums? Write about the importance of media forums in agriculture extension.
5. How do you view communication as a process? Explain.
6. What are the channels of communication? Classify and explain different channels of communication.
7. What are models? Provide a model on extension communication system with neat diagram.
8. List out the different barriers to communication and explain any one of them,
9. What are the different forms of communication? Explain nor-verbal communication with its functions.
10. Explain about the induced innovation model of Agricultural Development.
11. Define effective communication. Write about the factors affecting communication effectiveness of an extension worker.
12. Write short notes on (any three):

a) Homophily and heterophily
b) Communication fidelity
c) Time lag in communication
d) Two step flow of communication

Final examination- 2070

Essay Type Question 10

1. What do you mean by strategy development? How do you plan on effective communication program? Explain in detail

Short questions (Attempt any ten) 10×3 = 30

2. Write down the principle of communication in brief.
3. Discuss communication process in agriculture development.
4. What are the functions of communication? Describe in brief.
5. Define feedback in communication and discuss the advantage of feedback in extension education.
6. Describe the different types of communication in brief.
7. What do you mean by theory? Describe any one important theory in agricultural development.
8. Define proxemics in communication with suitable examples.
9. Write in brief about different approaches of communication used in Nepal.
10. What are the basic things of mass communication system? Write down the advantages of mass communication channels.
11. Discuss the barriers of effective communication.
12. What do you mean by PPP in agricultural development? Write down the roles of stakeholders in PPP.

Final examination- 2071

Essay Type Question 10

1. What is theory in communication and write down the different theory in communication with suitable example in agricultural development program of Nepal?

Short questions (Attempt any ten) 10×3 = 30

2. Explain non-verbal communication in brief.
3. What are the social barriers of communication? Explain.
4. Discuss on characteristics of feedback in communication.
5. Write down the elements of communication in brief.
6. Define communication in agricultural development in brief.
7. Write down the function on communication planning
8. Discuss on channel of mass media.
9. Write down the communication strategy model in brief.
10. What do you mean by group communication system? Briefly discuss the agricultural development perspective.
11. What are the basic communication approaches? Describe community development approach.
12. Write down the function of communication in agricultural development program of Nepal.

Final examination- 2070

Essay Type Question 10

1. Define the term theory in communication and mention it type and recommend an appropriate theory which will solve the problems of Lamjung Campus.

Short questions (Attempt any ten) 10×3 = 30

2. Explain the characteristics of feedback.
3. Write down the free press theory and relate it with example of our country.
4. Write down the appropriate model of communication in agriculture development of Nepal.
5. Discuss in brief the communication emphasized agricultural extension.
6. What are the cultural barriers to communication? Discuss in brief.
7. What are the functions of communication? Describe in brief.
8. Explain facial expression of non- verbal communication.
9. What are the factors involved in the planning for effective communication?
10. Clarify the inter-personal communication with examples.
11. Write down the nature of communication and development of South East Asia.
12. Differentiate between ideological mass mobilization approach and mass media educational approach.

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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 6th Semester F.M. 40
P.M. 16
Subject: social mobilization and community development Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Elaborate every segments of social mobilization continuum in detail and outline the phases of social mobilizationwith its detailed descriptions.

Short questions (Attempt any ten) 10×3 = 30

2. Write on history of social mobilization after post 1993 era.
3. What is the concept of GESI and how it support to maintain social harmony?
4. What arethe capitals of community development? Describe it with practical examples.
5. Mention multifaceted crisis of SAARC sub- region observed by the ISACPA.
6. What is decentralization? Mention the elements of its four bases.
7. Describe the conceptual and programme packages of social mobilization.
8. Present brief overview on gender mainstreaming.
9. What are the 5 core elements used for the plan prioritization and plan shortening from the preliminary collected shopping list of the community needs?
10. How social mobilization is a dynamic process? Outline the learning cycle.
11. Write some important traits possessed by a person involved in social mobilization.
12. Write short notes on:c) Packages of social mobilization
d) Purpose of social mobilization

Final examination- 2073

Essay Type Question 10

1. Explain detailed account of stages, dialogues and main activities of social mobilization.

Short questions (Attempt any ten) 10×3 = 30

2. Describe social mobilization is a 'collective effort'.
3. Write the concept of rural development and sustainable development.
4. What is ISACPA? What multifaceted crisis observed and endorsed in 1992 SAARC meeting that summarized under the document called 'Meeting the Challenges'.
5. How social mobilization promotes good governance and ensures empowerment of marginalized groups?
6. Describe gender roles and needs with its few examples.
7. What is social mobilization continuum? Sketch an illustration of social groups in partnership.
8. Why does social mobilization give importance on premium brand of the cadres? Describe it.
9. Make a checklist of the steps of planning cycle,
10. What capitals need for the community development, what situation could be speculated in the absence of social norms and ethics in a group?
11. What is the typology of social mobilization? Describe it
12. Write short notes on:

a) Packages of social mobilization
b) Purpose of social mobilization

Final examination- 2074

Essay Type Question 10

1. Sketch the diagram specifying the four phases of social mobilization. Outline the major challenges and its possible causes in implementation process of social mobilization with specific example.

Short questions (Attempt any ten) 10×3 = 30

2. Explain with suitable diagram and specific example, why soical mobilization is dynamic process?
3. Conceptualize the meaning of development and enlist the major dimensions of development. State any three indicators for its measurement with specific examples.
4. Explain the concept 'gender is constructed by society'. Differentiate the concept gender and sex.
5. What is gender mainstreaming? How could we mainstream gender in development process? Explain with example.
6. Classify the major typologies of social mobilization with specific example. What are the program package of social mobilization?
7. Enlist the major objectives of social mobilization with specific example. What are the program package of social mobilization?
8. Enlist the major characteristics of participatory planning process. What are the steps of planning cycle?
9. Conceptualize the meaning of human poverty. What are the major indicators of measurement of human poverty in Nepal?
10. What is the current situation of remittance in Nepal and explain how migration affects the poverty reduction and development of Nepal?
11. Summarize the local governance reforms and decentralization practice of Nepal during different regime
12. Why government of Nepal recognized social mobilization as one of the best strategy of poverty reduction program?

Final examination- 2073

Essay Type Question 10

1. What are the concept of development, sustainable development and social mobilization? Explain them with suitable examples in the context of Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. Explain the various stages of social mobilization in brief with suitable examples.
3. What are the major problems and issues of rural development of Nepal? Explain in brief.
4. Explain the concept of modernization in brief with suitable examples.
5. What are the factors and goals of rural development of Nepal?
6. What are the major problems and issues of rural development of Nepal? Explain in brief.
7. Explain the relative deprivation and human poverty in brief with appropriate examples.
8. What are the gender needs? Explain them with the context of rural development and poverty reduction in Nepal.
9. Explain the stages of cycle of social mobilization in Nepal in brief with examples.
10. Explain gender needs with the context of development and poverty reduction in Nepal with examples.
11. Explain the differences between WID and GAD in brief with specific examples.
12. Write a question of your own choice of the course of social mobilization and community development and explain in brief.

Final examination- 2073

Essay Type Question 10

1. Explain detailed account of stages, dialogues and main activities of social mobilization.

Short questions (Attempt any ten) 10×3 = 30

2. Describe social mobilization is a 'collective effort'.
3. Write the concept of rural development and sustainable development.
4. What is ISACPA? What multifaceted crisis observed and endorsed in 1992 SAARC meeting that summarized under the document called 'Meeting the Challenges'.
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7. What is social mobilization continuum? Sketch an illustration of social groups in partnership.
8. Why does social mobilization give importance on premium brand of the cadres? Describe it.
9. Make a checklist of the steps of planning cycle,
10. What capitals need for the community development, what situation could be speculated in the absence of social norms and ethics in a group?
11. What is the typology of social mobilization? Describe it
12. Write short notes on:

a) Packages of social mobilization
b) Purpose of social mobilization

Final examination- 2070

Essay Type Question 10

1. Why understanding rural development is necessary in Nepal? how objective or rural development is attained? Explain briefly.

Short questions (Attempt any ten) 10×3 = 30

2. Nepal is a developing country. Explain the statement providing justification.
3. What are the characteristics of social mobilization"
4. Why and how investment is made to build capacity of the village organization?
5. Explain sustainability in development. How will you prove development is unsustainable?
6. What are the major issues to be addressed in gender?
7. Explain term GAD. What are the gender toles?
8. Justify the statement 'Poverty breed poverty'
9. Share your idea for better decentralization in Nepal.
10. What are the roles of culture in development? Discuss.
11. What are the efforts of SAARC in poverty alleviation? Describe.
12. What have you learnt from participatory planning process? Explain.

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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 6th Semester F.M. 40
P.M. 16
Subject: Postharvest horticulture Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Describe the role of temperature on carious postharvest aspects. What is the importance of pre-cooling? Describe mechanism of cold storage.

Short questions (Attempt any ten) 10×3 = 30

2. Why there is climacteric rise in respiration during ripening?
3. Define relative humidity. How does it affect transpiration?
4. Write short notes on:

a) Ripening b) Senescence c) Hybobaric storage

5. Discuss the significance of entomology in postharvest horticulture.
6. Enlist and describe in two sentence about postharvest deterioration on cut flower.
7. Describe the mechanism of fruit softening.
8. What is the importance of electron transport system in postharvest handling and storage?
9. Write down the bio synthesis path-way to Ethylene.
10. Describe the control measures for postharvest disease whose infestation occurs before harvest (latent infection).
11. Enlist and describe any three constraints in marketing of fruits and vegetable,
12. Enlist various packing house operation. Describe the process of curing potato and its importance.

Final examination- 2074

Essay Type Question 10

1. Describe the role of temperature in post harvest horticulture. What are the various practices to maintain the lowest level of metabolic activities in fruits and vegetables after harvest.

Short questions (Attempt any ten) 10×3 = 30

2. What are the various points that should be given consideration for effective marketing of fruits and vegetables?
3. What are the various problems in cut flowers? How can you overcome such problems?
4. Differentiate between aerobic and anaerobic respiration.
5. Explain with example- reduction in postharvest loss is more beneficial than increase in production.
6. Enlist various methods of preservation.
7. Define irradiation treatment and its use in postharvest horticulture.
8. Differentiate between ripening and degreening.
9. Describe the mechanism with a diagram how cold storage operates?
10. What are the various points that should be considered in packaging of fruits and vegetables?
11. What do you mean by latent infection? What do you suggest to overcome such disease?
12. What are the different criteria and measures to judge the maturity indices of fruits and vegetables?

Final examination- 2073

Essay Type Question 10

1. What is the importance, scope and status of postharvest horticulture in Nepal? Also explain the problems faces by Nepalese people in the development of post harvest enterprises.

Short questions (Attempt any ten) 10×3 = 30

2. Compare and contrast the physiology of attached and detached organs.
3. What are the common maturity indices of horticultural commodities?
4. What do you mean by degreening and waxing in harvested oranges?
5. Briefly describe the postharvest diseases of fruits and their control measures.
6. Briefly describe the chemical method of preservation.
7. Explain the general market channels for horticultural produce.
8. Write down the major changes occurring during ripening.
9. Differentiate between (any three)
a) Sigmoid and double sigmoid growth
b) Maturation and ripening
c) Chilling and freezing injury
d) Climacteric and non climacteric fruit
10. Write short notes on: (any three)
a) Horticultural maturity
b) Greening in potato
c) Latent infection
d) Cellar storage
11. Briefly discuss the mechanism of action in ripening,
12. Briefly describe the causes of postharvest deterioration.

Final examination- 2073

Essay Type Question 10

1. Describe the factors that influence respiration and transpiration on fruits and vegetables to prolong their shelf life.

Short questions (Attempt any ten) 10×3 = 30

2. Describe the importance of postharvest horticulture in Nepal
3. Differentiate between climacteric and non climacteric fruits with suitable examples.
4. Enlist the various changes that occur during ripening and describe the softening and firmness changes during ripening.
5. Write don the bio synthesis pathway of Ethylene.
6. What is maturity indices? Describe the methods of maturity indices of horticultural products.
7. Briefly mention the physiological causes of postharvest deterioration of horticultural commodities.
8. Define postharvest disease? How can you overcome the problems of postharvest disease?
9. Describe various kinds of physiological disorders in horticultural commodities.
10. Enlist various methods of storage. Describe in detail about rustic storage.
11. Write about different methods of preservations of horticultural products.
12. Write short notes on:
a) Greening
b) Curing
c) Commercial maturity of vegetables

Final examination- 2073

Essay Type Question 10

1. What is postharvest horticulture? Describe the scope of post harvest horticulture in Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. What are the factors affecting physiological deterioration? Describe how cultural practices affect physiological deterioration?
3. What is chilling injury? Write the mechanism of chilling injury.
4. What is pre cooling? What are the advantages of pre-cooling? Describe the hydrovac cooling method.
5. What is curing in root and tubers crops? Write the mechanism of curing in cut surface of potato. What are the factors affecting curing?
6. Differentiate between climacteric and non climacteric fruits.
7. Describe the changes that occur during ripening of fruits.
8. How ethylene triggers ripening of fruit crops?
9. What is cold storage? Write down the working principle of refrigerator. What are the factors affecting storage?
10. Write short notes on:
a) Physiology difference between attached and detached organs b) Waxing c) Factor affecting water loss.
11. Define maturity indices. What are the different methods of maturity judgement?
12. Describe commonly used preservatives in post harvest horticulture.

Final examination- 2071

Essay Type Question 10

1. Describe various kinds of physiological disorders and their control measures with suitable example.

Short questions (Attempt any ten) 10×3 = 30

2. Describe the importance of postharvest horticulture in Nepal.
3. Describe the respiration behavior of fruits and vegetable with suitable examples.
4. What are the major factors to affect transpiration water loss? And discuss nay two factors that affect transpiration/ water loss
5. Enlist various methods to judge maturity of fruits and vegetables and describe only two of them.
6. Describe the effects of ethylene with example.
7. Describe the factors that influence the respiration and shelf life of fruits and vegetables.
8. Enlist the postharvest disease of fruits and vegetables and how do you overcome them?
9. What is pre-cooling? Discuss the factors that affect in storage if horticultural products.
10. Differentiate between:
a) Physiological maturity and horticultural maturity
b) Physiological process of detached organ and attached organ
11. Write short notes on (any two):
a) Curing b) Waxing c) Chilling injury
12. Describe the mechanism of fruit softening during ripening.

Final examination- 2070

Essay Type Question 10

1. Describe with illustration the mechanism of cooling in refrigerator. Discuss how does the temperature affect storability of fruits?

Short questions (Attempt any ten) 10×3 = 30

2. Describe with illustration the changes in fruits during ripening.
3. Justify with examples, "minimization of post harvest loss is more beneficial rather than to increase production."
4. How do you prevent the post harvest disease infection which occurs in the field and those which develop during ripening of fruits?
5. Enlist the activities which are to be carried out packing house.
6. Differentiate between drying and dehydration
7. Name different chemicals and plant growth regulators that are used in Physiological horticulture. Why are they used?
8. Which is the most appropriate method of maturity determination to find out harvesting stage for commercial production of vegetables and flowers?
9. How do you minimize post harvest diseases that occur during harvest and subsequent handling practices?
10. You are supposed to be a planner. What do you suggest for commercial production of vegetable and effective marketing of produce?
11. Briefly describe modified atmospheric storage and hypobaric storage.
12. Describe curing and its importance. Give examples.

Final examination- 2070

Essay Type Question 10

1. What are maturity indices? Discuss methods of maturity determination and their applicability on reducing post harvest losses with examples.

Short questions (Attempt any ten) 10×3 = 30

2. "Reducing post harvest losses in a better option than increasing production of horticultural commodities.
3. What are the major changes occurring during ripening? Discuss briefly with examples.
4. How do the pre- harvest factors affect on the shelf life of the horticultural commodities? Justify with examples.
5. Enlist the recommended temperature and relative humidity for storage of the following commodities:

a) Apple b) Cauliflower c) Cucumber d) Tomatoes
e) Onions f) Mangoes

6. Explain briefly the ways to control post harvest diseases.
7. What are packing house operations? Explain briefly.
8. What are the methods of storage? Which method is the best suited to present Nepalese conditions? Explain.
9. How do chemical preservatives help in food preservation? What are the two major chemical classes pf preservatives used for food preservation? Explain their suitability.
10. Explain the major causes of post harvest losses? Deal with suitable examples.
11. Why ethylene producers are not advised to store with other fruit, vegetables of flowers that are sensitive to it? Discuss with suitable examples.
12. Write short notes on:

a) Curing b) Pre cooling c) Ranch packing
d) Organoleptic test

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 6th Semester F.M. 40
P.M. 16
Subject: Crop Diseases and their management Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Enlist major diseases of wheat with their casual organism and describe the importance, symptoms etiology, epidemiology, and diseasecycle and management practices of spot blotch of wheat.

Short questions (Attempt any ten) 10×3 = 30

2. Describesymptoms, etiology and management practices of rice blast.
3. Differentiatebetween bacterial and fungal stalk rot of maize based on symptomatology and etiology.
4. Explain the symptoms and management practices of root knot of vegetables.
5. Explain the symptoms and diseasecycle of sclerotina blight of mustard.
6. Describe the symptoms, etiology and control measures of cersospora lead spot of ground nit.
7. Explain the symptom and control measures of Khairadisease of rice and browning of cauliflower
8. Comment on viral disease of tomato in our country.
9. Write short note on black scruf of potato.
10. Explain the symptoms of cotton wilt, its etiology, diseasecycleand management practices.
11. Explain the symptoms. Etiologyand management practice of mango anthracnose.
12. How will you differentiatebetween early and late blight of potato? Explain

Final examination- 2074

Essay Type Question 10

1. Explain Irish famine and describe the etiology, symptomatology, epidemiology and management of late blight of potato and loose smut of wheat.

Short questions (Attempt any ten) 10×3 = 30

2. Mention importance of downy mildew of grape and give symptoms of downy mildew of maize.
3. Differentiate between powdery mildew and downy mildew of cucurbits on the basis of etiology and symptomatology.
4. Give etiology of root rot of papaya and jute, downy mildew of apple and wheat and bunts of wheat.
5. Write symptomatology of wilt of pigeon pea, chickpea and lentil.
6. Mention symptomatology, etiology of leaf blight of wheat and leaf blast of rice.
7. Give symptomsof die back and leaf spot rot of chilly.
8. Write about sclerotina rot and white rust of crucifers.
9. Write shortly about citrus canker and tristeza virus of citrus.
10. Explain about nematode disease of wheat and paddy.
11. Mention symptomatology of bunchy top of banana, khairadisease rice and black tip of mango.
12. Mention some resistant varieties of yellow rust, black rust and brown rust of wheat.

Final examination- 2073

Essay Type Question 10

1. Describe about the symptoms, epidemiology, diseasecycle and management practices of late blight of potato.

Short questions (Attempt any ten) 10×3 = 30

2. How will you differentiate between powdery mildew and downy mildew and cucurbit, also mention their management practices.
3. Describe various management practices of blast of rice.
4. Describe the symptoms of cucumber mosaic and bunchy top
5. Differentiate between the fungal and bacterial wilt of maize, also give their causal organisms.
6. Describe the various methods of root knot of vegetables.
7. Describe the symptoms and management practices of zinc deficiency in rice,
8. What are the causal organisms of Tikka disease of ground-nut and describe the symptoms produced by them.
9. Describethe imp of sclerotina blight in Nepalese agriculture.
10. Describe the epidemiology, diseasecycle and control of red rot of sugarcane,

Final examination- 2071

Essay Type Question 10

1. Describe the importance of rice blast in Nepalese Agriculture, symptoms developed by the disease, its etiology and differentiate management practices adopted.

Short questions (Attempt any ten) 10×3 = 30

2. Differentiatebetween powdery mildew and downy mildewof cucurbits based on their symptomsand causal agents.
3. What are ways of surviving pathogenPhytophtorainfestansin our country? Also describe the management practices of late blight disease in potato.
4. Describe the symptoms of damping off of vegetable seedlings and their management practices.
5. Describe the historical significance of late blight of potato and leaf spot of maize.
6. Describe the diseasecycle of loose smut of wheat and mention its managemnet practices.
7. What are the casual organisms and symptoms developed in wilt disease of lentil? Also give their control measures.
8. How do you differentiate between loose smut and covered smut disease of wheat and barley? Mention their control measures.
9. Describe the symptoms of stem gall of coriander and die back of chilly and mention their causal organisms.
10. How bean common mosaic virus survives and spreads in the field? Mention their management practices of tristeza virus in citrus,
11. Describe the symptoms, causal organism and man of root knot of vegetable.
12. What are the major diseases of cardamom in our country, how to manage them?

Final examination- 2073

Essay Type Question 10

1. Describe in detail about the symptoms, epidemiology, diseasecycle and control method of brown rust of wheat in Nepalese Agriculture.

Short questions (Attempt any ten) 10×3 = 30

2. Differentiate between powdery mildew and downy mildew of pea and mention their control measures.
3. Describe the management practices of late blight of potato and tomato.
4. Describe the symptoms and diseasecycle of yellow vein mosaic of okra and bean common mosaic.
5. Explain the systemic and symptoms of white rust crucifers,
6. Comment of the causal organism of mango anthracnose of wilt of chick pea.
7. How root knot of vegetables could be managed? Explain.
8. Describe the symptoms and management practices of Khairadisease of rice and black tip of mango
9. Differentiate between bacterial stalk rot and fungal stalk rot of maize,
10. How bacterial leaf blight and bacterial leaf streak could be identifies? Explain.
11. Comment on the citrus decline and their management in Nepal.

Final examination- 2070

Essay Type Question 10

1. Wheat cultivation in Nepal is challenged by rust disease. Describe the rust occurring in differentiate agro ecological zones of Nepal.
2. Define the following terminologies
1) Inoculum 2) Nectrotroph 3) Haustoria 4) Oospore 5) Ooze 6) Trichoderma
3. Differentiate the following terms.
a) White rust and red rust b) Wilt and rot
c) Loose smut and covered smut
4. Sprinkler irrigation is suggested for management of Powdery mildew disease, why? Describe the disease cycle of Powdery mildew of Pea
5. Describe in brief the symptoms and management for damping off of seedlings.
6. What mechanism causes the wilting of crops when attacked by Fusarium? Write down the management strategies for Fusarium wilt complex disease.
7. Define epidemiology. What are the pre-disposing factors for the occurrence of Late Blight of potato.
8. Panicle or neck blast is the most serious phase among all the tice blast symptoms. Justify. List the management measures for rice blast in rice,
9. Define Canker. Write down the symptoms and management for Citrus canker in brief.
10. List down the etiology for root knot of vegetables. Write about the below ground and above ground symptoms caused by root know pathogen,
11. Chirkey and Foorkey disease in eastern part of Nepal have caused serious threat in the cultivation of large cardamom. Write about the symptoms and effective management measures for these diseases.
12. Write short notes on:
a) Black tip of management b) Black heart of potato
c) Khaira disease of rice.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 7th Semester F.M. 40
P.M. 16
Subject: Agribusiness Management, Marketing and Cooperatives Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. What are cooperatives? Discuss the roles of agriculture cooperatives in transforming subsistence type of agriculture into an agribusiness in reference with some examples of agricultural cooperatives in Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. Define agribusiness and discuss its scope and importance in context of Nepal.
3. Define: a. Firm b. Plant and c. Industry
Also illustrate their interrelationship with the help of figure.
4. Define organizational behavior. How is organizational behavior vital in agro-enterprise?
5. What do you mean by marketing functions? Discuss.
6. How do you appraise the investment in any agricultural enterprises? Discuss.
7. Discuss in short about Agribusiness Promotion Policy 2063.
8. What hindrances does an agro-entrepreneur faces while starting a new agribusiness? Discuss.
9. What are the various ways to mitigate the risks in agribusiness?
10. What is marketing efficiency? How do you calculate it?
11. Write short notes on:
a. Balance sheet b. Minimum support price
c. Supply chain management
12. In short discuss about the prospects of export of Nepalese commodity in international market.

Final examination- 2071

Essay Type Question 10

1. Discuss agricultural marketing as the summation of all the activities that occur between "Farm to Fork". Explain with the help of any one agricultural commodity.

Short questions (Attempt any ten) 10×3 = 30

2. What is the impact of increasing immigration in agribusiness in the context of Nepal?
3. Discuss in short, how do you conduct a market research.
4. How does agribusiness promotion policy 2063 help in the upliftment of agribusiness?
5. Discuss the need of conducive environment for any agribusiness to start and flourish.
6. How can you incorporate human behavior in the upliftment of any agricultural enterprises?
7. Differentiate between balance sheet and income statement. Also discuss their utilities.
8. What is marketing efficiency? How does market information help in efficient marketing activity.
9. How do you determine the project is worth investing? In short, discuss various methods of investment appraisal.
10. Discuss cooperative marketing. Discuss its various principles.
11. Discuss opportunities and challenges of WTO in the context of Nepalese agricultural economy.
12. Write short notes on:
a. Marketed surplus vs marketable surplus
b. Time value of money

Final examination- 2072

Essay Type Question 10

1. Define agribusiness management. Briefly discuss the major strategies to be adopted in agribusiness to manage risk and uncertainties.

Short questions (Attempt any ten) 10×3 = 30

2. "Agribusiness is the backbone of Nepalese economy". Comment.
3. Discuss supply chain management system in brief.
4. Explain the concept of balance sheet and income statement with suitable examples.
5. Briefly explain key economic principles used in agribusiness.
6. Describe the procedures and importance if marketing research?
7. Define cooperatives. Discuss the scope in context of agribusiness development in Nepal.
8. Briefly discuss different discounted and method of investment appraisal with suitable examples.
9. What do you mean by price spread? Explain the marketing functions need for agricultural commodity.
10. Explain the impact of any three government policies on agribusiness development.
11. Differentiate:
a. Demand and supply
b. Production planning and market planning
c. Firm and industry
12. Write short notes on:
a. Marketing channel
b. Market information system
c. Production function

Final examination- 2068

Essay Type Question 10

1. Conceptualize the terms risk and uncertainty. Explain the types of risk prevailing in agriculture and the strategy to minimize the effect of risk in detail.

Short questions (Attempt any ten) 10×3 = 30

2. What is agribusiness? Discuss the importance of agribusiness in brief.
3. What do you mean by payback period? Explain the importance of agribusiness control program and evaluation.
4. Define organization. How can you motivate human behavior in an organization?
5. Discuss the problems and prospects of agribusiness in Nepal under WTO membership.
6. What are the steps of investment analysis? Discuss the discounted method of investment analysis in brief.
7. Enlist the government policies on agribusiness in Nepal. Also discuss the effect of subsidy on agribusiness development.
8. Enlist the provisions of WTO for underdeveloped countries. Enlist TRIPS in brief.
9. What do you mean by marketing research? Explain types and importance of marketing research.
10. Define firm, plant and industry. Graphically explain physical optima of industry.
11. Describe marketing system of agriculture products in Nepal. Also discuss marketing efficiency.
12. Write short notes on:
a. ansoff matrix
b. balance sheet

Final examination- 2070

Essay Type Question 10

1. Define agribusiness management. Explain with suitable examples as to why management functions and the manager are important in agricultural business.

Short questions (Attempt any ten) 10×3 = 30

2. Suppose that a farm proprietor requested you to appraise the financial position of organic tomato business planted in 1.5 hectare land. An initial investment worth is Rs. 520,000.0 for collection centre, boundary, water pipes and other structural assets. No salvage value is estimated at the end of business. The operational costs sre: Rs. 160,000.0, Rs. 195,000.0, Rs. 225000.0, Rs. 280,000.0 and Rs. 307,000.0 for 1st, 2nd, 3rd, 4th, and 5th year, respectively. The sale volume of ripe tomato is 14 ton per hectare each year. Per kilogram average tomato price is Rs. 20.0, 25.0, 28.0, 32.0 and 35.0 for 1st, 2nd, 3rd, 4th and 5th year, respectively. Calculate the net present value (NPV), financial internal rate of return(FIRR), and benefit-cost ratio(BCR). Interpret each result at 12% opportunity cost of capital and advise the profitability situation.
3. Prepare a list of major financial statements used in agribusiness management. Differentiate net-worth statement and income statement in terms of use and preparation procedure.
4. Writ short notes on:
a. Business risk management b. Marketing research
c. Agribusiness incubation
5. What do you mean by marketing mix? Briefly explain marketing functions need for food commodity.
6. Briefly explain key economic principles used in agribusiness.
7. Highlight major aspects of "Agribusiness Policy 2006" implemented by Government of Nepal.
8. Differentiate between:
a. Commerce vs. trade b. Business firm vs. plant
c. Value chain vs. supply chain
9. Define cooperatives. Explain farming and commodity marketing related efforts performed by the agricultural cooperatives in Nepal. Also enlist the limitations of cooperatives.
10. Clarify on "agribusiness financing only increases after enabling environment". Enlist supportive factors of business enabling environment.
11. Briefly explain issues of Nepalese agribusiness in context of WTO.
12. Compare the differences between traditional plans over business plans. What are the factors to be considered while preparing marketing plans of a high value commodity?

Final examination- 2067

Essay Type Question 10

1. What is agribusiness? Explain the government policies for agribusiness development in Nepal. Also describe the support of price and subsidy on functioning of agribusiness.

Short questions (Attempt any ten) 10×3 = 30

2. Enlist the goals of co-operative. Discuss the environment forces affecting agribusiness.
3. What are the functions of an organization? Discuss bureaucracy principle of Max Weber.
4. Establish interrelationship between firm, plant and industry in the context of agribusiness.
5. Define risk and uncertainty. Discuss strategies to mitigate risky environment.
6. Explain problems and prospect of co-operative system in Nepal.
7. Conceptualize the term 'Ansoff matrix' explain the importance of agribusiness in Nepalese economy.
8. Discuss problems and prospects of Nepalese agriculture under the scenario of WTO membership.
9. What are the criteria for investment analysis? Discuss the most appropriate method on investment analysis.
10. What is supply chain management? Briefly discuss about agribusiness production planning process.
11. Differentiate between balance sheet and income statement. Briefly discuss any two financial principles used in agribusiness management.
12. Write short notes on:
a. Marketing efficiency
b. Market integration

Final examination- 2065

Essay Type Question 10

1. What do you mean by cooperatives? Discuss cooperative farming and marketing in terms of concepts, types, merits, limitations, and examples in Nepalese context.

Short questions (Attempt any ten) 10×3 = 30

2. Briefly discuss the major managerial decisions in an agribusiness firm.
3. Define firm, plant and industry. How firms and industry are interlinked in determination of equilibrium price and quality in market?
4. State and explain the theories of human resource motivation.
5. What are advantages of international trade? Discuss agreement an SPS measures and GATs in brief.
6. Graphically illustrate the effects of minimum support price and ceiling price policy in agribusiness enterprise.
7. What are different marketing systems prevailing in Nepal? Briefly explain the significance of marketing research.
8. Enlist principles used in financial management. Briefly discuss the tools for motivating human behavior in an organization.
9. What do you mean by risk and uncertainties? Discuss the strategies that an agribusiness manager should adopt to minimize risk and uncertainties.
10. Differentiate between balance sheet and income statement. Prepare a standard format for income statement along with meaning and example of its example of its components.
11. Write short notes on: a.theory of consumer behavior b. marketing information c. internal rate of return
12. Differentiate between: a.Allocative and pricing efficiency
b. Leverage ratio and solvency ratio
c. Investment and expenditure

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 7th Semester F.M. 40
Subject: Principles and practices of farm water management P.M. 16
Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Soil moisture is said to be constant. How, when and why? Relate soil moisture constant to crop water requirement, consumptive use and irrigation scheduling.

Short questions (Attempt any ten) 10×3 = 30

2. Write critically "we have plenty of water for agriculture irrigation".
3. What are characteristic parameters for infiltration? Derive A.N. Koastiakov's formula.
4. What is seasonal consumptive use? How Hargreaves determined it?
5. What is allowable soil moisture depletion? Derive equation for depth of irrigation and its frequency.
6. What is crop water requirement? Write on net, field and gross irrigation requirement.
7. Write on types of impeller. Find the horse power requirement for a centrifugal pump its' efficiency is 84%, suction head is 5 m and delivery head 13 m. Direct drive electric motor having an efficiency 75% operated for 6 hours per day. What will be the cost of electricity energy if cost per unit is 12 rupees.
8. How problem soils are done reclamation?
9. Write on surface irrigation method. Explain border strip method.
10. A field experiment plot method was carried out in which moisture before and end of season was 22.84% and 18.32% respectively. Apparent specific gravity was found 1.5 and depth of effective root zone was 75 cm. Base period of a crop was 105 days, number of irrigation was five and each depth of irrigation was 6.5 cm. During an experiment a precipitation recorded 23 mm. Now, calculate the seasonal water requirement.
11. Write briefly on types of field drainage methods.
12. Write on weir and its' types.

Final examination- 2073

Essay Type Question 10

1. What are the different irrigation methods? How does the selected irrigation method help in the prosperity of farmers?

Short questions (Attempt any ten) 10×3 = 30

2. What are the different soil moisture constants? Differentiate between PWP and UWP.
3. What are the causes of water logging? Describe its preventive measures.
4. Discuss the status of irrigation development in Nepal.
5. Estimate the CU of water by wheat crop sown 1st November and harvested on 20 march. Using the Blaney-Crddle formula for the following data:

Month	Mean monthly air temp., in degree Fahrenheit	Percentage monthly day light hours	Assumed crop coefficient (k)
(1)	(2)	(3)	(4)
November	73.83	7.45	0.65
December	66.81	7.49	0.60
January	65.3	7.55	0.50
February	70.34	7.16	0.70
march	80.02	8.40	0.75

6. How do soil, plant and climatic indicators help for irrigation scheduling? Describe in brief.
7. What do you mean by reclamation of alkali soil and how it can be improved?
8. Which type of measuring device is used for medium discharge carrying silty water? Derive the relationship between different roughness coefficients.
9. Water flows through a contracted rectangular weir, 120 cm long to depth of 40 cm. then water flows through a rectangular channel of 150 cm width and over a second weir, which has its length equal to the width of channel. Determine the depth of the water over the second weir.
10. What are the different water pumps used for irrigation? Explain centrifugal pump installation practice.
11. What are the different channel crossing structures? Explain.
12. A moist soil sample has a volume of 484 cm3 in the natural state and a weight of 7.94 N. The dry weight of the soil is 7.3 N and the relative density of the soil particle is 2.65. determine the porosity, soil moisture content, volumetric moisture content and degree of saturation.

Final examination- 2072

Essay Type Question 10

1. Which type of measuring device is used for medium discharge carrying silty water? Explain. A cemented trapezoidal canal having 60 cm base, slide sope 1:1, depth of water 120 cm, angle of repose 60 degrees and delta 20 cm. calculate :a) base of canal b) wetted perimeter, c) carrying capacity of canal.

Short questions (Attempt any ten) 10×3 = 30

2. A field having 10.2% ultimate wilting point, 28% field capacity and 1.7 specific gravity can store 16.32 cm water. A crop requires 18mm of daily CU having 80 cm effective root zone depth was planted. If 90% moisture depletion was allowed for deficit irrigation then how many irrigations frequency can be reduced? (RAM=50% AM)
3. Which water availalbilty theory is widely accepted and why? Explain the soilk moisture extraction pattern.
4. Which method is used to calculate CU of crops if mean monthly temperature is only available.
5. Drive the relationship between duty and delta. A crop requires 92 cm of water in 122 days of its irrigation period. How much land will be irrigated with flow of 30l/sec for 12 hours a day?
6. Define diversion box. Under which circumstances inverted siphons are constructed? Explain with their construction details.
7. Furrow of 100 m long and space 60 cm apart are irrigated by an initial furrow stream of 2.5 l/sec. the duration of initial stream is 30 min. The size of stream was reduced to 1 l/sec for 2 hours. Estimate the net average depth of irrigation.
8. Explain any two types of sub-surface irrigation systems.
9. What is pump characteristics curve? Write its importance.
10. What factors influence the suitability of irrigation water? Explain.
11. An irrigation canal; carrying 265l/sec was diverted to thefield where 185 l/sec water was delivered. An area of 3.7 ha was irrigated for 5 hours. The run off loss in the field was 700 m3. Calculate water conveyance effieciency and water application efficiency.
12. Write short notes on (any three):

Final examination- 2071

Essay Type Question 10

1. Describe the different irrigation methods. How does the selected suitable irrigation method for individual field may help in prosperity of farmers?

Short questions (Attempt any ten) 10×3 = 30

2. What does farm management mean? How does climatic conditions influence for irrigation management in Nepal.
3. Describe shortly about soil moisture conditions.
4. What is seasonal evaporation? Write the empirical formula for Thornthwrite method to estimate evaporation.
5. Derive the relationship between depth of irrigation and frequency of irrigation to maintain the irrigation scheduling.
6. Define the following:

a. Irrigation intensity b. Permeability

c. Potential evapotranspiration

7. Discuss briefly about Parshall flume.
8. Differentiate between the following: a. Duty and Delta

b. Irrigation interval and irrigation period

c. Flume (aqueduct) and inverted siphons

9. Derive the relationship for determining water horse power (WHP), shaft horse power (SHP), Break horse power (BHP) and requires kilowatt input to run a centrifugal pump.
10. A. what is drainage coefficient (DC)?

B. a sub-surface drainage system draining 5 hectors field flows at a design capacity for two days following a storm. If the system is designed using drainage coefficient of 1.5 cm, then how much water is drained during this period.

11. What are criteria for irrigation water supply?
12. A vegetable field has loamy soil having field capacity of 23.8% and wilting coefficient 7.3%. The apparent specific gravity of odil is 1.46 and the effective root zone depth of the field is 0.8 m. if the allowable soil moisture depletion in 35% and evapotranspiration rate is 0.7 mm/day. Answer the followings: a. Determine the storage capacity of soil,

b. Find out the net irrigation requirement,

c. Calculate the irrigation interval,

d. If irrigation efficiency is 65% find how much water should be applied in 3 hactares of land to irrigate.

Back examination- 2071

Essay Type Question 10

1. You have a farm of one ha, please write how do you manage this farm to get better crop (say maize) yield? Include the idea of soil moisture, evapotranspiration, irrigation, scheduling, depth of irrigation, methods for determining crop water requirement, suitable irrigation methods and need of drainage facilities.

Short questions (Attempt any ten) 10×3 = 30

2. Write advantages and disadvantages of irrigation.
3. What are the criteria for irrigation water quality?
4. What is lysimeter? Derive the equation for evapotranspiration using Christransen method.
5. Describe drip irrigation method in brief.
6. A sandy loam soil has field capacity of 28% and wilting coefficient of 12%. The dry unit weight of soil is 1.4gm/cm3. If the root zone depth is 0.65 m. determine the storage capacity of the soil. lrrigation is applied when moisture content falls to 15%. If the water application efficiency is 75%, determine the water depth required to be applied in the field. Express depth of irrigation in volume basis also.
7. Give the concept of water logging. How do you remove excess surface water?
8. Design a trapezoidal channel to carry a discharge 25 cumecs at a slope of 1 to 3500. The side slope is 2:1. Manning's roughness coefficient is 0.018. design most efficient cross section of channel.
9. Sketch the figure showing artesian and non-artesian wells including acquifers and piezometric surface and define each of them.
10. Name the list for determination of crop water requirement. Write on depth-interval-yield method.
11. A single acting reciprocating pump has its piston diameter 20 cm and the stroke 50 cm. the pump rod is connected to a crank which makes 100 revolutions per minutes. How many cubic meters of water are raised per minute and what horse power must be delivered to acrank if the total head of water is 45 meter and the pump efficiency is 55%?
12. A. Write on soil moisture extraction pattern and critical stages of crops.

B. A centrifugal pump has a discharge of 25 liter/second. One and half hectare of potato crop is irrigated in 12 hours. What is the depth of the irrigation?

Back examination- 2070

Essay Type Question 10

1. Write down the different water conveyance structures and describe any two of them. What are the causes and consequences of water logging? Explain.

Short questions (Attempt any ten) 10×3 = 30

2. Describe the significance of irrigation in agricultural development of Nepal.
3. Discuss the status of irrigation development in Nepal.
4. Explain the significances of irrigation development in Nepal.
5. Wheat is to be grown at a certain place, the useful climatological conditions of which are tabulated below in thr Table. Determine the evapotranspiration and consumptive irrigation requirement of wheat crop. Also determine the field irrigation requirement if the water application efficiency is 80%. Make use of Blaney-Criddle equation and a crop factor equal to 0.8.

Month	Monthly temp, in degree celsius, averaged over the last 5	Monthly percent of day time hr. of the year computed from the Sun-shine Tables	Useful rainfall in cm, averaged over the last 5 years
(1)	(2)	(3)	(4)
November	18	7.20	1.07
December	15	7.15	1.42
January	13.5	7.30	3.01
February	14.5	7.10	2.25

6. A moist clay sample weighs 0.55 N. its volume is 35 cm3. After drying in an oven for 24 hours, it weighs 0.5 N. assuming specific gravity of clay as 2.65, compute the porosity n, degree of saturation S, original moist unit weight, and dry unit weight.
7. A steam of 130 liters per second was diverted from a canal and 100 liters per second were delivered to the field. An area of 1.6 ha was irrigated in 8 hrs. The effective depth of root zone was 1.7 m. the runoff loss in the field was 420 cu. m. The depth of water penetration varied linearly from 1.7 m at the head end of the field to 1.1 m at the tail end. Available moisture holding capacity of the soil is 20 cm per depth of soil. Determine and calculate the water conveyance efficiency, water application efficiency, water storage efficiency and water distribution efficiency. Irrigation was started at a moisture extraction level of 50% of the available moisture.
8. What are the different irrigation methods? Explain any two of them comparing each other.
9. Explain the reclamation of problematic soils.
10. What are the different water pumps used for irrigation? Explain centrifugal pump installation practice.
11. Discuss the occurrences and utilization of ground water for irrigation.
12. Describe the environmental consequences and possible mitigation practices of irrigation project implementation.

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RAMPUR, CHITWAN
FINAL EXAMINATION - 2073

Level: B.Sc. Ag. 7th Semester F.M. 40
P.M. 16
Sub:- Farming systems and sustainable agriculture Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Define farming system research. Differentiate on-farm research with on-station research. Describe the ways to accomplish a farming system research with an example of a new practice of Direct Seeded Rice (DSR) in a village.

Short questions (Attempt any ten) 10×3 = 30

2. What are the determinants of a simple farming system of mid-hill region of Nepal? Enlist the points.
3. Describe the opportunities and limitations of the farming system of terai region of Nepal.
4. Define sustainable agriculture. Enlist the characteristics of sustainab;e agriculture.
5. Differentiate dryland and rainfed farming agriculture and suggest the suitable farming enterprise for the rainfed eco-zone of western terai and hills in Nepal.
6. What do you mean by Indigenous Technical Knowledge (ITK)? How will it be vital in an agrarian agriculture?
7. Write down the characteristics of a sustainable farming system.
8. Write short notes on (any three):
a. Participatory research methodology b. Permaculture
c. Stress and perturbation d. Bio-dynamic agriculture
9. Define agro-biodiversity and write down its importance in preservation of ecosystem and maintenance of food security.
10. What are the new approaches taken in action towards the successful implementation of sustainable agricultural practices globally?
11. Mention the brief history of farming system research in Nepal.
12. Enlist the external and internal determinants of a farming system and describe it in brief.

Final examination- 2071

Essay Type Question 10

1. Differentiate between mixed farming and integrated farming system. What is farming system research? Enlist the process/ steps of a good farming system research.

Short questions (Attempt any ten) 10×3 = 30

2. Define system and system approach in agriculture.
3. What are the determinants of farming system? Enlist and describe briefly.
4. Define sustainable agriculture. How will you maintain sustainability in an eroded soil of higher altitudes?
5. Give the model of typical farming system suited to the mid hill situation of Nepal.
6. Describe the Nepalese biodiversity and ways to conserve the flora and fauna of Nepalese habitat.
7. Enlist the principles and practices of ecological balance for a suitable farming.
8. How bio-diversity is interrelated with sustainable agriculture?
9. Write down the key characteristics of a farming system.
10. Indigenous Technical Knowledge (ITK) is a vital element of a farming system. Justify the statement.
11. What are the major problems of farming system research and extension system in Nepal? Describe briefly.
12. Write short notes on (any three): a. Scale Neutral Technology
b. Stree and Perturbation c. PRA/PLA
d. Agriculture Natural Resources (LEIA)

Final examination- 2072

Essay Type Question 10

1. What are the ecological principles of low external inputs sustainable (LEISA) agriculture and how are these brought into practice?

Short questions (Attempt any ten) 10×3 = 30

2. What are the elements of a system? And write the elements of a plant as a system.
3. How are components of a typical Nepalese farming system interrelated?
4. What are the climatic conditions found in Nepal and their impact in farming system?
5. How do you conduct the testing phase of FSR?
6. Why is farming system research important for Nepalese agriculture?
7. What impact of socio-economic factors may have on farming system?
8. What are the basic characteristics of sustainable agriculture?
9. What is permaculture? Discuss its ethics.
10. What do you mean by biodiversity and how can you conserve it?
11. Farmers are the technology developers. Justify with examples.
12. Describe any five major points to be allowed to make Nepalese agriculture sustainable.

Final examination- 2069

Essay Type Question 10

1. What are the opportunities and limitations of organic farming in Nepal? Explain by reasoning in details.

Short questions (Attempt any ten) 10×3 = 30

2. What do you mean by systems approach and what is its importance in agriculture? Explain.
3. How does edaphic factor affect farming system?
4. What are the limitations of mountain farming systems?
5. Why temperature is an important determinant of a farming system?
6. What are the goals and procedures of the diagnostic phase of farming system research?
7. What is sustainable agriculture and what are its three fundaments?
8. What is the role of biodiversity is sustaining our agriculture?
9. What do you mean by permaculture and what are its ethics?
10. What are biofertilizers and what are their limitations?
11. Why our conventional research system in agriculture could not contribute to sustainability?
12. Write short notes on the followings (any three):
a. Elements of a system b. Hill farming system
c. Participatory rural appraisal d.HEIA
e. "Our Common Future"

Final examination- 2068

Essay Type Question 10

1. What do you mean by sustainable agriculture? Why 'Green Revolution' agriculture is unsustainable?

Short questions (Attempt any ten) 10×3 = 30

2. What are the elements of system and why is it important to study them?
3. What are the edaphic factors affecting farming system?
4. How does socio-economic factor shape a farming system?
5. Describe the climate of Nepal in brief and its effect in farming system.
6. What are the opportunities and limitations of mountain farming systems?
7. What do you mean by HEIA and how is it unsustainable?
8. What are the working principles of LEISA?
9. What do you mean by organic farming and why is it important in Nepalese agriculture?
10. What is biodiversity and what is its role in sustaining agricultural productivity?
11. How do you think Nepalese agriculture be made sustainable?
12. Write short notes on three of the following:

a. Biofertilizer
b. Systems approach in agriculture
c. Testing phase of FSR
d. Precipitation in Farming system

Final examination- 2066

Essay Type Question 10

1. What do you mean by farming system and what are the major components of Nepalese farming system? Describe how are they interrelated?

Short questions (Attempt any ten) 10×3 = 30

2. What do you mean by the components of a system and how a whole is always different than the sum of its parts?
3. How does temperature affect a farming system?
4. Why is systems approach important in solving the problem in agriculture?
5. What are the opportunities and limitations of hill farming systems?
6. Describe the ecological zone of Nepal and its relevance in studying farming system.
7. What are the characteristics of sustainable agriculture?
8. What do you mean by LEISA and does it help making agriculture sustainable?
9. What are the principles of organic farming?
10. What do you mean by indigenous knowledge and what is its role in making agriculture sustainable?
11. What are the approaches adopted to conserve biodiversity in field level?
12. Write short notes on three of the following: a. HEIA b. Vermi composting c. Identity d. Permaculture

Final examination- 2067

Essay Type Question 10

1. What is farming system? Write down the components of a typical Nepalese farming system and their role and status.

Short questions (Attempt any ten) 10×3 = 30

2. What do you mean by the component of a system? Write down the components of a rice field as a system.
3. How do you solve the problems in agriculture and why?
4. Why jute farming is popular in Eastern Nepal where as cotton in the West?
5. What are the socio-economic factors shaping the farming system?
6. What do you mean by farming system and why is it a system?
7. What is sustainable agriculture and what are its components?
8. What do you mean by design phase of FSR and what are its goals?
9. Why is farmer's knowledge important in sustaining agriculture?
10. What are bio-fertilizers and how soil organic matter is the core of good soil?
11. How bio-diversity can be preserved at farm level?
12. Write short notes on (any three):

a. Agro-ecosystem
b. Vermi compost
c. Permaculture

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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 7th Semester F.M. 40
P.M. 16
Sunject: Mountain Agriculture Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Discuss the soil and water conservation in the mountain region on the following topics: a. Problems b. Consequences of soil erosion and its types c.Factors of soil erosion d. Agronomic and mechanical conservation measures.

Short questions (Attempt any ten) 10×3 = 30

2. Discuss the characteristics of Himalayan Agriculture.
3. Discuss the status of rangelands and problem faced by mountain people.
4. Discuss the goal and principle of sustainable agriculture in the mountain region.
5. Discuss the biodiversity conservation in mountain agro-ecosystem.
6. Briefly describe the mountain specifities in the context of Nepal.
7. Discuss the traditional verses modern agriculture system adopted in mountain.
8. Discuss the impact of human activities on mountain ecosystem in context of landslides.
9. Give the dominating livestock species of mountain and their role in livelihood system.
10. Highlight the value of non-timber forest product for mountain people.
11. Discuss the climate change effects in the mountain.
12. Write short notes on: (any two) a. Niche b.Gradient c. Watershed

Final examination- 2073

Essay Type Question 10

1. Define climate change. What are the effects of climate change on mountain agriculture and people's livelihood? What are the various adaptation strategies for overcoming it?

Short questions (Attempt any ten) 10×3 = 30

2. What are the strength and threats of mountain agriculture?
3. Explain niche and pocket are concept of mountain agriculture.
4. How can agro-ecotourism be developed and promoted in mountain region of Nepal?
5. What do you mean by bio-engineering? Describe with examples.
6. Migration of young generation is the chronic problem of mountain. Discuss how can we retain the people in that region.
7. Write short note on shifting cultivation and niche opportunity.
8. Describe trans-human pastoralism of yak and chauri in mountain region.
9. Define biodiversity. Why it is important?
10. Discuss briefly about issues of soil fertility problems in hills of Nepal.
11. What are the possible land improvement programs for marginal land of Nepal?
12. Describe the farming system of mountain region.

Back examination- 2074

Essay Type Question 10

1. Explain the role and importance of mountain agriculture in livelihood support, ecological bio-resources and constraints, feasibility and sustainability of mountain agriculture.

Short questions (Attempt any ten) 10×3 = 30

2. How can you improve the agro-ecotourism in mountain region? Give your opinion.
3. What are the major challenges of rangeland development in mountain region? Describe.
4. Describe the trans-humant/herdling system of yak and chauries in mountain region.
5. What are the strategies should follow for genetic improvement and conservation of livestock species of mountain region?
6. Why geographical and biological diversity is important for nature and mankind?
7. What do you mean by bio-engineering? Why it is important?
8. Write short note on high value crops.
9. What do you mean by niche opportunity and precision agriculture?
10. Give your suggestion for the improvement of marginal land of mountain region.
11. Describe the farming system adopted by the people of mountain region.
12. Describe pocket area concept and its importance.

Final examination- 2072

Essay Type Question 10

1. Discuss the characteristic features of mountain agriculture in Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. Explain the impact on mountain ecosystem over biological components (flora and fauna) due to human activities.
3. Explain with ideal examples the agro-ecotourism potentials of Nepal's mountain.
4. Compare and contrast ecology and agro-ecology.
5. Why is Yak called the ship of Himalayas?
6. Highlight the agricultural frame-work for mountain livelihood.
7. Enlist the dominating livestock species of mountain in Nepal.
8. What are the basic issues of mountain agriculture?
9. Discuss the traditional verses modern agriculture.
10. Discuss the importance of non-timber forest products (NTFPs) for mountain people.
11. Discuss the important characteristics of different species of honey bees found in Nepal.
12. Write short notes on: (any three)
a. GIS b. Soil conservation
c. Gradient d. Marginal fund improvement

Final examination- 2071

Essay Type Question 10

1. Write the status of range land resources and challenges for its improvement in Nepal.

Short questions (Attempt any ten) 10×3 = 30

2. Describe the trans-human pastoralism in mountain of Nepal.
3. Write the different training system and high density planting of apple and pear in temperate climate.
4. Write short note on HVC crop and niche opportunity.
5. What are the impacts of climate change in Nepalese agriculture?
6. Describe the cropping pattern of cropping system in mountain region.
7. Discuss the soil fertility and productivity status of Nepalese mountain agrarian system.
8. Suggest the land improvement practices for marginal land.
9. Write short note on:

a. Shifting cultivation

b. Precision agriculture

10. Write about mountain agro-forestry system and its importance in mountain agriculture?
11. What are the dominating livestock species in the mountain? How small ruminat are indispensible part of mountain people?
12. Describe Baruwal sheep and sedentary system.

Back examination- 2071

Essay Type Question 10

1. Discuss the challenges and constraints faced by mountain people in their livelihood system and future sustainable development.
2. Discuss the mountain agriculture and its basic issues.
3. What is watershed management? Why is it important in mountain environment?
4. Describe important high value cash crops and their commercialization in the context of mountain.
5. How can soil and crop productivity in the mountain agriculture be improved? Discuss.
6. Discuss the impacts of human activities in mountain environment.
7. Discuss the important characteristics of different honey bees found in Nepal.
8. Discuss agro-ecotourism, its status and importance with reference to our country.
9. Discuss the climate change and its impacts on mountain agriculture.
10. Discuss the status of rangeland, trans-humance along with problems faced by herders.
11. Discuss the genetic diversity of mountain livestock with their characteristics, socio-economic importance and genetic improvement for conservation.
12. Discuss about dominating livestock species and their role in livelihood support.

Final examination- 2070

Essay Type Question 10

1. Define the salient features of Nepalese Mountain Agriculture.

Short questions (Attempt any ten) 10×3 = 30

2. Explain why Yak is called the ship of the Himalayas.
3. What measures can be adopted to improve soil and crop production in Nepal?
4. Migration is hurting mountain agriculture, explain with examples.
5. Explain the features of modern verses traditional agriculture.
6. How are NTFP helping rural economy?
7. Mention the impacts of climate change in mountain agriculture.
8. What are the dominating livestock species of mountains in Nepal?
9. Mention how eco-tourism can be established in Nepalese mountain.
10. Mention the hardship to herding practice in mountains.
11. Mention the roles of GPS, GIS, remote sensing in developing mountain agriculture.
12. Discuss the types of bees in mountainous regions of Nepal and explain wild honey hunting practice in Nepal.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 7th Semester F.M. 40
P.M. 16
Sunject: Mountain Agriculture Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 10

1. Define genetic engineering and briefly mention the methods of genetic engineering in the field of agriculture.

Short questions (Attempt any ten) 10×3 = 30

2. What is environmental biotechnology? Explain in brief its application in Nepal.
3. What are restriction enzymes? Explain its types with suitable examples.
4. Enlist and explain basic steps of tissue culture with suitable figures.
5. Mention the applications of pollen/anther culture in agricultural crops.
6. What is culture medium? Write its principal components with appropriate concentration.
7. How the target gene(s) of interest is/are transferred into crop plants? Explain.
8. What are the prime objectives of gene cloning? Enlist and explain in brief about gene cloning vectors.
9. What are the different centres of biodiversity of crops proposed by N I Vavilov? How wild genetic diversity is useful in improving agricultural crops?
10. Define Intellectual property rights. Explain different form of protection of intellectual property rights.
11. Briefly mention the current practices that are being carried out in conserving the biodiversity.
12. Write short notes on: a. Agricultural biotechnology
b. Biodiversity indexing

Final examination- 2073

Essay Type Question 10

1. Explain applications of tissue culture in the field of crop improvement.
2. What is biotechnology? Explain different fields/disciplines of biotechnology.
3. Define genetic engineering. Write its applications in the field of crop improvement.
4. Differentiate between vector and plasmid. Briefly explain about different kinds of gene cloning vectors.
5. How gene(s) is/are transferred into plants? Explain.
6. Explain basic steps of plant cell/tissue culture.
7. Briefly explain about basic steps of genetic engineering.
8. Describe shortly about aim and scope of biodiversity.
9. Shortly explain about diversity of cereals (cultivated plants).
10. What is center of diversity of crops? Explain in brief about the wild genetic diversity of crop plants.
11. Discuss different methods applied for biodiversity conservation in the contest of Nepal.
12. Define patent. Explain in brief about the requirements of patent.

Back examination 2074

Essay Type Question 10

1. Define transformation. Explain about different methods of transformation and explan in detail about the Agrobacterium tumefaciens mediated method of transformation.

Short questions (Attempt any ten) 10×3 = 30

2. Differentiate between vector and plasmid. Write the types of plasmid. Explain about the important characteristics of normally occuring plasmids.
3. Write the scope and application of agriculture biotechnology with suitable example.
4. What are restriction enzymes? How they work? Discuss with examples.
5. What is plant tissue culture? What are the different types of tissue culture? Write their practical applications in agriculture.
6. What is embryo culture? Why is it important in agriculture?
7. What is the practical implication of haploid in plant breeding?
8. What is biodiversity? Differentiate among genetics diversity, ecosystem diversity and species diversity.
9. Define the term: Guild diversity, alpha diversity, beta diversity, and Gama diversity. And also explain about the factors that affect biodiversity.
10. What are agro biodiversity and microbial biodiversity? Write scope and importance of biodiversity.
11. What is data base? How do you store a sample species index in computerized data bases?
12. Write the genetic diversity of wheat and paddy along with species name, chromosome number, genome formula and form of domestication.

Final examination- 2072

Essay Type Question 10

1. Define transformation. Explain about different methods of transformation and explan in detail about the Agrobacterium tumefaciens mediated method of transformation in point swith suitable examples.
2. Discuss gene pools with practical examples.
3. What do you mean by Intellectual Property Rights (IPR)? Explain with an illustration.
4. Explain 'genetic eroision'.
5. List down contributions of health care biotechnology.
6. What are the major activities of plant biotechnology?
7. What is explant? Write short explanation of surface utilization in tissue or meristem culture.
8. How are tissue culture generated plantlets transferred to soils in field conditions?
9. Explain briefly biodiversity, species diversity and genetic biodiversity.
10. What is your perception about genetically modified crops? Give your logic on the context of Nepal.
11. What do you mean by species richness, crossing over and mutation? Correlate crossing over and mutation with species richness.
12. Write short notes on the following:
a. Necessity of biodiversity for continuation of species or lives.
b. Biodiversity of foods for beauty

Back examination 2071

Essay Type Question 10

1. What is recombination DNA (r-DNA) technology? How r-DNA is formed? Also, mention some important applications of this technology in crop improvement.

Short questions (Attempt any ten) 10×3 = 30

2. What are restriction enzymes? Give the cleavage sites of restriction enzymes Aat II, Eco RI and Hae III.
3. Outline the basic steps of plant tissue culture.
4. The average length of a double helix in wheat (Triticum aestivum L.) chromosome is 2.5 cm. approximately how many base pairs would be present in such a chromosome? If all chromosome of the wheat complement are in same length, approximately how many base pairs would be in a sperm nuclear.
5. Manipulation of seed propagation is on eof the important applications of genetic engineering. How do you produce hybrid seeds in tomato and Brassica by applying this technology?
6. How RNA duplex is formed in the body of crop plants? What is its significance in the field of plant breeding?
7. Enlist different types of gene cloning vectors in the field of biotechnology. Draw well labeled figure of a Ti plasmid of Agrobacterium tmefaciens.
8. A commercially cultivated wheat variety has less efficient photosynthetic system. In a landrace of wheat, more efficient photosynthetic system can be observed. You as a biotechnologist and or breeder. How do you incorporate efficient photosynthetic system founf in landrace to a commercial variety of wheat? Explain with the help of well labeled diagram.
9. Differentiate between species richness and species evenness with suitable examples.
10. What are standard criteria followed in Nepal for the protection f a crop variety?
11. What do you mean by 'Genetic diversity"? What factors affect genetic diversity of a species? Which on eis more vulnerable to natural enemies an inbred line of wheat or a hybrid cultivar of maize?
12. Calculate Diversity index of insects found at research field in IAAS by Shannon-Wiener Index and Simpson's Index methods and interpret the results from the data in Table 1.

Table 1. Name and number of insects found at a research field in IAAS in 2010/2011.

S.N.	Name of insect	Number of individulas
1.	Rice stem borer	10
2.	Aphid	80
3.	Hopper	20
4.	Rice bug	30
5.	Mole cricket	10
6.	Total	150

Final Examination 2070

Essay Type Question 10

1. Define the term biotechnology. What are the different methods for transformation of genes? Explain in detail about indirect method of transformation.

Short questions (Attempt any ten) 10×3 = 30

2. What is agro-biotechnology? Why is it relevant in today's scenario?
3. How is virus free plant produced? What are the applications of this method in agriculture?
4. What is biodiversity? Outline the different values of biodiversity.
5. What is database? What are the different variables that are to be included while constructing plant database?
6. What are the different methods of assessing biodiversity?
7. Outline the different steps of anther culture. What are its applications?
8. What is hybrid? How is it produced? What are its applications in agriculture?
9. What is somaclonal variation? What are its usabilities?
10. What are different conservation strategies that you have studied? Which method do you prefer and why?
11. Calculate evenness. Shannon and Simpson's index for the given community and interpret your result.

Species	Number
Cynodon	24
Cyperus	20
Cabbage	7
Carrot	3

12. Write short notes on (any three) of the following:

a. History of biotechnology
b. Culture media
c. Similarity index
d. Important conventions on Biodiversity

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RAMPUR, CHITWAN
FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 7th Semester F.M. 20
P.M. 8
Subject: Agro-biodiversity Management Time: 1:30Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 6

1. Define biodiversity. Write about different components of agro-biodiversity.

Short questions (Attempt any seven) 7×2 = 14

2. Write about importance and prospects of agricultural biodiversity.
3. Enlist the organizations involved in agro-biodiversity conservation. Write about the role of any two of them.
4. Enlist different methods of documenting genetic resources, traditional knowledge and practices. Mention the steps of CBR.
5. Write about four cell analysis.
6. What are the different approaches for conservation and utilization of agricultural biodiversity? Write about any one of them.
7. Write about national policies and laws on agricultural biodiversity conservation and development.
8. Write about Participator Plant Breeding (PPB). How does it differ from conventional plant breeding?
9. Write short notes on any two:

a. ITPGRFA
b. WIPO
c. Ecological foot print.

Final examination- 2073

Essay Type Question 6

1. What agricultural biodiversity matters? Explain the values of biodiversity in detail?

Short questions (Attempt any seven) 7×2 = 14

2. Define biome? What are the different potential biomes for agriculture?
3. What are distinctive features of PGRFA?
4. Classify weeds with examples.
5. Define PPB? Explain its participatory research methodology.
6. How is four cell analysis done? What are the various intervention done after it is accomplished?
7. What are the various threats to agro-biodiversity? Explain.
8. What are the various obligations of CBD that Nepal should follow? How can Nepal benefited from it?
9. Define value addition. Explain its types with examples.

Back examination- 2074

Essay Type Question 6

1. Define agro-biodiversity. What are the emerging threats to agro-biodiversity? How can these threats be reduced?

Short questions (Attempt any seven) 7×2 = 14

2. Enlist crop and animal genetic resources of Nepal (with their wild relatives).
3. Write about the role of soil flora and fauna in soil fertility management.
4. Mention the research status of agro-biodiversity in Nepal.
5. Describe CBM approach of agro-biodiversity management and development.
6. Mention the importance of agricultural biodiversity.
7. How will you assess agricultural biodiversity of a place? Write about four cell analysis.
8. Describe ex-situ approach of agro-biodiversity conservation.
9. Write short notes on any two:

a. Species of ecosystem services
b. Ecological foot print
c. ITPGRFA

Final examination- 2072

Essay Type Question 6

1. Define agro-biodiversity. Mention different methods of agro-biodiversity conservation. What is value addition?

Short questions (Attempt any seven) 7×2 = 14

2. What are the emerging threats for the conservation of agro-biodiversity? Also mention the measures to reduce them.
3. What is ITPGRFA? Write its importance in agro-biodiversity conservation.
4. What do you mean by ecological foot print? Write the main factors that influence it. How can we reduce ecological foot print.
5. Name the different components of agro-biodiversity. Write the importance of wild relatives of crop plants and livestock with suitable examples.
6. Explain the ecosystem services provided by insects and microbes with suitable examples.
7. Write the important policies and legislative regarding the conservation, uses and sharing of benefits from agricultural biodiversity.
8. What is CBR? Mention the different steps of CBR.
9. How can you assess genetic resources by four cell analysis?

Final examination- 2071

Essay Type Question 6

1. What is community based Biodiversity Register (CBR)? Describe the methodology of preparation of CBR and write down its importance.

Short questions (Attempt any seven) 7×2 = 14

2. "Loss of agro-biodiversity is a threat for agricultural sustainability". Explain.
3. What do you mean by ecosystem services? Write about importance of agro- biodiversity.
4. Classify soil-inhabiting organismssccording to its size and provide suitable examples of each group.
5. Describe the framework of governmental organization on Nepal responsible for biodiversity conservation.
6. Enlist the objectives of convention on biological diversity(CBD). Describe the guideline principles. Write about WTO/TRIPS.
7. What are the potential threats for agro-biodiversity management. How can we minimize them?
8. Enlist the strategies of agro-biodiversity management. Write about participatory plant breeding.
9. Write short notes on:

a. ITPGRFA b. ILO 169 c. Farmer's right

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 7th Semester F.M. 20
P.M. 8
Subject: Environmental Pollution and Protection Time: 1:30Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question 6

1. Why IPM is very important? Explain the effectiveness of FFS in the dissemination of IPM knowledge mentioning major processes of it.

Short questions (Attempt any seven) 7×2 = 14

2. What do you mean by economic injury level? Mention the use and importance of ET|L with example.
3. List the major environmental issues and mention the effect of air pollution.
4. Mention the major causes of air pollution and effective control measures.
5. Give important pesticide acts and regulations in context of Nepal.
6. Why plant quarantine is important? Explain the major duty of plant quarantine officer.
7. Define the following terms:(any three)
a. Resurgence of insect pests
b. Insect-pest out break
c. Persistent pesticide
d. Pesticide residue
8. "Ecological and socio-economic aspects are also important for insect-pest management". Justify the statement.
9. Mention the impacts of pesticides and its use under the IPM approach.

Final examination- 2073

Essay Type Question 6

1. What is water pollution? Explain the causes, imparts and control measures in the context of Nepal.

Short questions (Attempt any seven) 7×2 = 14

2. What is host-plant resistance? How can we utilize it in pest management?
3. "IPM is not the enemy of pesticide". Justify the statement.
4. Mention the environmental and health imparts of air pollution.
5. Why pesticide is being one of the emerging problems in Nepal? Explain with suitable examples.
6. Define the following:
a. Pest resurgence
b. Economic threshold level
c. Pheromone trap
7. Explain how farmers' field school is one of the best tool for IPM dissemination.
8. List out the major environment protection of climate change related acts in Nepal.
9. Mention novel pest control techniques with suitable examples.

Back examination- 2074

Essay Type Question 6

1. What are the importance of IPM? Mention the major components of IPM. Also state the use of pesticides under IPM approach.

Short questions (Attempt any seven) 7×2 = 14

2. What is ETL? Why is it considered important in integrated pest-management?
3. "FFS is an effective tool in IPM". Justify the statement.
4. Give the concept of climate change and mention its impact on pest management and agriculture as a whole.
5. Mention the causes and effects of air pollution with examples.
6. What is pesticide act? How it is useful to manage the pesticides in Nepal?
7. Explain the legal method of pest-management with suitable examples.
8. Mention the causes and effect of water pollution in the context of Nepal.
9. Define the following terms: a. Bio-magnification
b. Insect-pest resistance c. Insect resurgence
d. Selective pesticide

Final examination- 2072

Essay Type Question 6

1. Enlist the different Act and regulation related to IPM in Nepal. Write in brief about Plant Protection Act, 2064.

Short questions (Attempt any seven) 7×2 = 14

2. What is the difference between stock pollutants and fund pollutants?
3. What do you mean by Rapid Bioassay of Pesticide Residues? Why pesticide residue of garlic and ginger can't be tested by RBPR?
4. What do you mean by International Plant Protection Convention? Explain.
5. Define Bioassay. What are the factors considered during bioassay?
6. Differentiate between survey and surveillance.
7. Define pollution and mention its causes.
8. Define POPs. Enlist different POPs.
9. Write short notes on:
a. Basal convention b. Dirty Dozen
c. Bio-magnification d. Pest Risk Analysis

Final examination- 2071

Essay Type Question 6

1. What is integrated pest management (IPM)? What are its principles? How do IPM programs work? Design an IPM package program to control insect-pests of crucifers or cucurbits.

Short questions (Attempt any seven) 7×2 = 14

2. Mention environment impact of air pollution.
3. Describe causes and mitigation of water pollution in the context of Nepal.
4. What do you mean by ISPMs? Mention its importance.
5. Shortly mention the environment protection policies of Nepal.
6. Mention your responsibilities if you are appointed as plant quarantine officer.
7. Describe the impact of chemical pesticide on non-target organisms.
8. Give the effectiveness of male sterile techniques with suitable examples.
9. How pest survey and surveillance can be effective in pest management?

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 8th Semester F.M. 40
P.M. 16
Subject: Agricultural Project Planning Time: 2Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. What is project cycle? Discuss in detail about different criteria for investment analysis.

Short Questions: (Attempt any Ten) 10x3=30

2. Why is referencing important? Elicit proper referencing of online material of a journal article, proceeding and book with single and multiple authors of each.
3. Differentiate between question and questionnaire. Explain pretesting of questionnaires interns of process and reasons.
4. Explain different data presentation technique along with appropriateness of each of the technique for different types of data.
5. Differentiate between population and universe. Discuss on probability sampling techniques in brief.
6. Enlist different socio-economic research methods. Explain steps of socio-economic research with the help of a clean flow diagram.
7. Discuss on the process of log-frame development. Develop a log-frame representing crop insurance project.
8. Enlist the elements of a scientific report. Briefly discuss on footnote and appendix as important elements of a report.
9. What are the different functions of a project proposal? Discuss on introduction and methodology part of a proposal with example.
10. Conceptualize ZOPP approach. Describe the steps of this approach visualizing citrus decline problem in western region of Nepal.
11. What do you mean by project monitoring? Discuss on aspects, criteria and steps of project evaluation.
12. Describe the planning, preparation and presentation of seminar with example

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. Proposal is pivotal for research and development. Why? How to develop an effective research proposal? Explain in brief with suitable example.

Short Questions: (Attempt any Ten) 10x3=30

2. What are the questions to be answered in project assessment and evaluation?
3. Discuss on quantitative and qualitative survey instrument in socioeconomic research.
4. What are the major components in project cycle? Implementation phase is called as a mini-cycle of the project. Why?
5. What are the difference between financial and economic analysis of a research and developments projects?
6. Simple Random Sampling is the best sampling technique then other why?
7. Social, economic and environmental aspects are most important as while preparing project feasibility study. Give your scientific opinions.
8. What is ZOPP apporach? How do you develop problem tree and objective tree? Briefly explain with suitable example.
9. What are the basic things to be included while preparing the LFA?
10. What are the methods of project investment? Differentiate between NPV and IRR.
11. Short notes on: a)Abstract b) Footnotes c) sensitivity analysis
12. Differentiate between: a)References vs. Bibliography
b) PCN vs. Proposal c) SIA vs. EIA

FINAL EXAMINATION - 2074

Essay Type Question: 10

1. Conceptualize project, plan and program. Discuss on different aspects of project preparation and analysis visualizing a livestock related agricultural project in Hilly region of Nepal.

Short Questions: (Attempt any Ten) 10x3=30

2. Differentiate between references and bibliography? Exemplified proper referencing of a journal, unpublished thesis and book with editors with single and multiple authors to each type of document.
3. Discuss briefly on preparation and presenting a seminar with example.
4. What are important issues of questionnaire development? Discuss on steps of questionnaire development with examples.
5. Conceptualize research design and sampling design. Discuss on non-probability sampling techniques with examples.
6. Highlight importance of log-frame approach of project formulation. Develop a log-frame representing a post-harvest training project.
7. Differentiate between APA and Harvard system of referencing. Exemplified APA system of text referencing in following cases: one work by six authors, group as author, no author and personal communication.
8. Enlist elements of a technical report. Develop abstract of any research which you have conducted in your undergraduate program.
9. What are elements of a project proposal? Discuss on type and function of a typical proposal with example.
10. What do you mean by sensitivity analysis? Discuss in brief the elements of feasibility study of an agricultural project.
11. How many project monitoring differs from evaluation? Discuss on steps and types of project evaluation.
12. Conceptualize ZOPP as a planning tool. Describe the steps of this approach visualizing a project aiming to address the problem of low productivity of cereal crop in Nepal.

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. Differentiate between Monitoring and Evaluation. Why Difference in Difference (DiD) model is best approach for project impact assessment using with-without and before-after project scenarios? Explain with suitable example.

Short Questions: (Attempt any Ten) 10x3=30

2. What is proposal? Briefly explain the LFA matrix with example.
3. What do you mean by investment analysis? Discounted method is best approach than non-discounted method for investment analysis. Why?
4. What are the questions to be answered during project assessment and evaluation at feasibility and economic efficiency criteria in different levels? Explain with example.
5. Write short note on: a) Referencing b) Sensitivity analysis
6. What are the major instruments used for socio-economic research design? Why simple random sampling technique is pivotal for all probability sampling techniques? Explain with example.
7. What is ZOPP? Briefly explain the problem tree analysis with suitable example.
8. What do you mean by sample? How do you determine an accurate sample size in socio-economic research? Explain with examples.
9. How do you craft an effective research proposal? Briefly explain with components.
10. Differentiate between financial and economics analysis with suitable examples.
11. Differentiate between: a) Footnotes and Endnotes
b) PCN and Full proposal c) Acronyms and Abbreviations
12. What do you mean by referencing? Discuss the way of referencing followed by IAAS with suitable examples.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 8th Semester — F.M. 20, P.M. 8
Subject: Mushroom Cultivation — Time: 1:30Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 6

1. Why mushroom cultivation is gaining popularity to uplift the economic position of rural poor people? Describe the cultivation practices of Pleurotussajorkajumushroom.

Short Questions: (Attempt any Ten) 7x2=14

2. Discuss on the wild mushrooms having economic significance in our country.
3. Enlist five each of the edible and poisonous mushroom species.
4. How Boletes are different from Mushrooms? Discuss with examples.
5. Draw a well labelled figure of Agaricusbisporus.
6. How mushroom pure culture is prepared and maintained?
7. What are the major insects and diseases of mushroom and how they are controlled?
8. What is casing? Explain the qualities of casing materials.
9. What are the basic components of compost? How will you judge about the qualities of a best compost?

FINAL EXAMINATION - 2074

Essay Type Question: 6

1. Describe in detail about the production scheme of button mushroomAgaricus sp.with giving emphasis on compost preparation, casing, spawning and productivity.

Short Questions: (Attempt any Ten) 7x2=14

2. Enlist the three commonly grown species of oyster mushroom. Discuss on environmental requirement for spawn-run phase of oyster mushroom cultivation.
3. Define mushroom and discuss on its economic importance.
4. Enlist any three poisonous mushroom with their common name and scientific names.
5. Give the general morphology of mushroom with well-labelled sketch.
6. Mentions the symptoms of dry bubble and wet bubble diseases of mushroom. How they can be managed?
7. Describe the process of grain spawn production.
8. Write short notes on the following:

a) Fairy rings
b) Boletes
c) Honey Mushroom
d) Rose comb

9. Differentiate between following:

a) Grain spawn and perlite spawn
b) Base material and additive of compost

FINAL EXAMINATION - 2072

Essay Type Question: 6

1. Describe in detail the method of Pleurotusfloridamushroom cultivation at farmer's level in Nepal.

Short Questions: (Attempt any Ten) 7x2=14

2. Explain the importance of mushroom in human diet.
3. List five each of the edible and poisonous mushroom species.
4. How Boletes are different from Mushrooms? Explain with few examples.
5. Describe the morphology of Button mushroom.
6. How mushroom pure culture is prepared and maintained? Explain.
7. Describe the method of grain spawn production.
8. What is casing? Enlist the qualities required for casing materials.
9. What are the major insect pests of mushroom and how they can be managed?

FINAL EXAMINATION - 2072

Essay Type Question: 6

1. Differentiate seed and spawn. Why quality of spawn and substrate selection is important for successful mushroom cultivation. Describe the detail procedure of pure culture maintenance to spawn production of white button mushroom.

Short Questions: (Attempt any Ten) 7x2=14

2. Mention the diseases and insects that are noticed during mushroom cultivation. Describe in brief about 2 fungal diseases.
3. Give the systematic position of mushroom.
4. What different types of toxin are present in mushroom? Describe briefly with their specific symptoms.
5. "Mushroom is a source of medicine". Justify
6. Describe the morphological difference between Button mushroom, Oyster mushroom and paddy straw mushroom.
7. Describe about the turning schedule of compost preparation for the cultivation of white button mushroom. Why casing is necessary during Agaricus cultivation.
8. Mention the common and scientific name of the only 4 edible and available in poisonous mushroom in Nepal.
9. Describe shortly about the preservation techniques of mushroom.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 8th Semester F.M. 40
P.M. 16
Subject: Applied Human Nutrition Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Discuss in detail the role of bioactive phytochemicals in the human body. Also mention the relation of foods/ nutrition with the human health.

Short Questions: (Attempt any Ten) 10x3=30

2. What are water soluble vitamins? Mention the physiological functions of any one of them.
3. What are the functions of lipid in the human body?
4. Explain the factors that affect losses of nutrients during handling and storage.
5. Explain the deficiency symptoms and food sources of the following vitamins:
a) Vitamin E b) Vitamin D c) Thiamin
6. What are the functions of carbohydrates in the human body?
7. What are the major nutritional deficiency diseases occurring in Nepal? Mention the Symptoms of any one of them.
8. Write short notes on:
a) Polysaccharides b) Essential amino acids
9. Classify foods based on their nutrient densities.
10. Write down the deficiency symptoms of the following?
a) Calcium b) Iron
11. Discuss the functions of proteins in the human body.
12. Define the following:
a) Nutrition b) Crude fiber c) Omega-3-fatty acids

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. Discuss interaction mechanisms between nutrition, immunity, cancer, ageing and mental function.

Short Questions: (Attempt any Ten) 10x3=30

2. Discuss the impact of nutrition on CHD.
3. Discuss interaction between malnutrition and infection in children, in community and social pediatrics.
4. Classify carbohydrates with important examples.
5. Discuss lipids nutrition in health and diseases of humans.
6. Discuss the metabolic functions following of the following:
a) Thiamine b) Vit A c) Vit E
7. Vit A deficiency in a serious public health problems in many developing countries. Discuss.
8. Protein-energy malnutrition (PEM) continues to be a major public health problem in many developing countries. Discuss.
9. Discuss malnutrition and cognitive development.
10. How do bioactive phytochemical help improve human health? Discuss.
11. Discuss the importance of storage of fords on the improvement of nutritional value.
12. Write down the deficiency symptoms of the following:
a) Calcium b) Iron c) Manganese

FINAL EXAMINATION - 2074

Essay Type Question: 10

1. Discuss the role of food and nutrition on human health with special focus on diabetes, heart diseases, cancer, obesity and high blood pressure (hypertension).

Short Questions: (Attempt any Ten) 10x3=30

2. What is the iodine deficiency disorder (IDD)? How is it being controlled in Nepal?
3. Define PEM. What are the major causes malnutrition in Nepal?
4. What are physiological functions and deficiency symptoms of vitamin A?
5. How assessment of the nutritional status of an individual done?
6. What is balance diet? Give an example of your own.
7. Write in brief about the methods of enhancing nutritive value of food.
8. Mention the role of Vitamin D and calcium in human nutrition?
9. Describe the role of dietary fiber in the human body.
10. Describe different anti-nutritional factors in our food.
11. What are the different factors that affect BMR?
12. Write short notes on:
a) Vitamin C b) Beriberi c) Food groups

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. Classify carbohydrates with examples; also write down the function, deficiency symptoms and food sources of carbohydrates on human.

Short Questions: (Attempt any Ten) 10x3=30

2. What do you mean by bioenergetics? How does energy partition in human? Explain.
3. What are macro elements? Write down the function and deficiency symptoms of calcium, phosphorous and Sulphur in human.
4. What is energy? What are different methods of energy measurement? Explain.
5. Classify foods with examples.
6. List down vitamins and write down the functions and deficiency symptoms of fat soluble vitamins.
7. Write short notes on (any three):
a) Hypoglycemia b) Rickets c) Beri-beri d) Acidosis
8. Explain basal metabolism in human.
9. Write down the factors which influence water requirement in human beings.
10. Write down different methods of processing of foods.
11. Write down the function and deficiency symptoms of (1) Riboflavin (2) selenium and (3) iron in humans.
12. Write down the problems, prevention and control of over feeding humans.

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 8th Semester F.M. 40
P.M. 16
Subject: Introduction to Dairy Science Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Discuss briefly about importance, present situation and future scope of dairying in Nepal.

Short Questions: (Attempt any Ten) 10x3=30

2. Explain briefly about structure, importance and commercial use of milk protein.
3. Discuss briefly about blood circulation and lymphatic system of mammary gland.
4. Explain the effect of stage of lactation and seasonality on composition of milk.
5. Discuss briefly about chemical properties of milk.
6. Justify the role and importance of lactose in the growth and development of children.
7. "Milk is an ideal, unique and most nearly perfect food for human being" justify it.
8. Give a concise table of milk constituents and their blood precursors in animal.
9. Discuss briefly about absorbed flavor defects in milk in milking parlour.
10. What are the sources of contamination of milk on diary farm? Explain in brief.
11. Differentiate the following. a) Clostrum and cow milk. b)Sucrose and Lactose c) Apparent and developed acidity
12. Write short notes on following:
a) Importance of machine milking
b)Hygienic milk production on diary farm

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. Write scope and importance of diary development in Nepal and discuss in comparison with developed countries.

Short Questions: (Attempt any Ten) 10x3=30

2. Define milk and describe diagrammatic representation of milk constituents.
3. What are the physical and chemical properties of milk, discuss?
4. Discuss the factor affecting composition of milk and nutritive value of milk.
5. What are the milking methods and write advantages of machine milking over hand milking system?
6. How can we produce clean milk and what are the factors affecting clean milk production?
7. What are the common flavor defect in milk, discuss their cause and prevention?
8. Enlist beneficial and harmful microorganism in milk and also write down what are the sources of microorganism in milk?
9. What is pasteurization and why is it important in diary industry?
10. Discuss on mammary gland development.
11. Describe on physiology of lactation and milk secretion in cattle.
12. Write short notes on: a) NDDB b) H.T.S.T.
c) Objective of DDC d) L.T.L.T.

FINAL EXAMINATION - 2074

Essay Type Question: 10

1. Write the present status, problems, challenges and opportunities of dairy sector in Nepal.

Short Questions: (Attempt any Ten) 10x3=30

2. Why milk product diversification is necessary?
3. Write in short about nutritive value of milk.
4. How does the stage of lactation affect the composition of milk?
5. Write short notes: a) Specific gravity b) Alveoli
c) Rancid flavor of milk
6. Why temperate countries are more favorable for milk production as compared to tropical countries?
7. What are the major hormones and it's role lactation?
8. Discuss on method of milking a diary animal.
9. Differentiate the following.
a) Flavors and off flavor in milk
b) Apparent and developed acidity
10. Briefly explain the various factors affecting the clean milk production.
11. What are the different types of micro-organisms found in milk and milk products?
12. How does the blood circulatory system function in mammary gland?

FINAL EXAMINATION - 2071

Essay Type Question: 10

1. Give the diagrammatic representation of milk constituents. Explain the factors influence the quality and quantity of milk produced.

Short Questions: (Attempt any Ten) 10x3=30

2. Define milk. Give food value of milk. Milk is perfect food. Comment with reason.
3. Discuss about importance of dairying in Nepal.
4. Write short notes:
a.Flavor defect in milk b.Specific gravity of milk
5. Write in brief about hormones related to udder development.
6. Full hand milking is the best method of milking. Justify with reason.
7. Write short notes on: a. homogenized milk
b. Toned milk c. Acidity and pH of milk
8. Explain the physical and chemical properties of milk.
9. What do you mean pasteurization? Write the advantages and methods of pasteurization of milk.
10. Explain the principles of clean milk production.
11. Discuss in brief about mechanism of milk let down.
12. Write short notes on:
a. Plat farm test b. Colostrums c. Sterilized milk

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FINAL EXAMINATION - 2074

Level: B.Sc. Ag. 8th Semester F.M. 40
P.M. 16
Subject: Farm Structure and Surveying Time: 2 Hrs

Candidates are required to give their answers in their own words as practicable as possible. The figure in the margin indicates full marks.

Essay Type Question: 10

1. Explain the important features of a structurally sound building. Describe the functional requirements of a goat house.

Short Questions: (Attempt any Ten) 10x3=30

2. Calculate the quantity of materials required to construct a RCC slab of 20m X 10m X 0.12m with 1:2:4 mix proportion and 1.5% reinforcement bars.
3. Design a cylindrical grain bin to store 3 tones of rice. Density of rice is 1200 kg per cum and angle of repose of rice is 45?.
4. Define surveying and distinguish plane surveying from geodetic surveying.
5. Discuss in brief the importance of curing in building construction.
6. What is hypotenusal allowance? Mention the tape correction formula for temperature, pull and sag.
7. Describe the desirable qualities of sand as a construction material of a building.
8. After measuring a distance of 2500 meter with a 30 m chain, it was detected that the chain was 0.1m too short. Another 1500m was measured and it was found that the chain was 0.15m too short. Determine the exact length measured if the chain was corrected initially.
9. The bearings of lines AB and BC are 200? and 60? respectively. Find the included angle of ABC.
10. Define the following terms:
a) Magnetic meridian b) Offset c) Tie line
11. In a contour map of 1:25000 scales, distance between two pointes A and B as measured in map was found to be 2cm. The point A lies on contour line of 1025m while B lies on 1525m. What is the slope of AB? Express in percentage.
12. The following consecutive readings were taken in a level survey. Work out the Reduced Levels of all the points if the first reading was taken at a BM of 100m; readings; 3.55, 3.30, 3.35, 3.0. Apply check.

FINAL EXAMINATION - 2074

Essay Type Question: 10

1. What is silo and how it is prepared? Give your view about the performance of silo in Nepal. Design a trench silo taking ration assumption for small herd of 75 cows weighing 380 kg each.

Short Questions: (Attempt any Ten) 10x3=30

2. What is bulking of sand? Give procedure of its teste.
3. How do you design the foundation for load bearing building? What are the characteristics of load bearing building?
4. Why a farm house should be insulated? How thermal conductivity and thermal resistivity are related to each other?
5. Design and make sketch for a bag storage structure for storing 350 tonnes of maize. Assume reasonable data where they are necessary.
6. Layout a cattle house for thirty five number stanchion head to head herd.
7. Explain the ranging technique.
8. a) what does offset mean?
b) A survey line BAC crosses a river. A and C being on the near and opposite banks, respectively. A perpendicular AD 60 m long, is set out at A. If the bearing of AD and DC are 32?30' and 266?30', respectively, draw a sketch and find the bearing of a chain line BAC, width of the river AC and find what will be chainage of C when that of A is 108.6 m.
9. The following bearing were observed in running a complete compass traverse.

Line	FB	BB
AB	142□30'	322□30'
BC	223□15'	44□15'
CD	287□0'	107□45'
DE	12□45'	193□15'
EA	60□00'	237□45'

At what stations do you suspect the local attraction (LA)? Determine the true magnetic bearing.
10. Define the following terms:
i) Saddle ii) Tie line iii) Skirting iv) Cliff
v) Height of instrument (HI)
vi) Representative factor (R.F.)
11. The following consequences reading were taken with an Dumpy/Auto level.
2.375, 1.730, 0.615, 3.450, 2.835, 2.070, 1.835, 0.985, 0.435, 1.630, 2.255 and 3.630
The instrument was shifted after the fourth and eight reading. The first reading was taken at RL is 110.245. Calculate the reduced level by fall and rise system and check whether calculation is correct or not.
12. Design and estimate the quantities of work for construction of a single room building having internal room size 5m x 4m. One door 2 x1 mand two windows of 1.5x1.5 mare adjusted. Make free hand sketch for plan and a cross-sectional view of foundation and superstructure according to given below item works. Find quantities of work done in earth excavation and plinth only.
i) Earthwork in excavation in foundation: depth 75 cm, width 85 cm.
ii) Concrete in foundation in base: depth 20 cm
iii) One brickwork footing: depth 15 cm, width 60 cm
iv) Plinth: height 60 cm and width 40 cm,
v) Superstructure: height 3 m and width 30 cm.

Essay Type Question: (1+6+3)=10

1. What is difference between detailed estimate and approximate estimate? Estimate the quantities of the following items of a cattle house from the given plan and section. Also work out the Abstract of Cost of these items of work. Assume suitable rate. (Drawing is attached in a separate sheet).

i) Earthwork in excavation

ii) PCC 1:3:6 in foundation

iii) First class brickwork in 1:4 c/s mortar in foundation and superstructure

iv) M20 grade PCC in RCC in plinth beam assuming 1.5% of reinforcement steel bars

Short Questions: (Attempt any Ten) 10x3=30

2. Mention reasons for the following statements:

i) Large quantity of water makes concrete weak

ii) Bricks should be soaked in water before they are laid with cement mortar

iii) Gypsum is added in cement

3. Point out important dos and don'ts to make a brick masonry capable of resisting vertical as well as horizontal load.

4. A farmer produces 10 tons of same variety of grain in his farm. Design and draw a suitable type of storage structure to store it. Assume crop type and reasonable data wherever necessary.

5. What is farmstead planning? Give an account of site selection criteria in farmstead planning.

6. Differentiate between:

i) Plane and geodetic survey ii)Chain and compass survey

7. Derive the relationship between Back Bearing and Fore Bearing. How is this relation useful in compass surveying?

8. A survey line crosses a river and stations A and Bare established on opposite banks. A perpendicular AC, 60 m long, is set out at A. If the bearing of AC and CB are 50? and 290?, respectively. The chainage of A is 1817.2m. Find the chainage of B.

9. The area of an old survey map drawn to a scale of 10m to 1 cm now measures 90.5cm2 as found by a planimeter. The plan found to have shrunk so that a line originally 10 cm long now measures 9.5 cm only. Find the true area of the field.

10. Define offset. How is swing offset taken?

11. The following consecutive readings were taken with an instrument in leveling work.

2.32,2.53,2.62,3.78,3.91

The first two readings were taken from the first setting of the instrument and the remaining reading from the second setting. Enter the above readings in a level field book and calculate the RL of all the points. Also apply usual check. Assume the RL of the first point as 100m, as BM.

12. Draw contour to represent the following:

i) Ridge ii) Vertical cliff iii) Hill top

FINAL EXAMINATION - 2072

Essay Type Question: 10

1. Explain the important features of a structurally sound building. Explain the functional requirements of a Dairy Cattle House.

Short Questions: (Attempt any Ten) 10x3=30

2. Design a cylindrical grain bin to store four tons of rice. Density of rice is 900 kg per cum and angle of repose of rice is 36?.

3. Define curing. Why is it necessary for construction? Describe.

4. Calculate the quantity of materials required to construct 20 numbers of RCC column of size 30cmx30cmx3m with 1:1 1/2:3 mix proportion and 2.5% reinforcement bars.

5. Describe the desirable qualities of gravel as a construction material.

6. Define surveying and distinguish plane surveying from geodetic surveying.

7. What is hypotenusal allowance? Mention the tape correction formula for temperature, pull and sag.

8. The bearings of lines PQ and QR are 300? and 60? respectively. Find the included angle of PQR.

9. Define the following terms:

a) Offset b) True Bearing c) Well-conditioned triangle

10. 2000 meters distance was measured with a 30 m chain and it was detected that the chain was 0.08m too long. Another 1200m was measured and it was found that the chain was 0.12m too long. Determine the exact length measured if the chain was corrected initially.

11. In a contour map of 1:25000 scales, distance between two pointes A and B as measured in map was found to be 4 cm. The point A lies on contour line of 1025m while B lies on 2025m. What is the slope of AB? Express in percentage.

12. The following consecutive readings were taken in a level survey. Work out the Reduced Levels of all the points if the first reading was taken at a BM of 500m; readings; 2.55, 2.30, 2.35, 2.0. Apply check.

Essay Type Question: 10

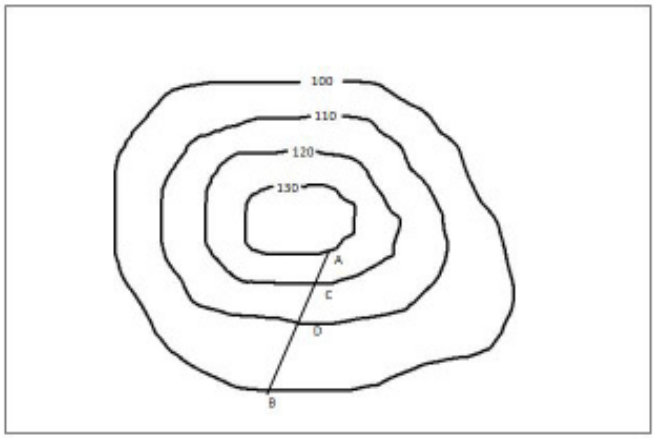
1. What are the functional requirements of a dairy cattle house? Sketch a typical cross-section of a diary cattle house indicating its important components and briefly explain the constructional details of (i) floor (ii) manger and (iii) alleys.

Short Questions: (Attempt any Ten) 10x3=30

2. State the most important functions of cement in concrete. Why is steel bar (rods) use in concrete?
3. Name most common types of foundations used in RCC Farmed Structure and briefly explain pad foundation.
4. A farmer had a herd of 200 cows in the area with shallow water table. The silage is to be fed 120 days in a year at the rate of 12 kg per cow. Design the type of silo you would like to recommend in that area. Assume density of silage to be 800 kg per m3 and losses 20%. Assume other data suitably wherever needed.
5. Estimate the quantities of materials required to construct a 50m long, 3m high and 38cm thick brick masonry in 1:4 cement sand mortar.
6. Under what condition reciprocal ranging is conducted? Briefly explain the process of reciprocal ranging.
7. Define offsets. How is swing offset taken?
8. A 30 m chain was used to measure a survey line. Before the commencement of the work, the chain was tested and found to be 1 decimeter too short. After measuring a distance of 1550m the chain was found to be 5 cm too long. After chaining a total distance of 5500m at the end of the S
9. A chain line PQR crosses the river at right angle, Q and R being two points on the near and distant banks respectively. A perpendicular QS 90m long is set out at Q on the right of the chain line. The respective bearing of P and R taken at S are 2200and 3100. Find the chainage of R, given that the length of PQ is 65m and the chainage of Q is 650 m.
10. The bearing of the side of a triangle ABC are AB = 2000, BC = 320?, CA = 80?. Determine the angle of the triangle. Is the triangle well-conditioned?
11. Following is page of a level field book. Fill in the missing readings and calculate the Reduced Level of all the points. Also apply usual check.

Station	BS	IS	FS	Rise	Fall	RL	Remarks
1	3.25					150	BM
2	1.75		?		0.75	?	TP
3		?		0.50		?	
4			?	0.25		?	Last point

12. Study the contour map given below and answer the following questions.



(i) What type of land do the above contour lines represent?
(ii) Distance of B from A is 60 m, find the distance of C and D from B (Elevation Shown in contour are in meter)

Compiled By:- Free Students' Union, Lamjung Campus

विशेष धन्यवाद

रामजी खड्का
श्रीकान्त अधिकारी
सुरेश रेग्मी
अजित अधिकारी
भोजराज अधिकारी
मेनका मिश्र
बिज्ञान के.सी.
इशा पौडेल
आकृति खनाल
प्रज्ञा ढकाल
ववित लामिछाने
रोशनी आचार्य
सुप्रभा आचार्य
प्रतिभा कार्की
अमित ज्ञवाली
मनोज श्रेष्ठ
एवं सम्पूर्ण
क्याम्पस परिवार

Compiled By:- Free Students' Union, Lamjung Campus

Tribhuvan University
Institute of Agriculture and Animal Science (IAAS)
Dean's Office
Sanepa, Lalitpur, Nepal

Liaison office :
P.O. Box :984 ,kritipur,Kathmandu, Nepal
9thSeptember, 2018

MESSAGE

I feel immense pleasure to see the enthusiasm of the students in the preparation and publication of IAAS QUESTION BANK book and would like to extend my words of gratitude to Free students union lamajung campus unit . This activities shows that the students are not only involved in regular course work but are also active to demonstrate their intellectual capabilities in agricultural and veterinary related articled book .

This book would serve as a good medium for exchange and transfer of technical know- how related to ariculture and veterinary in different sector .

Lastly I would ike to acknowledge all the team member of free students union lamjung campus for creative iputs and their efforts .

9thSeptember, 2018

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Keshav Raj Adhikari,PHD
Professor and Dean
IAAS

Compiled By:- Free Students' Union, Lamjung Campus

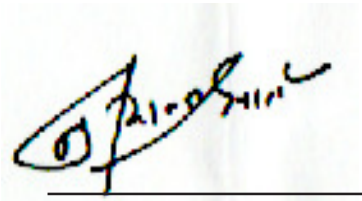
क्याम्पस प्रमुखको कार्यालय
OFFICE OF THE CAMPUS CHIEF
त्रिभुवन विश्वविद्यालय
कृषि र पशु विज्ञान अध्ययन संस्थान
लमजुङ्ग क्याम्पस, सुन्दरबजार, लमजुङ्ग
TRIBHUVAN UNIVERSITY
Institute of Agriculture & Animal Science
Lamjung Campus, Sundar Bazar, Lamjung
Ref./ प. सं./च. नं.
Date/ मिति .....

Foreword

IAAS Lamjung campus has played a crucial role as a premier constituent college of TU for the development of agricultural competent manpower required for the nation. It is focused on graduating qualified students with Bachelor's degree in Agriculture and Animal Science. A higher level competent manpower has been producing in the B.Sc. Ag program since 2012/013. I heard "Free Student's Union (FSU)" of Lamjung Campus is going to publish "Question Bank from 1st to 8th semester compiled By FSU, Lamjung Campus (2073-2075)".I hope this compiled questions bank will be useful for all the students of different collages of IAAS especially the students batch of 2074/75 as a reliable exam preparatory book.

I believe this book will guide students to develop ideas for attempting questions and obtain good results in each and every semester. It is a stepping stone for the exam appearing student to boost their knowledge and take their practice to perfection.

I feel very pleasure and privileged to congratulate the appreciable work of the FSU team and all of their helping hand for the excellent work. I hope this sort of noble work will be continued for the long. Thanks.



Dr.Narayan Neupane,
Campus Chief,lamjung campus

Tribhuwan Univercity Lecturer's Association
Lamjung Campus Unit
Institute of Agriculture and Animal Science
Lamjung Campus, Sundarbazar, Lamjung

Date:- 9thSeptember, 2018.

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.....

Kapil Kafle, Asst. Professor
President

Compiled By:- Free Students' Union, Lamjung Campus

"त्रि. वि. कर्मचारी एकता अमर रहोस्"

त्रि. वि. कर्मचारी संघ

लमजुङ क्याम्पस इकाइ समिति

सुन्दरबजार, लमजुङ

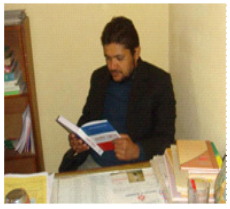
च.नं.

प.सं.

मितिः २०७५।५।२४

सचिव

शुभकामना



सभापति

स्वतन्त्र बिद्यार्थी युनियन, लमजुङ क्याम्पसले **प्रश्नपत्र संगालो** (Question Bank) प्रकाशन गर्न लागेकोमा खुसी लागेको छ । यस प्रकारका प्रकाशनमा बिद्यार्थीहरुको सृजनशिलता झल्कन्छ ।

देश बिकासको मेरुदण्डको रुपमा मानिदै आईएको कृषि र यसका लागि आवश्यक गुणस्तरिय कृषि प्राबिधिकको उत्पादनमा यस प्रकारका प्रकाशन महत्वपुर्ण रहने गर्दछ ।

अन्तमा, कृषि प्राबिधिक बन्न चाहने नयाँ बिद्यार्थीहरुका लागि यस प्रकाशन कोशेढुङ्गा साबित हुन सक्ने आशा गर्दै यसको निरन्तरताको शुभकामना व्यक्त गर्दछौं ।

सन्तोष अर्याल
सचिव

सुरेश रेग्मी
सभापति

त्रिभुवन विश्वविद्यालय
कृषि र पशु विज्ञान अध्ययन संस्थान
ndh"" SofDk;, ;Gb/ahf/, ndh""

स्वतन्त्र विद्यार्थी युनियन

पत्र संख्या:-
चलानी नं.:-

मिति:-.....

Few Words from president

September 10, 2018

When I got the opportunity to write some words for this book, one quote quickly striked my mind - "When the going gets tough, the tough gets going". Anyone who enters the gate of Agriculture and Animal Science College knowingly and unknowingly follows the path indicated in the quote. We have to put our focus on study and at the same time we have to fight with the system to make things better. On top of that, we never refused to see our surrounding and not just show our reaction, we act on it. At the end of our college life after studying amidst such toughness, we will become tougher in important areas and that will surely be a head start to our journey of life.

The book is prepared with dedication and hard-working of many helping hands. I am pretty confident that contents of the book along with your own effort will be valuable asset to BSC(Ag) study. Helping each other and grow as a community are always our culture and strength and this book is addition of one more pillar to that strength. I am personally and officially thankful to the helping hands for their contribution to the community.

Last but not least, I would like to thank all the college staff who helped in our cause, my seniors who guided us to find a right and better path, my juniors for constantly supporting us whenever required. As a Act.President of FSU, I wish you all the best for your upcoming exam. We, as FSU, always try to represent the voice of student and put our effort to shorten the distance between need of students need and the focus of the university and college authority.

Thank you ….

Sagar Lamichhane
Act. President,
Free students union
Lamjung Campus

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