

Model Question 2022

BIM/ First semester/Basic Mathematics

Full Marks: 100, Pass Marks: 50

Time:3 hrs

GROUP'A'(10X2=20)

Brief Answer Question (Attempt all questions)

- 1) If $A = \{1, 2, 3, 4, 5, 6, 7\}$, $B = \{4, 5, 6, 7, 8, 9, 10\}$, then find $A - B$ and $B - A$.
- 2) Express the following complex number into polar form: $Z = 1 + i\sqrt{3}$
- 3) Rewrite the following using absolute value sign $-3 \leq x \leq 9$
- 4) Evaluate: $\lim_{x \rightarrow \infty} \frac{3x^2+3x-1}{2x^2+5x-6}$
- 5) Show that the following pair of vectors are orthogonal $\vec{-3i+3j-2k}$ and $\vec{5i+7j+3k}$ where i, j & k are any vectors.
- 6) Find $\frac{dy}{dx}$ of $x^2 - y^2 = a^2$
- 7) Find $5A^T$, where $A = \begin{matrix} 3 & 2 & 6 \\ 4 & 5 & 7 \end{matrix}$.
- 8) Find the area of curve bounded by x-axis and ordinates of $y = 2x^2$ from $x_1 = 1$ and $x_2 = 2$.
- 9) Solve following differential equation: $\frac{dy}{dx} = 2x + 1$
- 10) Find the value of determinant: $\begin{matrix} 4 & 7 & 2 \\ 4 & 5 & 2 \\ 6 & 4 & 3 \end{matrix}$

GROUP'B' (6X5=30)

Short Answer Question (Attempt any SIX questions)

- 11) (a) Express the following complex number in the form of $a + ib$ and find the modulus $Z = \frac{2-i}{1-i}$
 (b) Find the square roots of complex number $Z = 2 + i2\sqrt{3}$
- 12) A function $f(x)$ is defined as:

$$f(x) = \begin{cases} 2x^2 & \text{for } x < 2 \\ 5 & \text{for } x = 2 \\ 4x & \text{for } x > 2 \end{cases}$$

Is the function continuous at $x = 2$? If not, how can you make it continuous?
- 13) If $x = \frac{ax-2}{x+b}$, $\lim_{x \rightarrow 0} f(x) = 1$ and $\lim_{x \rightarrow \infty} f(x) = 3$, show that $f(6) = 4$.
- 14) Find $\frac{dy}{dx}$ of the following function: (a) $Y = \frac{1}{x+2-\sqrt{x-2}}$ (b) $y = \frac{e^x}{1+x}$
- 15) Evaluate the following integrals:
 (a) $\int \frac{1}{x(1+\log x)} dx$ (b) $\int (x^2 + 1)e^x dx$

16) Prove or disprove the vectors $a + 4b + 3c$, $2a - 3b - 5c$ and $2a + 7b - 3c$ are coplanar, where a , b & c are any vectors.

17) Solve the following homogeneous differential equations:

$$2xy \frac{dy}{dx} = x^2 + y^2$$

GROUP 'C'(3X10=30)

Long Answer Questions (Attempt any THREE questions)

18) In a group of students, 24 read mathematics, 28 read statistics and 22 read economics, 12 read mathematics only, 14 read statistics only, 11 read mathematics and statistics only and 11 read statistics and economics only. How many students read (i) all the subjects (ii) mathematics and economics only (iii) economics only (iv) all together? Represent all the sets in Venn diagram.

19 The following table shows the yearly expenditure of a family:

year	2015	2016	2017	2018	2019	2020	2021
Expenditure (Rs millions)	15	17	18	20	19	21	22

Obtain the equation of line by least square method. Also estimate the expenditure of the family for the years 2022 and 2023.

20) There are three brands of fertilizers, A, B and C in a market. Fertilizer A contains 1 unit of nitrate, 2 units of potash and 3 units of phosphate. Fertilizer B contains 3 units of nitrate, 1 unit of potash and 2 units of phosphate. Fertilizer C contains 2 units of nitrate, 3 units of potash and 1 unit of phosphate. If 11 units of nitrate, 10 units of potash and 9 units of phosphate are necessary for a field, how much each type of fertilizers required for it. (Use Crammer's rule or Inverse matrix method)

21) The demand and supply function under perfect competition are $P_d = 120 - 4Q$ and $P_s = -60 + 5Q$ respectively, where P and Q denote price and quantity. Find the consumer's surplus, producer's surplus and total surplus.

GROUP'D'(1X20=20)

Comprehensive Answer Question

22) Let the total cost function of a firm be given as: $C(x) = 300x - 10x^2 + \frac{1}{3}x^3$, where x is an output.

(i) Find the minimum value of the marginal cost function.

(ii) Find the minimum value of average cost function.

(iii) Find the output at which marginal cost is equal to average cost.

(iv) Show that the marginal cost and average cost are equal at the minimum average cost. (6+6+6+2)

Model Question (IT 232: C Programming)

Group A

Brief answer questions:

Attempt all questions.

(10 X 1=10)

1. Define algorithm.
2. What is preprocessor directive?
3. Differentiate between scanf() and gets()?
4. What is conditional operator?
5. Differentiate between break and exit().
6. How to initialize two-dimensional matrix?
7. What is function prototype?
8. What is the use of double pointer?
9. Differentiate between array and structure.
10. List out the different modes of file in file handling.

Group B

Short Answers Questions

Attempt any five questions.

(5 × 3= 15)

11. Write a program to check if the input given by the user is divisible by 5 or 7.
12. Write a program that uses a while loop to compute and prints the sum of given numbers of cubes. For example, if 3 is input, then the program should print 36, which is equal to $1^3+2^3+3^3$.
13. Write a program to read a line of text and display the number of vowels in it.
14. Write a program that takes string as input and displays the length of it.
15. Write a program to compute the factorial of number entered by the user using recursion.
16. Write a program to draw a triangle using graphics function.

Group C

Long Answer Questions

Attempt any three questions.

(3× 5= 15)

17. Explain the different logical operators in detail.
18. How array can be passed as function arguments? Illustrates with suitable example.
19. What do you mean by dynamic memory allocation? Explain the use of malloc() and free() functions with suitable example.
20. Write a program to create and write N numbers in a file “Number.txt”. Open this file to then read its contents and write all positive numbers in the file “Positive.txt” and all negative numbers in the file “Negative.txt.”

Group D

Comprehensive Questions

Attempt all questions.

(2 × 10 = 20)

21. Why looping is used in programming? Explain different looping statement with appropriate example.
22. What is structure? How is it different from union? Create a structure “Student” having data members name, roll_nmber and percentage. Write a program to display the name of all students having percentage greater than or equal to 80.

Tribhuvan University
Faculty of Management
Model Question 2022

Full Marks- 100
Pass Marks- 50
Time- 3 Hrs.

BIM/ First Semester/ ENG. 201: English - I

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate the full marks.

Group A
Brief Answer Questions. (10×2=20)

- a. What is the general context of "New Nepal"?
- b. Define the term 'imperialism'?
- c. What etiquette should the human being exhibit in the natural world? (*The Etiquette of Freedom*)
- d. Define the terms *metaphor* and *metonymy*. (*Light My Lucky*)
- e. What does the metaphor "Angel in the House" stand for? (*Professions for Women*)
- f. Rewrite the following sentences in direct speech:
 1. Critics said it was likely that the new film would break box-office records.
 2. My doctor told me I'd feel much better if I did some exercise.
- g. Complete the following sentences using the appropriate form of *can/able to*.
 1. Sorry I get out to meet you last night but but I had to babysit for some friends.
 2. One day, we cure many common illnesses.
- h. Give the past participle form of the following irregular verbs:
 1. bite
 2. bring
- i. Write the missing words in the following sentences. The first letters are given.
 1. Heavy rain caused a l..... after many trees on the hillside had been felled.
 2. A severe f..... in the south of the country left thousands starving.
- j. Complete the following sentences in an appropriate way:
 1. If only I go out tonight. The football Cup Final is on TV.
 2. I do wish you more carefully. I've said the same thing three times already.

Group B
Short Answer Questions (Any Six) (6×5=30)

- a. Discuss "Here I Love You" as a love poem. (*Here I Love You*)
- b. Find the odd word and write it down from the following word groups:

1. soundtrack	subtitles	easel
2. canvas	plot	chapter
3. lyrics	tune	sketch
4. clip	premiere	gallery
5. stage	landscape	rehearsal
- c. What gender roles should a daughter perform in Nepal? Explain. (*Girl*)
- d. Has God created the universe in jest or in earnest? Give reasons for your answer. (*Jest and Earnest*)
- e. Explain the moral of the folktale "*The Hundredth Dove*."
- f. Use an appropriate word to complete the inversions in the following sentences:
 1. *No sooner..... the firemen extinguished one forest fire than another started.*

2. *Never before* I been so petrified as when I did a parachute jump.
 3. I suspect tha *only* much later from now we find out the cause of the explosion.
 4. *Little* we know at the moment where the ability to clone humans might lead.
 5. *Under no circumstances* passengers permitted to smoke on the flight.
- g. Complete the following sentences using the correct form of the verbs in brackets.
1. His back was aching because he.....(dig) in the garden all day.
 2.(your father/ work) abroad at present?
 3. Maria left college early today because she(have) a dental appointment an hour ago.
 4. As soon as it stops raining, we(take) the dog for a walk.
 5. My neighbor couldn't stop because his bus (leave) and he didn't want to miss it.

Group C

Long Answer Questions (Any Three) (3×10=30)

- a. You are on the planning committee representing Nepal for an international cultural festival in London. Write a proposal for the festival organizer suggesting what should be included in the festival to represent the culture of Nepal and explaining why you think the aspects you have chosen would be of special interest.
- b. Write a five paragraph essay on "Use of Environment friendly means of Transportation in the 21st Century". Follow the standard essay writing format as discussed in the Writing Guide of *Cambridge Advanced Result* .
- c. How does the speaker move between concepts of freedom and bondage in the poem? Explain "The Parrot in the Cage" as a symbol of Nepalese Society under the Rana Regime. (*The Parrot in the Cage*)
- d. There was a practice of killing street dogs by the Kathmandu Municipality in the past. Now they have stopped doing it. Do you think the policy makers have realized the rights of animals? Explain with reference to the essay you have read. (*The Rights of Animals*)

Group D

Case Studies (6+8+6=20)

Read the following case and answer the question asked below:

Staying tuned in to a customer's concerns is the number one focus of proposal writers at Hewlett-Packard. A proposal today, especially in a global environment, involves more than merely supplying a product. Mary Piecewicz, at Hewlett-Packard, says, "It's more like a marriage between two companies. Before we can write a proposal, we need to be detectives and learn as much as possible about the potential partner." HP begins searching for information. From the customer's annual report, news release, industry reports, and other

sources, HP detectives search for specifics about its products, strategies, and company culture. What hot buttons is the company likely to respond to?

In organizing proposals, HP always responds to the customer's outline. If the customer doesn't specify a plan, proposals are arranged as follows: Section 1 includes the executive summary, which is the most important part of the proposal. It spotlights the hot buttons and the proposal criteria set forth in the request for proposal (RFP). Section 2 covers specifications and technical descriptions. Section 3 lists costs, terms, and conditions. Section 4 presents supplemental literature, including generic resume and staff qualifications. Authorization to proceed is usually discussed after receipt of the proposal. In this way customers are able to negotiate the formal agreement with the sales account manager.

Because of its importance, the executive summary gets special attention. It may open with a brief history of HP, but its primary focus is on the customer's needs. "We address every customer issue and specify our 'differentiators,'" explains Piecewicz. "What makes HP stand out from our competitors? The executive summary is really the selling tool in our proposals, and we spend the most time on it."

Questions:

- i. Why is it Important to become a "detective" before beginning to write a proposal?
- ii. If Hewlett-Packard were preparing a proposal for a Fortune 500 company, what kinds of information, and where should the proposal team investigate? Where could it find such information?
- iii. What is the most important part of an HP proposal, and what should it include?

...The End...

Model Question (IT 231: Foundation of Information Technology)
Group A

Brief answer questions:

Attempt all questions.

(10 × 1=10)

1. List out the characteristics of computer.
2. How information technology affects businesses.
3. What is cache memory?
4. What do you mean by system software?
5. Define protocols in computer in network.
6. Why ftp is used?
7. Define sequential data processing.
8. Define encryption process.
9. Define a database management system.
10. What is cloud computing?

Group B

Short Answers Questions

Attempt any five questions.

(5 × 3= 15)

11. Explain the general-purpose computer with block diagram in brief.
12. Discuss characteristics of third generation of computers.
13. Why cyber law is essential? Explain.
14. Explain about computer bus.
15. What is artificial intelligence? Discuss the application areas of artificial intelligence.
16. Describe the different types of database models in brief.

Group C

Long Answer Questions

Attempt any three questions.

(3× 5= 15)

17. What is primary memory? Discuss the different types of primary memory.
18. What is network topology? Describe the different types of network topology.
19. Define IP address with example. What are the benefits of using domain name?
20. What is multimedia? Discuss the different elements of multimedia system.

Group D

Comprehensive Questions

Attempt all questions.

(2 × 10 = 20)

21. What do you mean by guided and unguided transmission media? Describe the different types of guided and unguided transmission media in brief?
22. What is operating system? List out the different types of operating system. Explain the different functions of operating system.

Faculty of Management

Tribhuvan University

Model Question - 2022

MGT 231: Foundations of Business Management

FM: 100

BBA/ BBM/BIM/ I Semester

Time: 3 hrs

Students are encouraged to give their answers in their own words. Figures in the margin indicate full marks.

Group A

Brief Answer Questions

$10*2 = 20$

1. Who are line managers?
2. Define the term ‘derivative planning’.
3. State any two contributions of Hawthorne studies.
4. List out any four features of the Friedman Doctrine of Social Responsibility.
5. Point out any four techniques to improve effectiveness of decision making.
6. List out two advantages of decentralization of authority.
7. Define organizational culture.
8. Write the full form of PEST, ISO, TQM and QWL.
9. What do you mean by team conflict?
10. State four problems in agriculture sector business in Nepal.

Group B

Short Answer Questions: Attempt any SIX questions

$6*5 = 30$

11. State and explain the basic managerial roles of managers.
12. Describe in brief different roots of unethical behavior in business.
13. Explain in brief the planning process in organization.
14. Explain the importance of organizational culture for business success.
15. What different barriers are common in effective communication? Describe
16. Why there is need of team formulation in any organization? Explain
17. How the challenges can be reduced in service sector business in Nepal? Explain

Group C

Long Answer questions: Attempt any THREE questions

$(3*10 =30)$

18. Managers should not stick on particular theory or principles. Based on the statement, critically evaluate the application of contingency theory of management.

19. Discuss the emerging issues in organization design and architecture adopted by Nepalese organization.
 20. There must be an effective analysis of business environment before starting a business. Michel E. Porter has also suggested a framework for industry analysis. Sketch the application of the Porters' Five Forces model for analyzing the industry.
 21. Critically examine the major problems of Nepalese business.

Group D

Comprehensive question /Case analysis /Situation analysis question (4*5 = 20)

22. Read and analyze the following case carefully and answer the questions given below:

ABC Pvt. Ltd. was established 12 years back in Kathmandu with an initial investment capital of Rs. 16 m. to produce footwear in Nepal. ABC used to import all the raw materials and few from China. Main designers are from India. ABC expanded its business steadily over the years and covered almost all the cities of Nepal and also in India. Its annual turnover was around Rs. 2.7 million last year which was 20% more than the previous year. Except during the major time of Covid-19 pandemic, ABC continued its business.

Mr. Shrestha conducts the executive functions of the company as the General Manager but the company has no departmental managers. All these areas are under the supervision of Mr. Thapa, salaried employee as manager, monthly salary Rs. 30 thousands. He is responsible for overall activities of the company. However, he maintains own filing, secretarial, mailing, and production functions.

A junior level part time staff is in charge for finance and accounting activities of the company. All the decisions regarding purchasing, receiving, storing, account payable, factory payroll, cost accounting, and dispatching are control by Mr. Thapa. There are five office assistants who take care of sales, advertising, credit and accounts receivable but they have no fixed responsibilities.

The General Manager of the company has recently been overwhelmed by the difficulty of obtaining various information and customer care efforts. Whenever information is needed, several different sources must be contacted, and much time is wasted locating the information. The General Manager is also beginning to notice idle equipment in the office and delays in the preparation of important operating reports. Customers have regularly complaining about delay in delivery, wrong delivery of the product they order, and frequent problems in account payments. He also noticed that the employee turnover is increasing.

The General Manager recently had a meeting with all the employees of the company. Many employees expressed their dissatisfaction with Mr. Thapa as he does not consult with

them and they have no direct reporting system. Mr. Thapa claims that there are many issues with individual employee of gossiping and intimidating.

Questions:

- a. What major problem areas can you identify in this case? What can be the probable causes for conflict between Mr. Thapa and other employees? Explain
 - b. Trace the decision making process in ABC. What problems do you diagnose in decision making process? Mention
 - c. Make a SWOT analysis of the business related in the above case.
 - d. Sketch new organizational structure to restructure the organization for solving existing problem.
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