

(1)

int^e ans^e

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Chemistry

Semester: Spring

Year : 2018
Full Marks: 100
Pass Marks: 45
Time : 3hrs. (1)

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Write the mechanism of basic buffer solution giving suitable example. 7
200ml of 0.1M acetic acid is mixed with 400ml of 0.2M sodium acetate solution. calculate the p^H of resulting mixture. ($P^K=4.74$)
 - b) What do you mean by standard hydrogen electrode? How can we determine the standard electrode potential of zinc electrode by using SHE? From the given electrode potential values answer the following : 8
 - i. Write the electrode reaction.
 - ii. Write the cell reaction.
 - iii. Calculate the e.m.f. of the cell at 27°C when both the electrodes are coupled together .
- $E^0 \text{ Mg/Mg}^{++} = + 2.370 \text{ V}$
 $E^0 \text{ Fe/Fe}^{++} = + 0.44 \text{ V}$
 $R = 8.314 \text{ J mol}^{-1} \text{ K}^{-1}$
 $F = 96500 \text{ C}$
- $[\text{Mg}^{++}] = 0.1 \text{ M}$ $[\text{Fe}^{++}] = 0.01 \text{ M}$
2. a) Give reasons for the followings: 8
 - i. TiCl_3 is coloured but TiCl_4 is colourless.
 - ii. Transition elements show variable oxidation state.
 - iii. Zn^{+2} salts are white.
 - iv. Zn is not considered as transition element.
 - b) Define ionization energy. Explain the factors affecting negativity. 7
How electron affinity of chlorine is higher than Fluorine.
 3. a) Define carbocations. How carbocations are stabilized? Write any two 7

1

राजिना शुद्धिकरण सेट अपर्टमेंट

सिलानी ४ पालका

(फोटो योनि) ०६१५२८९५३

(2)

methods of their formation.

- b) What are elimination reactions? Write the mechanism and stereochemistry of E₁ and E₂ reaction. 8
4. a) Write the mechanism of addition polymerization. 5
b) What is condensation polymerization? Write preparation, properties and uses of Nylon 6, 6. 5
c) Compare the properties of raw rubber and vulcanized rubber. 5
5. a) Write the principle and applications of mass spectroscopy. 8
b) What are lubricants? How are they classified? What are the applicants of lubrication? 7
6. a) What is water pollution? Discuss its causes, effects to human health and ways to control it. 8
b) What is hard water? How can it be measured in laboratory? 7
7. Write short notes on: (Any two) 2×5
a) Mechanism of rusting of iron
b) Nitration
c) Ozone layer depletion

(3)

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Chemistry

Semester: Fall

Year : 2018
 Full Marks: 100
 Pass Marks: 45
 Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What do you mean by acidic buffer? Derive Henderson Hasselbalch equation for acidic buffer. Calculate the P^H of 100 ml of 0.4NH₃ solution in which 20ml. of 0.5M HCl is added. ($PK_b = 4.74$) 8
 b) What do you mean by standard hydrogen electrode (SHE)? Calculate the emf of the cell at 25°C. 7
- | | |
|----------------------------------------------------------|-------------------------------------------|
| $E_{Fe^{++}/Fe^{+++}}^0 = +0.44V$
$[Fe^{++}] = 0.5M,$ | $E_{Ag/Ag}^0 = -0.80V$
$[Ag^+] = 0.2m$ |
|----------------------------------------------------------|-------------------------------------------|
2. a) Give reasons: 9
 - i) Second ionization energy is greater than first ionization energy
 - ii) Electron affinity of fluorine is less than chlorine
 - iii) Ionization energy of gallium is higher than aluminium
 - b) Explain why zinc sulphate salt is colorless whereas copper sulphate salt is blue colored. Transition metal compounds are generally paramagnetic in nature, explain it. 6
3. a) What is elimination reaction? Write the mechanism of E₁ and E₂ reaction with one proper example of each. 8
 b) Define free radical. Write the reaction mechanism of free radical addition reaction. 7
 4. a) What is condensation polymerization? Write the preparation, properties and uses of Nylon – 6, 6. 7
 b) Write short note on: 8
 -) Processing of natural rubber
 -) Silicones

- (a) 4
5. a) What is the principle of TLC? Mention its applications in analytical field. 5
b) Define explosive. Give the methods of preparation of TNT and its important uses. 5
c) What are three important raw materials used in the manufacture of cement? Explain reaction mechanism of setting of cement. 5
6. a) What is soil pollution? Discuss its effects on agriculture and living beings. How can it be controlled? 7
b) What are particulates? Classify particulates, and discuss in brief its effects on human. How can we control global warming and particulates? 8
7. Write short notes on: (Any two) 2×5
a) Stereoisomerism
b) Ozone layer Depletion
c) Mass spectroscopy

(5)

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Chemistry

Semester: Spring

Year : 2017
 Full Marks: 100
 Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is buffer solution? Define acidic and basic buffer. How do you calculate the pH value of buffer mixture? Give your answer illustrating Henderson's Equation. Calculate the pH of resulted solution when 100ml of 0.05M HCL is added to 100 ml of 0.1M ammonia?($pkb = 4.74$) 8
 - b) Define electromechanical series with applications. What is the concentration of Ni^{2+} in the cell at $25^{\circ}C$, if the emf is 0.601V? 7
- $Ni(s)|Ni^{2+}(a = ?)||Cu^{2+}(0.75m)|cu(s)$
- Given
- $$E^0 Ni|Ni^{2+} = 0.25V \text{ & } E^0 Cu^{2+}|Cu = 0.34V$$
2. a) Define electron affinity. Explain the factors affecting electron affinity. How electron affinity of Chlorine is higher than Fluorine. 7
 - b) What are transition elements? Zinc and cadmium are not considered as transition metals give reasons. Explain the characteristics properties of transition element with regard to 8
 - i. complex formation
 - ii. oxidation state
3. a) Describe the structure, stability and reactions of carbocation. 8
 - b) Describe S_N1 and $E1$ reaction with mechanism. 7
4. a) Write the preparation, properties and uses of Teflon and Polyvinyl chloride. 8
 - b) What are the demerits of natural rubber? How the properties of it can be improved, explain it. 7
5. a) Give the principle of mass spectroscopy. Write the applications of TLC. 8

- b) What are essential requirements of an explosive? Compare the properties of solid and liquid propellants. 7
6. a) What is green house effect? Describe the photochemistry of ozone layer depletion. 7
- b) Define acid rain and alkalinity. Discuss briefly about source of water pollution, its effects and control measures. 8
7. Write short notes on: (Any two) 2×5
- a) Electronic configuration
- b) Corrotion and its mechanism and control
- c) Principle of paper chromatography

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Chemistry

Semester: Fall

Year : 2017
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

- | | | |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 1. a) | Derive Henderson-Hassel Balch equation for Acidic buffer. What is the pH of 0.50M aqueous NaCN? Pkb for Cyanide ion is 4.70. | 8 |
| b) | Define electrochemical series with applications. Also explain rusting of iron with mechanism. | 7 |
| 2. a) | Define ionization energy. Why second ionization energy is always greater than first ionisation energy? Explain with suitable reason and examples. | 7 |
| b) | Give reasons | 8 |
| | i. Transition elements show paramagnetism | |
| | ii. $[\text{Mn}(\text{OH})_6]^{2+}$ is pale pink, MnO_2 is black and MnO_4^- is intensely purple colour | |
| 3. a) | Define free radicals with formation, structure and stability. | 7 |
| b) | Differentiate SN1 reaction and SN2 reaction in terms of their mechanism. | 8 |
| 4. a) | Write notes on vulcanization, Nylon and Teflon. | 7 |
| b) | Describe the mechanism of condensation and addition polymerization reaction. | 8 |
| 5. a) | Describe the principle of Nuclear Magnetic spectroscopy. | 5 |
| b) | Draw a neat and labeled diagram of Mass Spectrometer. | 5 |
| c) | Describe the chemistry of cement. | 5 |
| 6. a) | Define Ozone layer with its importance. | 5 |
| b) | Show your aquitance with global warming and green house effect. | 5 |
| c) | Write various causes of water pollution. How it can be control. | 5 |
| 7. | Write short notes on: (Any two) | 2×5 |
| a) | Chromatography | |
| b) | Chemical oxygen demand | |
| c) | Optical activity | |

सुगं द्वारा संपादित एड फोटोकमी लिंग
कलकत्ता, महात्मा गांधी नगर
NCIT College

9

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Chemistry

Semester: Spring

Year : 2016
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Define Buffer solution with types and mechanism of working. 7
- b) Define standard electrode potential. The standard reduction potential of Cu^{++}/Cu and Ni^{++}/Ni electrodes are +0.34V and -0.25V respectively. Construct a galvanic cell using these electrodes. Write the cell reaction and calculate the standard emf of the cell. For what concentration of Cu^{++} , the emf will be zero at 25°C if the concentration of the Ni^{++} is 0.01M. 8
2. a) Differentiate between ionization energy and electron affinity. Why and in what ways does lithium resemble magnesium. 8
- b) Give reasons:
 - i. Zinc is not considered as a true transition element.
 - ii. $[\text{Mn}(\text{OH})_6]^{2+}$ is pale pink, MnO_2 is black and MnO_4^- is intensely purple colour.
3. a) Differentiate carbocation and carbanion in terms of formation, structure and stability. 7
- b) Show the detail mechanism and role of solvent of S_N1 reaction and S_N2 reaction. 8
4. a) Write notes on Bakelite, Nylon and polyurethane. 7
- b) Describe the method of processing of Natural rubber and vulcanization. 8
5. a) Describe the principle of mass spectroscopy. Give reason why ¹²C carbon doesn't show NMR phenomenon while ¹³C shows NMR phenomenon though the relative abundances of ¹²C and ¹³C carbon are 98.9% and 1.1% respectively. 8

पुस्तकालय संस्थानी एवं प्रस्तोतामी समिति
१ अमरपुरा रोड ९६४९५९५५२
NICIT College

२०१३-२०२२ वर्ष

ठिकाना ८८१७२
निवास ८८१७२

०६१५१८९५३

- b) Define lubricants and cements with examples. Describe how cement is manufactured in industry. 7
6. a) Define Ozone layer with its importance. Describe how does it forms and depletes. 7
- b) Show your aquitance with cause of water pollution and its effect in human health. What are the control measures of water pollution. 8
7. Write short notes on: (Any two) 2×5
- a) Thin Layer chromatography.
- b) Polymerization
- c) Optical activity

सुगम स्टैंसनरी सञ्चायर्स एण्ड फोटोकपी सर्विस
बालकुमारी, ललितपुर ९८४७५९९५९२
NCIT College

सुगम स्टैंसनरी सञ्चायर्स एण्ड फोटोकपी सर्विस
बालकुमारी, ललितपुर ९८४७५९९५९२
नेपाल

72

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Chemistry

Semester: Fall

Year : 2016
 Full Marks: 100
 Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Write the mechanism of buffer action of a solution containing a mixture of methanoic acid and sodium methanoate. 4+4
 A buffer solution containing 0.4 mol L^{-1} of ammonia solution and 0.6 mol L^{-1} of ammonium chloride has prepared. What will be the pH of this solution after 0.075 M HCl has been added to the buffer. (assume that volume is unchanged K_b for NH_3 solution = 1.8×10^{-5})
 $\text{NH}_3 + \text{H}_2\text{O} \Rightarrow \text{NH}_4^+ + \text{OH}^-$
- b) What do you mean by standard hydrogen electrode? Calculate the emf of the following cell. 4+3
 $\text{Zn(s)/Zn}^{+2}(0.1\text{M})//\text{Cu}^{+2}(1.75\text{M})/\text{Cu(s)}$ at 25°C
 $E^\circ_{\text{Zn}^{+2}/\text{Zn}} = -0.76\text{V}$
 $E^\circ_{\text{Cu}^{+2}/\text{Cu}} = +0.34\text{V}$
 $R = 8.314 \text{ J mol}^{-1}\text{K}^{-1}$
 $F = 96500 \text{ C}$
2. a) Define Ionization Energy. Why second Ionization Energy is greater than first Ionization Energy? Explain it. Discuss the general trend of its value in the period and group in the periodic table. 1+2+4
 b) Give reason . 4x2
 - i. Transition elements form significant number of complexes
 - ii. s-block elements are reducing in nature
 - iii. Transition elements show variable valency
 - iv. Zn^{+2} salts are white
3. a) What are reaction intermediates? Explain the structure and stability of different types of carbocation. 2+2+4
 b) Point out the differences between $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ reactions with suitable

- examples.
4. a) What is polymerization reaction? Write the different types of 2+5
polymerization with suitable examples for each.
- b) Write short notes on: 4×2
- i. PVC
 - ii. Vulcanization of rubber
5. a) Write the procedure involved in mass spectroscopy. How many NMR 5+2
signals would we expect in compound isomers of C_3H_6O .
- b) Write the functions of lubricants. How cement can be manufactured. 2+6
6. a) "Kathmandu is considered as one of the very polluted cities in Asia". 7
Discuss its causes, effects to human health and ways to control it.
- b) What are the causes of Hardness of water? How it can be measured in 2+6
the laboratory. Describe it.
7. Write short notes on: (Any two) 2×5
- a) Ozone layer depletion
 - b) Markovnikoff's rule
 - c) Thermoplastics and Thermosetting plastics

23

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Chemistry

Semester: Spring

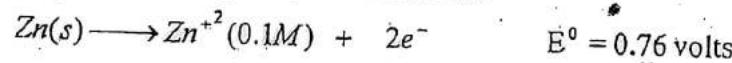
Year : 2015
 Full Marks: 100
 Pass Marks: 45
 Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is buffer solution? Write mechanism to show acid buffer solution of benzoic acid and sodium benzoate maintains its P^H constant even after addition of few drop of strong acid or base. Find the P^H of buffer solution which contains 0.1M potassium acetate and 0.2M of acetic acid with 2 % degree of dissociation. What will be changed in PH after addition of 2×10^{-3} M KOH solution. (K_a of acetic acid = 1.8×10^{-5})
- b) How does zinc metal produce single electrode potential? Use SHE to determine single electrode potential copper. Calculate the emf of the cell at 300K from given pairs of half cells.



2. a) Give reasons for the followings:
- TiCl₃ is coloured but TiCl₄ is colourless.
 - Transition elements show variable oxidation state.
 - Zn⁺² salts are white.
 - Cu is not considered as transition element.
- b) Define ionization energy. Explain the factors affecting negativity. How electron affinity of chlorine is higher than Fluorine.
3. a) What is Elimination reaction? Differentiate between E₁ and E₂ reaction with suitable reaction mechanism.
- b) How carbocation are produced? Explain their types along with stability order.

- (v)
4. a) What is polymerization reaction? Write the different types of polymerization with suitable examples for each. 8
b) Explain briefly: 7
- a) PVC
 - b) Vulcanization of rubber
5. a) What is the principle fractional distillation? Write its applications. 5
b) Write properties, preparation and uses of TNT and TNG. 5
c) Mention chemistry and setting mechanism of cements. 5
6. a) What is ozone layer depletion? Mention causes, hazardous affects and control measures of global warming. 8
b) Define alkalinity of water. How is it measure in the laboratory? 7
7. Write short notes on: (Any two) 2×5
- a) Corrosion
 - b) Nitration
 - c) Thermoplastics and Thermosetting plastics

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Chemistry

Semester: Fall

Year : 2015
 Full Marks: 100
 Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Define Single electrode potential. How do you determine the single electrode potential of Ag - electrode experimentally? Explain. Calculate the emf of the cell at 27°C when given electrodes are coupled together. 2+3+3
- $$\text{Zn} \rightarrow \text{Zn}^{++} + 2e^{\ominus} E^{\ominus} = +0.76V$$
- $$\text{Ag} \rightarrow \text{Ag}^+ + 2e^{\ominus} E^{\ominus} = -0.80V$$
- $$R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}, [\text{Zn}^{++}] = 0.2M, [\text{Ag}^+] = 0.1M$$
- b) Define buffer solution. How does basic buffer resist the change in pH on adding few drops of acid and base? The pH of a buffer solution containing 0.5 mol/lit CH₃COOH and 0.5 mol/lit CH₃COONa is found to be 4.76. What will be the pH of this solution after adding 0.1 mol/lit HCl. Assume that the volume is unchanged. (K_a=1.75x10⁻⁵) 7
2. a) Give reasons for the followings: 8
- i. TiCl₃ is coloured but TiCl₄ is colourless.
 - ii. Transition elements show variable oxidation state.
 - iii. Zn⁺² salts are white.
 - iv. Cu is not considered as transition element.
- b) Differentiate between Electron affinity and Electronegativity. Explain the factor affecting the Ionization potential. 7

OR

What are representative elements? Write their properties.

3. a) What are enantiomers and diasteriomers? Write the characteristics of enantiomers. What are free radicals? Explain the factors that stabilize the free radicals. 8

- b) What are Electrophile and Nucleophiles? Write the product and mechanism of the following chemical reactions. 7
- $CH_3 - CH = CH_2 + HBr \xrightarrow{R-O-O-R}$
 - $(CH_3)_3C - Br + NaOH(aq) \longrightarrow$
 - $C_6H_6 + \text{Conc. } HNO_3 \xrightarrow{\text{Conc. } H_2SO_4}$
4. a) What is polymerization reaction? Write the different types of polymerization with suitable examples for each. 8
- b) Write short notes on: 7
- PVC
 - Vulcanization of rubber
5. a) What is the principle behind mass spectroscopy? Show your acquaintance to parent peak and base peak. 8
- b) What are lubricants? Explain different kinds of lubricants with example. 7
6. a) What are the causes of water pollution? Mention its effect on human health and also explain its controlling measures 8
- b) Define air pollution. What are the factors responsible for ozone layer depletion and what are its hazardous effect? Give your opinion. 7
7. Write short notes on: (Any two) 2×5
- Corrosion
 - Nitration
 - Thermoplastics and Thermosetting plastics

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Chemistry

Semester: Spring

Year : 2014
 Full Marks: 100
 Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is buffer solution? Write the mechanism of buffer action of acidic buffer with suitable example. Calculate the pH of buffer solution containing 400 ml. of 0.3 M acetic acid and 200 ml of 0.6 M sodium acetate (K_a of acetic acid is 1.8×10^{-5}) 7
- b) What do you mean by standard hydrogen electrode? Calculate the emf of the following cell 8
 $Zn(s)/Zn^{+2}(0.1M)//Cu^{+2}(1.75M)/Cu(s)$ at $25^\circ C$
 $E^\circ_{Zn^{+2}/Zn} = -0.76V$
 $E^\circ_{Cu^{+2}/Cu} = +0.34V$
 $R = 8.314 \text{ J mol}^{-1} \text{ K}^{-1}$
 $F = 96500 \text{ C}$
2. a) Give reasons for the followings 8
 - i. $TiCl_3$ is coloured but $TiCl_4$ is colourless.
 - ii. Transition elements show variable oxidation state.
 - iii. Zn^{+2} salts are white.
 - iv. Cu is not considered as transition element.
 b) Define ionization energy. Explain the factors affecting negativity. How electron affinity of chlorine is higher than Fluorine. 7
3. a) What are reaction intermediates? Explain the structure and stability of different types of carbocation. 8
- b) What is SN1 reaction? Give reaction mechanism and stereochemistry of SN1 reaction in given reaction 7
 $(CH_3)_3CX + NaOH(aq.) \rightarrow (CH_3)_3C-OH + NaX$
4. a) What is polymerization reaction? Write the different types of polymerization with suitable examples for each. 8

5. b) What is rubber? Write the process of vulcanization of rubber. 7
5. a) Write principle and important applications of mass spectroscopy in analytical field. Write the applications of TLC 8
6. b) What is explosive? Give the methods of preparation of TNT and its important uses. 7
6. a) What is ozone layer depletion? Write its adverse effect to living beings? Describe its photochemistry 8
6. b) Define water pollution. Discuss briefly about its sources, effects and control methods 7
7. Write short notes on: (Any two) 2×5
7. a) Corrosion, its types and prevention
7. b) Difference between E₁&E₂ reactions
7. c) Thermoplastics and Thermosetting Plastics

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Chemistry

Semester: Fall

Year : 2014
 Full Marks: 100
 Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

- | | | |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1. a) | Define buffer solution Explain the mechanism of acidic buffer solution. Calculate the pH of a buffer solution prepared by mixing 400 ml of 0.5M sodium acetate and 800 ml of 0.1M acetic acid which is 1.3% ionized in dilute solution. | 8 |
| b) | What is standard hydrogen electrode? How can we determine the standard electrode potential of zinc electrode by using SHE? Determine the reduction potential of zinc electrode when it is dipped in to 0.1M $ZnSO_4$ solution at $25^\circ C$. Given standard oxidation potential of Zinc is 0.76 V. | 7 |
| 2. a) | Explain why ionization energy value of an ion increases as number of positive charge increases. Discuss the factors affecting its value . | 7 |
| b) | Give reasons: | |
| i. | Transition elements show variable oxidation states. | 8 |
| ii. | Mn can form complex compounds but not Mg. | |
| iii. | Zn is not considered as true transition element. | |
| iv. | Transition elements are mostly paramagnetic. | |
| 3. a) | Describe the reaction mechanism and stereochemistry of SN^1 reaction taking suitable example. What are the factors governing the rate of SN^1 and SN^2 reaction? | 8 |
| b) | Define carbocation. How are carbocations stabilized? Write any two methods of their formation. | 7 |
| 4. a) | Explain the procedures involved in the preparation of rubber. What do you mean by vulcanization of rubber? | 7 |

OR

Point out the major limitations of Bohr's atomic theory. Derive an

- expression so as to calculate the radius of Bohr's third orbit of H-atom.
- b) Write the preparation, properties and uses of PVC. Write the point of differences between thermosetting & thermoplastic polymer. 8
5. a) Explain the principle, and procedures involved for the separation of mixtures by thin layer chromatography. 8

OR

Define hybridization. Explain the formation of CH_4 molecule on the basis of hybridization. What is the cause of variation of bond angles between CH_4 , H_2O and NH_3 molecules?

- b) What are lubricants? How are they classified? Write down their uses. 7

OR

What is metallic bonding? How does electron sea model of metallic bonding explain the metallic properties like metallic luster, thermal and electrical conductivity?

6. a) What is ozone layer depletion? Mention the main causes of it. Explain the consequences of ozone layer depletion. What should be done to control it? 8
- b) What are the causes of hardness of water? How can it be measured in the laboratory? Describe it. 7

7. Write short notes on: (Any two)

- a) Corrosion, its types and prevention 2×5
- b) Acid rain
- c) Markovnikoff's rule

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Chemistry

Semester: Spring

Year : 2013
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Write the mechanism of buffer action of a solution containing a mixture of benzoic acid and sodium benzoate. Calculate the PH of 500ml of a buffer solution containing 0.2M ammonium sulphate and 0.3M ammonia which is 2.1% ionized in dilute solution. 7
- b) What do you mean by standard electrode potential? How single electrode is potential originated? Calculate the emf of the following cell at 25°C $\text{Zn}/\text{Zn}^{++}(0.01\text{M})/\text// \text{Cu}^{++}(0.1\text{M})/\text{Cu}$. 8
 Given,
 $E^{\circ} \text{Zn}/\text{Zn}^{++} = 0.76\text{V}$
 $E^{\circ} \text{cu}/\text{Cu}^{++} = -0.34\text{V}$
 $R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}, F = 96500\text{C}$

प्राप्त स्टेनरी समाचारी एवं फोटोली संस्था
 काल्पनिक संस्कृत १५८७९९५९५९२
 NEET College
2. a) Give reasons 8
 - i. Transition elements form significant number of complexes.
 - ii. TiCl_3 compounds are coloured but those of TiCl_4 are colorless.
 - iii. Zn is not considered as true transition elements
 - iv. Transition elements show variable valency.
- b) Define Ionization Energy. Explain the factors affecting electronegativity? Why electron affinity of chlorine is higher than fluorine? 7
3. a) How do enantiomers differ from diastereomers? Differentiate between carbocations and carbonanions within their stability. 7
- b) What are elimination reactions? Write the mechanism of E_1 and E_2 reactions giving suitable examples. 8

4. a) Explain addition polymerization. How it differs from condensation polymerization? 7
 b) Write short notes on : 8
 i. Vulcanization of rubber
 ii. Nylon 6,6

OR

Explain de-Broglie's Principle of dual nature of electron. Calculate the radius of the orbit of electron of Hydrogen atom which is in the 3rd energy level.(mass of electron= 9.1091×10^{-31} kg, Plank's constant, $h=6.62 \times 10^{-34}$ Js, permittivity, $\epsilon_0 = 8.85 \times 10^{-12}$ kg⁻¹m⁻³A², charge on electron, $e=1.6 \times 10^{-19}$ C)

5. a) What do you mean by Paper chromatography? Explain briefly, how it can be used for analyzing solutes present in the given sample 7

OR

Explain the following:

- i. The compound having metallic bonds are good conductor of heat and electricity. 7
 - ii. Covalent bonds are directional in nature
 - iii. H₂O exist as liquid but H₂s as gas at room temperature
 - iv. Contraction of water takes place up to 4°C
- b) What are lubricants? Give its functions. Give the preparation method and uses of TNT. 8

OR

Differentiate between Molecular Orbital Theory with Valence Bond Theory. Write the characteristics of S-block elements. 8

6. a) What are the causes of air pollution? Write its impact on human health. Also mention its controlling measures. 7
 b) Define hardness of water. How it is estimated in the laboratory? 8
 7. Write short notes on: (Any Two) 2×5
- a) Corrosion
 - b) Ozone layer depletion
 - c) Green house effect and global warming.

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Chemistry

Semester: Fall

Year : 2013

Full Marks: 100

Pass Marks: 45

Time : 3 hrs.

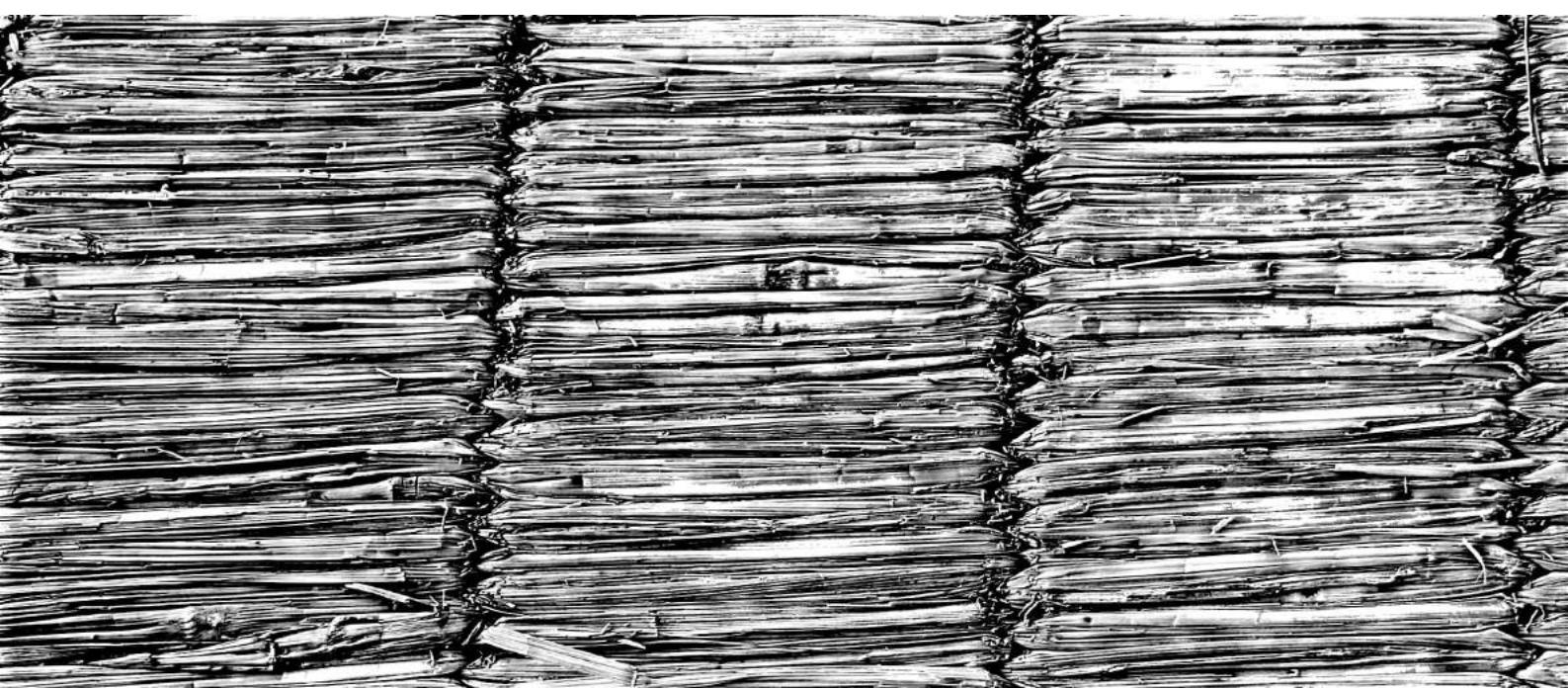
Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks. युग्म स्टेनरी सप्लाईर्स एण्ड फोटोकॉमी सर्विस
 बालकुमारी, ललितपुर ९८४९५९९९२
 NCIT College

1. a) Write the buffer mechanism of basic buffer solution giving suitable example. Calculate the pH of the solution formed by mixing 500 ml of 0.2 M acetic acid to 500 ml of 0.4 M sodium acetate. Also calculate the pH of resulting solution when 1 ml of 1M HCl is added to the above solution. pKa for acetic acid is 4.74. 8
- b) How is single electrode potential of Cu electrode measured experimentally? From the given electrode potential values answer the following: 7
 - i. Write the electrode reactions.
 - ii. Write the cell reaction.
 - iii. Calculate the e.m.f. of the cell at 27°C when both the electrodes are coupled together

$E^0_{\text{Mg/Mg}^{++}} = +2.370 \text{ v}$,
 $E^0_{\text{Fe/Fe}^{++}} = +0.440 \text{ v}$
 $R=8.314 \text{ J mol}^{-1} \text{ K}^{-1}$
 $F=96500 \text{ C}$
 $[\text{Mg}^{++}] = 0.1 \text{ M}, [\text{Fe}^{++}] = 0.01 \text{ M}$
2. a) Give reasons: 8
 - i. Ionisation energy of nitrogen is greater than oxygen.
 - ii. Electron affinity of chlorine is higher than fluorine.
 - iii. Electro negativity of 'Ga' is higher than 'Al'.
 - iv. Atomic radii go on increasing while moving top to bottom in a group.
- b) Explain why zinc sulphate salt is colorless whereas copper sulphate salt is colorful in nature. Why are transition elements mostly 7

- paramagnetic? Explain. 3
3. a) Differentiate between enantiomers and diasteriomers with examples. 7
What are carbocations? 3° carbocations are more stable than 2° carbocations why? 3
- b) What are elimination reactions? Write the mechanism of E_2 reaction giving suitable example. 8
4. a) Write the mechanism of addition polymerization with example. Give the preparation, properties and uses of nylon 66. 7 4
- b) Show your acquaintance on: 8
i. Vulcanization of rubber
ii. Nylon 6,6.
5. a) Write the procedure involved in TLC. How many NMR signals would you expect in following compounds: 8 5
i. $CH_3 - O - CH_3$
ii. CH_3CH_2OH
- b) How cement can be manufactured? Write the stepwise chemical reaction involved during setting of cement. 7
6. a) Define water pollution. Mention and explain the causes and effects of water pollution. What can be done to control it? 7 6
- b) What are green house gases? How are these gases responsible for global warming? Explain the effects of global warming and how can it be controlled? 8
7. Write short notes on: (Any two) 2×5 7
a) Electrochemical series
b) Determination of hardness of water.
c) Bakelite.



POKHARA UNIVERSITY

Level: Bachelor

Programme: BE

Course: Programming in C

Semester: Spring

Year : 2018

Full Marks: 100

Pass Marks: 45

Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Draw block diagram of a digital computer. Explain each component in brief. 7
- b) Define the role of flow chart in efficient program maintenance with its character. Also develop a flow chart to print the Armstrong numbers between 150 to 500. 8
2. a) How can you declare following variables using suitable data types? Mobile phone numbers, address, body temperature, salary. Also explain each memory occupancy size and range. 8
- b) Why you use "continue" and "break" statement in your program? Explain with suitable example program. 7
3. a) Differentiate pre-test and post-test loop. Write a program to generate Fibonacci numbers as per user's choice. 7
- b) Write a program to read a one dimensional array, sort the numbers in ascending order and display sorted numbers. 8
4. a) Write a program to add two 3x3 matrix. Display the sum stored in third matrix. 7
- b) List the major advantages of recursive function. Write a recursive program to generate the 10 terms Fibonacci sequence starting from 2. 8
5. a) What are the advantages of using dynamic memory allocation over static memory allocation? Explain with a suitable example program. 8
- b) How can a function return multiple values? Explain with example. 7
6. a) Write a program to sort N numbers in an array dynamically. 7
- b) What is significance of file pointer in file handling? Consider a following structure 8

Roll. No.	Name	Address	Faculty	Date Of Birth		
				mm	dd	yy

Write a program to create "student.txt" file to store the above records for 100 students. Also display these records of students who are not from Kathmandu.

7. Write short notes on (Any Two):

- a) Documentation
- b) void pointer
- c) Generation of Computers.

2×5

POKHARA UNIVERSITY

Level: Bachelor

Programme: BE

Course: Programming in C

Semester: Fall

Year : 2018

Full Marks: 100

Pass Marks: 45

Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is computer software? Explain different types of software used in today's life. 7
- b) Write algorithm and draw flowchart to generate Fibonacci sequence of eight terms. 8
2. a) What are different data types available in C? Explain their type's qualifier, conversion character, range of value and storage size in memory occupied by each type. 7
- b) Differentiate between break and continue statements with a suitable example program. 8
3. a) What do you mean by function? Differentiate between function call by value and call by reference with suitable program. 7
- b) Write a menu driven program to work following cases, take appropriate input wherever required. 8
 - i. Reverse a number
 - ii. Find sum of individual digit
 - iii. Check for prime
 - iv. Exit
4. a) What is dynamic memory allocation? Explain different functions used in dynamic memory allocation. 7
- b) Describe string. Explain any three string handling function with examples. 8
5. a) Why array is import in programming? How can you initialize different types of arrays? Explain 2-dimensional array in C. 7
- b) What is a function prototype? Find the sum of first n natural number using recursive function. 8

OR

What are pre-processor directives? Differentiate between macro and function with describing necessary example.

6. a) Differentiate between local and global variable. Write a program to illustrate the use of static variable. 7
b) Write a program to create structure for the following data for cricket game. (Country name, Player name, playing type (e.g. batting, balling or both), Number of matches played by player and salary). Save the information in a file named "cricket.txt" and display the information of those players who had played more than 10 matches. 8
7. Write short notes on: (Any two) 2×5
- a) Program testing and debugging
 - b) Operator Precedence and Associativity
 - c) Software Development Life Cycle

POKHARA UNIVERSITY

Level: Bachelor Semester: Spring Year : 2017
 Programme: BE Full Marks: 100
 Course: Programming in C Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

- | | | |
|----|--------------------------------------------------------------------------------------------------------------------------|-----|
| 1. | a) Why C is called structured programming language? Compare and contrast High level language and Low level language. | 7 |
| | b) What do you mean by algorithm and flow chart? Write an algorithm and flow chart to find palindrome of given number. | 8 |
| 2. | a) Why it is necessary to have a knowledge of data type in programming. Explain all types of datatype available in C. | 7 |
| | b) What is an array? Write a C program using array to find largest and smallest number from a list of 100 given numbers. | 8 |
| 3. | a) Define Recursion. Write a program to find sum of n natural number using recursion. | 7 |
| | b) Differentiate between switch and nested if else statements with a suitable example. | 3 |
| 4. | a) Explain call by value and call by pointer with suitable example. | 7 |
| | b) What is DMA? Write a program to find sum of 5 numbers supplied by user using DMA. | 8 |
| 5. | a) Differentiate between call by value and call by references with code examples. | 8 |
| | b) Differentiate structure and union. How the members of structure are accessed? Show it with example. | 7 |
| 6. | a) What do you mean by selective and repetitive statement? Why do we need break and continue statement. | 7 |
| | b) Write a program to generate all prime numbers from 1 to 200. | 8 |
| 7. | Write short notes on: (Any two) | 2×5 |
| | a) SDLC | |
| | b) Storage Classes in C | |
| | c) String handling Function | |

31

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2017
Programme: BE Full Marks: 100
Course: Programming in C Pass Marks: 45
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What do you mean by programming language? Discuss on machine language, assembly language and high-level language. 7
- b) Define algorithm and flowchart. Draw a flowchart to read 3 numbers from the user and find the smallest one. 8
2. a) What is an operator? Explain the conditional operator with suitable example. 7
- b) What are control statements? Differentiate between while and do while loops with suitable example. 8
3. a) Write a program to print the following pattern. 7
1:
1 2
1 2 3
.....
कृष्ण देवार्थी संस्कृत महाविद्यालय नेपाल
कल्पाता पोखरी ३५७१७७३२
KCIT College
- b) How can you initialize an one dimensional array? Write a program to search an element in one-dimensional array containing five integer elements. 8
4. a) Does a function return multiple values? When and how a function will return single or multiple values, illustrate with suitable examples. 8
- b) How arguments are passed by using call by value and call by references? Explain with examples. 7
5. a) Explain the relationship between arrays and pointers. How can a pointer variable be used to access and modify single-dimensional and multidimensional arrays? 7
- b) How do you define and use double indirection pointers, pointer to array and array of pointers? Give examples codes. 8
6. a) How do you declare and initialize array of structure variables? How is 8

- b) structure different from Union? Give example codes.
- b) What are the different modes of opening a file? Write a program to create a file "hello.txt", write data info the fine and finally read the data from the file 7
7. Write short notes on: (Any two) 2x5
- a) Dynamic Memory Management
 - b) String Handling Functions
 - c) Self-referential Structure

कुण्डली तांजानी प्रृष्ठ लेटेक्सी इन्हिं
चालकुण्डा, चालकुण्डा, राजस्थान ७०१००२
NCIT College

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BB
 Course: Programming in C

Semester: Fall

Year : 2016

Full Marks: 100

Pass Marks: 45

Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What are functional difference between primary and secondary memory? Explain the function of control unit with the help of block diagram of digital computer. 3+2+3
- b) Define the role of flow chart in efficient program maintenance with its character. Also develop a flow chart to print the even numbers between 150 to 500. 3+4
2. a) What is an operator? Explain the arithmetic, relational, logical and assignment operators in C language. 2+5
- b) Explain entry controlled and exit controlled loops with examples. 4+4
Compare continue and break statements.
3. a) Why array is called static data type? Write a program to find sum of diagonal elements of $m \times n$ matrix. 2+6
- b) Define string. Explain the string handling function with suitable example. 2+5
4. a) List the major advantages of recursive function. Write a recursive program to generate the 10 terms Fibonacci sequence starting from 2. 2+6
- b) What do you mean by storage class? Define its types with suitable examples. 2+5
5. a) Write a program to sort the array using dynamic memory allocation. 2+3
- b) Differentiate pass by value and pass by reference with suitable example. 7
6. a) Write a program to create structure for the following data for student (RM, Name, phone, address and semester). Read the 10 students by user and write only those students whose semester is 1 in file "student.txt". 3

- b) Differentiate structure and union. How the members of Nested Structure are accessed? Show it with example. 7
7. Write short notes on (Any two) 2×5
- a) Void pointer
 - b) Escape Sequence
 - c) Go to statement.

POKHARA UNIVERSITY

Level: Bachelor Semester: Spring Year : 2016
 Programme: BE Full Marks: 100
 Course: Programming in C Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is programming language? Why is High Level Language (HLL) preferred to Low Level language (LLL)? 7
- b) What is the significance of algorithm and flowchart in programming? Write an algorithm and draw a neat flowchart to input a number and check it is palindrome number or not. [Note: Palindrome number remains same even after its reverse such as 989] 8
2. a) What is operator? Describe about the unary operator, binary operator and ternary operator with examples. 7
- b) Differentiate between while loop and do while loop. Write a program to print the sum of the digits of a number. 3
3. a) Why are functions used? Explain function call by value and call by reference with examples. 7
- b) Define function, function definition, function calling, function declaration with code example. 8
4. a) Define local variables and global variables. Explain different storage classes with examples. 7
- b) How dynamic memory allocation can be achieved? Explain with a suitable example. What are the 'advantages' of dynamic memory allocation? 8
5. a) What do you mean by array? How can you initialize one dimensional array at compile time and at run-time? Explain with suitable example. 7
- b) Use recursive function calls to evaluate:

$$f(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$$
 8
6. a) What is menu driven structure explain with suitable programs. 7

- 5) Why is file handling necessary in C programming? Write a program to input name, address, faculty, program and GPA (in maximum 4.0) of 500 students and store them in 'RESULT.DAT' data file and display the records of those students whose faculty is 'Engineering' and GPA > 3.5. 8
- 6) Write short notes on: (Any two) 2×5
- a) The Pointer arithmetic
 - b) Differences between structure and union
 - c) Testing and debugging

मुमुक्षु विद्यालय का प्रश्नपत्र
वारकरापुर १८७५१९९९२
MCIT College

३४

PO KHARA UNIVERSITY.

Level: Bachelor	Semester: Spring	Year : 2015
Programmer: BE		Full Marks: 100
Course: Programming in C		Pass Marks: 45
		Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is programming language? Differentiate between high level language and low level language. 7
- b) Write the significance of algorithm and flowchart in programming. Draw a neat flowchart to input a number and check it is prime number or not. 8
2. a) Describe the output generated by each of the following programs. 7

```
#include <stdio.h>
int a = 100, b = 200;
```

```
int funct1 (int c);
```

```
main ()
```

```
{
```

```
int count, c;
```

```
for (count = 1; count <= 10; ++count) {
```

```
c = 4 * count;
```

```
printf ("%d", funct1 (c));
```

```
}
```

```
funct1 (int x)
```

```
{
```

```
int c;
```

```
c = (x < 30)? (a - x) : (b + x);
```

```
return(c);
```

- b) An electricity board charges according to the following rates. 8

For the first 100 units ----- Rs. 40 per unit

For the next 200 units ----- Rs. 50 per unit

Beyond 300 units ----- Rs. 60 per unit

All users are also charged 'meter charge', which is equal to Rs. 50. Write a complete C program to read the number of units consumed and print out the total charges.

3. a) What do you mean by array? How can you initialize one dimensional array at compile time and at run time? Explain with suitable example. 3
 b) Why are functions used? Explain function call by value and call by reference with examples. 7
4. a) What do you mean by dynamic memory allocation? Explain about memory leak? 7
 b) What is nested structure? Write a program to input the following records of any 50 employees using structure and display them properly. 8

Name	Address	Post	Salary	Date of Appointment		
				Month	Day	Year

5. a) What are the different file opening modes in C? Write a program to input name, address, registration no, faculty and academic year of admission in university of 'n' number of students of Pokhara University and append them in a data file called 'STUDENT.DAT'. Then display the records of those students by reading the records from 'STUDENT.DAT' data file who got admission in 2016. 8
 b) How dynamic memory allocation can be achieved? Explain with a suitable example. What are the advantages of dynamic memory allocation? 7
6. a) Use recursive function calls to evaluate: 8

$$f(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$$

- b) What is 2-D array? Write a program in C to read the elements of a 3*4 matrix and find the biggest and smallest element of the matrix. 7
7. Write short notes on: (Any two) 2×5
- a) Pseudo code
 b) Self-referential structure
 c) Macro

POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2015

Programme: BE

Full Marks: 100

Course: Programming in C

Pass Marks: 45

Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

- | | | |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1. a) | What is a flowchart? Write an algorithm and draw a flowchart to display whether a number is prime or not. | 7 |
| b) | Why header files in C is included in program? Give reasons. Also list out different header files you know. Illustrate the program showing the use of header file. | 8 |
| 2. a) | Define operator in c. List out different types of operators used in c. Explain three of them with example. | 7 |
| b) | An electricity board charges according to the following rates
For the first 100 units ----- Rs 40 Per Unit
For the next 200 units ----- Rs 50 Per Unit
For the Beyond 300 units ----- Rs 60 Per Unit
All users are also charge meter charge, which is equal to Rs 50. Write a program to read number of units consumed and print out the total charges. | 8 |
| 3. a) | Write a program to read a matrix and find the sum of all the digits in its main diagonal. | 7 |
| b) | Define function prototype? Write a program to read an integer number and find the sum of its digits using recursive function. | 8 |

OR

- | | | |
|-------|---------------------------------------------------------------------------------------------------------------------------------------|---|
| 4. a) | What is pre-processor directives? Differentiate between macro and function with describing necessary example. | 7 |
| b) | What is pointer? Explain memory allocation in C programming. Why dynamic memory allocation is better? | 8 |
| b) | Write a program using pointers to read in an array of integers. Next add the elements in the array and display the sum on the screen. | 8 |

5. a) Define structure and union. Explain way of declaring and accessing member of them with suitable example. 7
- b) Write a program to read the name, author, and price of 500 books in a library from the file "Library.dat". Now print the book name and price of those books whose price is above Rs. 300. 8
6. a) What do you mean by nested structure? Write a program to explain nested structure. 5
- b) Find the output

```
void fun(int *p);
void main()
{
    int x=4;
    printf("%d\n",x);
    fun(&x);
    printf("%d\n",x);
}
fun(int *p)
{
    *p=*p/2+13;
}
```

 5
- c) Differentiate between user defined and library functions with suitable examples. 5
7. Write short notes on: (Any two) 2×5
- a) Switch case statement.
- b) Binary and unary operators.
- c) File opening in C.

24

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Programming in C

Semester: Spring

Year : 2014
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

- | | | |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1. | a) With the help of block diagram of digital computer explain the function of control unit and Memory unit. | 8 |
| | b) What are rules for naming identifier? Why we need different data types in programming? Differentiate between local and global variables with suitable example. | 7 |
| 2. | a) What is the importance of documentation in programming? Write an algorithm and draw a flowchart to find and output all the roots of a quadratic equation, for non-zero coefficients. In case of errors program should report suitable error message. | 8 |
| | b) What do you mean by entry controlled an exit controlled loop? Explain different types of looping constructs available in C with suitable examples. | 7 |
| 3. | a) Why array is important in programming? How can you initialize different types of arrays? Explain 2-dimensional array in C. | 7 |
| | b) Define String. Write a program to read n employees names and display them in alphabetical order. | 8 |
| 4. | a) What is recursive function? Write a recursive program to generate the first 15 numbers of Fibonacci sequence. | 7 |
| | b) What do you mean by storage class? Define its types with suitable examples. | 8 |
| 5. | a) What are the advantages of function call-by - * reference over call-by-value? How would you pass a variable by reference to a function? Give an example. | 8 |
| | b) What is Pointer? How does a pointer differ from an array? Explain dynamic memory allocation. | 7 |

- 4
6. a) What is nested structure? Create a structure called book having member name, price, author and published date in day, month and year. Write a program to read 100 books information from the user and display these books having price is greater than 250. 8
- b) What is a significance of FILE pointer? Describe the different file opening modes in C. 7
7. Write short notes on: (Any two) 2x5
- a) Goto statement.
 - b) String handling functions.
 - c) Unary operations.

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2014
Programme: BE Full Marks: 100
Course: Programming in C Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What do you mean by programming language? Explain all types of programming language with examples. 2+5
- b) Discuss the significance of Algorithm and Flow chart in programming. Draw a flow chart for finding greatest digit for the supplied number by the user. 3+5
2. a) Define the following terms with suitable example 6
 - i. Statement
 - ii. Token
 - iii. Format specifier
- b) Explain break and continue statement with example 4
- c) What is nested loop? Write a program to generate Fibonacci series up to n^{th} term. 5
3. a) What is String? Write a program to sort n students name in alphabetical order. 8
- b) Write a program to read n number from keyboard and find the smallest and largest number using array. 7
4. a) Define prototype. Which method of function call you should prefer to swap two integer values illustrate with the help of program. 8
- b) Explain different types of storage classes available in C. Use examples to illustrate. 7
5. a) Write a program to sort (ascending order) n integer values in an array using pointer. 8
- b) What is a pointer variable? How memory of a variable can be initialized dynamically? Explain with example. 7
6. a) Define a structure called 'football' that will describe the following 8

information:
player name
country name
number of goal scored.

Using football, declare an array player with 50 elements and write a program to read the information about all the 50 players and print a country-wise list containing names of players with their number of goals scored.

- b) What is significance of file pointer in file handling? Consider a following structure

Roll. No.	Name	Address	Faculty	Date Of Birth		
				mm	dd	yy

Write a program to create "student.txt" file to store the above records for 100 students. Also display these records of students who are not from Pokhara.

7. Write short notes on: (Any two)

- a) Goto statement
- b) Pointer to Array
- c) Void pointer

7

2x5

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Programming in C

Semester: Spring

Year : 2013
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What do you mean by Programming language? Explain different types of programming languages. 7
- b) What is the purpose of qualifiers register and volatile? Describe four basic data types. How could you extend the range of values they represent? 8
2. a) What do you mean by Algorithm and Flowchart? Explain the C compilation process in brief. 7
- b) Write a program to display the following menu:
Menu
 - i. conversion of ASCII code to char
 - ii. to find sum of n natural numbers
 - iii. Exit from programand to perform task as per user's choice repeatedly until his/her Choice is to exit. 8
3. a) List different String handling functions in C. Write a program to check whether the given string is palindrome or not. (Palindrome is a word which reads same from left to right and right to left. For e.g. LIRIL, MADAM etc.) 7
- b) What is an array? Why do we use array in programming language? Write a program to find sum of all elements of a 3×3 matrix. 8
4. a) Explain different types of storage classes in C. 8
- b) What is a recursive function? Write a recursive program to calculate factorial of a given number using recursive function. 7
5. a) Write a program using pointers to read in an array of integers and print its elements in reverse order. 5

5

- b) Below are two different definitions of the function search().

i. void search(int * m[], int x)
 {
 }
 ii. void search(int * m, int x)
 {
 }

Are they equivalent? Explain.

5

- c) Write the output:

```
void main()  

{  

    int m[2];  

    int *p=m;  

    m[0]=100;  

    m[1]=200;  

    printf("%d %d", ++p, *p);  

}
```

8

6. a) Given a structure of employee

Name	Address	Telephone	Salary	Year of joining		
				mm	dd	yy

Write a program to input data of 100 employee and display records of those employees living in "Pokhara."

7

- b) What do you need file handling? Describe the different file opening modes.

2×5

7. Write short notes on: (Any Two)

- a) Break and Continue Statement.
 b) SDLC
 c) Macros.

(4)

POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2013

Programme: BE

Full Marks: 100

Course: Programming in C

Pass Marks: 45

Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Define Programming Language. Differentiate between high level programming language and low level programming language. 7
- b) Mention the appropriate data type for storing following data. Also justify your answer in brief.
 - i. Distance jumped by a frog.
 - ii. A prime number between 5 and 555.
 - iii. Weight of your body.
 - iv. The examination symbol number of a student.8
2. a) Describe the working of loop and while loop with flowcharts and examples. 8
- b) What is recursive function? Write a program to calculate the factorial of a given number using recursive function. 7
3. a) Write a program to find the sum of all prime numbers in a given array. The main function of your program should take the help of a user defined function that tests whether a given number is prime or not. 8
- b) Write a program to test, whether given two matrices are equal or not. 7
4. a) Write a program to insert a given character at the given array index of a given string. For example if the given string is "Gnesh", given character is 'a', and the given array index is 1, the resulting string should be "Ganesh". 8
- b) Differentiate between call by value and call by reference with examples. 7
5. a) What is memory leak? Write a program to print reverse elements of an array using Dynamic Memory Allocation. 8
- b) Does a function return single or multiple value? When and how a 7

function will return single or multiple value, illustrate with suitable examples.

6. a) What is a nested structure? Create a structure for the following data:

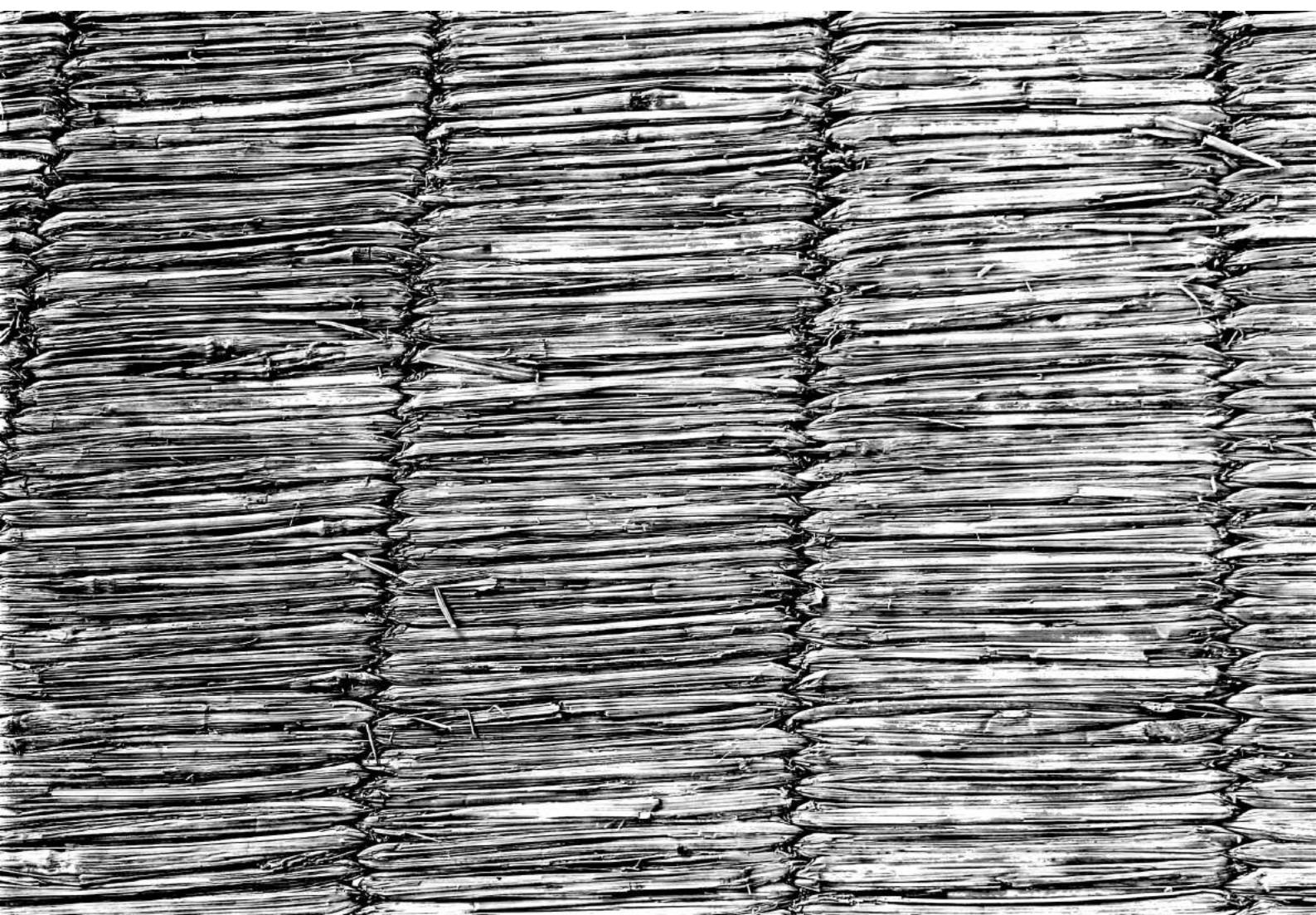
Roll. No.	Name	Address	Faculty	Date Of Birth
				mm dd Yr

And Write a Program to input 100 students and display the records of the students of "computer" faculty.

- b) What are file opening modes? Write a Program to open a new file, read name, address and telephone number of 10 employees from the user and write to a file.

7. Write short notes on: (Any two) 2×5

- a) Pre-processor directive.
- b) Nested loop.
- c) String Handling Functions.



POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2018
 Programme: BE Full Marks: 100
 Course: Engineering Mathematics I Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Prove that the differentiability of a function at a point implies the continuity of the function at that point. Give an example to show that the converse may not be true. 8
 OR

If $y = a \cos(\log x) + b \sin(\log x)$ show that

- i. $x^2 y_2 + xy_1 + y = 0$ and
 ii. $x^2 y_{n+2} + (2n+1)xy_{n+1} + (n^2 + 1)y_n = 0$.

- b) State and prove Lagrange's Mean value theorem. 7

Show that $\frac{b-a}{b} < \log\left(\frac{b}{a}\right) < \frac{b-a}{a}$ by using Lagrange's mean value theorem.

2. a) Evaluate $\lim_{x \rightarrow 0} (\cos x)^{\cot^2 x}$ 7

- b) Find the asymptotes of the curve $x^2(x-y)^2 - a^2(x^2 + y^2) = 0$. 8
 OR

A square piece of tin of side 18 cm is to be made into a box without lid, cutting a square from each corner and folding up the flaps to form the box. What should be the side of the square to be cut off so that the value of box is maximum possible?

3. Evaluate the following integrals (Any three) 5×3

a) $\int \frac{x^3}{(x-2)(x-3)} dx$

b) $\int \frac{1}{2 + \cos x + \sin x} dx$

c) $\int_a^b e^{-x} dx$ by summation method

d) $\int_0^{\frac{\pi}{2}} \frac{x dx}{\sin x + \cos x} = \frac{\pi}{2\sqrt{2}} \log(\sqrt{2} + 1)$.

4. a) Find the volume of the solid in the region in the first quadrant bounded by the parabola $x = \sqrt{y}$ and the line $y=x$ is revolved about y-axis. 7

- b) Find approximate value of $\int_0^3 (x^2 + 1) dx$ by Simpson's and Trapezoidal Rule with $n = 6$. Compare the result with exact value. 8

5. a) Find the condition that the line $lx + my + n = 0$ may be a tangent to $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$. 7

b) Define conic section and derive the standard equation of Ellipse. 8

6. a) Find the equation of the plane through the points $(2,4,5)$ and perpendicular to the line $\frac{x-5}{1} = \frac{y-1}{3} = \frac{z}{4}$ by vector method. 7

- b) Define vector triple product. If

$\vec{a} = \vec{i} - 2\vec{j} - 3\vec{k}$, $\vec{b} = 2\vec{i} + \vec{j} - \vec{k}$ and $\vec{c} = \vec{i} + 3\vec{j} - 2\vec{k}$

Also verify that $\vec{a} \times (\vec{b} \times \vec{c}) = (\vec{a} \cdot \vec{c})\vec{b} - (\vec{a} \cdot \vec{b})\vec{c}$. 2.6

7. Attempt all questions.

- a) Find the radius of curvature at any point (r, θ) for the curve $r = ae^{\theta \cot \alpha}$. 8

- b) Find the center, vertices and foci of the ellipse

$$x^2 + 10x + 25y^2 = 0$$

- c) Evaluate $\int \frac{x}{(x-3)(x+1)} dx$

- d) Find the value of p so that the vectors

$\vec{a} = 2\vec{i} - \vec{j} + \vec{k}$, $\vec{b} = \vec{i} + 2\vec{j} + 3\vec{k}$ and $\vec{c} = 3\vec{i} + p\vec{j} + 5\vec{k}$ are coplanar.

Level: Bachelor Semester: Spring
Programme: BT
Course: Engineering Mathematics I

Semester: Spring

Year : 2018
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Show that the function $f(x)$ defined by

$$f(x) = \begin{cases} -x & \text{when } x \leq 0 \\ x & \text{when } 0 < x < 1 \\ 2-x & \text{when } x \geq 1 \end{cases}$$

is continuous at $x = 0$ and $x = 1$, but is not differentiable at $x = 1$.

OR

If $y = \sqrt{\frac{1+x}{1-x}}$ prove that

- (i) $(1-x)y^2 = 1+x$
(ii) $(1-x^2)y_n - \{2(n-1)x+1\}y_{n-1} - (n-1)y_{n-2} = 0$

- b) State and prove that Cauchy's Mean Value theorem. Is the theorem applicable to the functions $f(x) = x$ and $g(x) = x^2 - 2x$ in the interval $[0,2]$? Why?

2. a) Evaluate: $\lim_{x \rightarrow 0} \left(\frac{1}{x^2} \right)^{\tan x}$

8

- b) A cone is inscribed in a sphere of radius r , prove that its volume as well as its curved surface is greatest when the altitude is $\frac{4r}{3}$

7

8

Find the asymptote to the curve $x^3 + 3x^2y - 4y^3 - x + y + 3 = 0$

OR

1

3. Integrate (Any Three):

a. $\int \frac{(x+2)}{\sqrt{4x-x^2}} dx$

b. $\int \frac{1}{1-\cos x + \sin x} dx$

c. Prove: $\int_0^1 \cot^{-1}(1-x-x^2) dx = \frac{\pi}{2} - \log 2$

d. $\int_0^1 \sqrt{x} dx$ by summation method.

4. a) Find the volume of the solid generated by revolving the region bounded

by $y = \sqrt{x}$ and the lines $y=1, x=4$ about the line $y=1$.

- b) Approximate the area by using Trapezoidal and Simpson's rule to the integral $\int_1^4 \frac{1}{1+x} dx$, $n = 6$. Also compare with exact.

5. a) Define hyperbola. Derive the standard equation of hyperbola.

- b) Find the condition that the line $y = mx + c$ may touch the curve $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$. Also find the point of contact.

6. a) Define scalar and vector product of three vectors. Prove that the scalar triple product of three vectors represent the volume of parallelepiped.
What conclusion can be drawn if $\vec{a} \cdot (\vec{b} \times \vec{c}) = 0$?

- b) Show that the vectors $\vec{a} \times (\vec{b} \times \vec{c}), \vec{b} \times (\vec{c} \times \vec{a})$ and $\vec{c} \times (\vec{a} \times \vec{b})$ are coplanar.

7. Attempt all the questions:

- a) Find the radius of curvature at (s, ψ) for the curves $s = 8 \sin^2 \frac{\psi}{6}$

- b) Find centre, vertices and foci of the ellipse: $x^2 + 10x + 25y^2 = 0$

- c) Find the volume of a parallelepiped whose concurrent edges are represented by $\vec{i} + \vec{j} + \vec{k}, 2\vec{i} + \vec{j} - 2\vec{k}$ and $3\vec{i} + 2\vec{j} - \vec{k}$.

- d) $\int x^3 \log x dx$.

2

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Engineering Mathematics I

Semester: Spring

Year : 2017
 Full Marks: 100
 Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Examine continuity and differentiability at $x = 2$ of the function 8

$$f(x) = \begin{cases} -2 + 3x - x^2 & \text{when } 0 \leq x \leq 2 \\ 2 - x & \text{when } 2 < x < 4 \end{cases}$$

OR

State Leibniz theorem. If $y = a \cos(\log x) + b \sin(\log x)$, show that $x^2 y_{n+2} + (2n+1)x y_{n+1} + (n^2+1)y_n = 0$.

- b) State and prove Lagrange's mean value theorem. Verify it for 7
 $f(x) = x^2 + 3x + 2$ at $[0, 2]$

2. a) State L'Hospital theorem and evaluate the limit: 7

$$\lim_{x \rightarrow 0} (\cos x)^{\cot^2 x}$$

- b) Find the asymptotes of the curve, $x^3 + 3x^2y - 4y^3 - x + y + 3 = 0$. 8

3. Integrate any three 3×5

a) $\int \frac{dx}{13 + 3\cos x + 4\sin x}$

b) $\int_0^a \frac{dx}{x + \sqrt{a^2 - x^2}}$

c) $\int_0^{\pi/2} \log(\cos \theta) dx$

d) $\int_0^2 x^2 dx$. (by summation method)

4. a) Find the area bounded between the curve $y = x^2 + 1$ and the line 7
 $x - y + 3 = 0$

OR

Find the volume of paraboloid formed by revolving the parabola $y^2=4x$ and the line $x=1$ about x-axis.

5. a) Evaluate; $\int_0^\pi \sin x dx$ by using trapezoid rule, simpson's rule and compare the result with the exact value taking $n = 6$. 8
5. b) Find the centre, vertices, eccentricity and foci of the ellipse $9x^2 + 6y^2 + 18x - 96y + 9 = 0$. 8
6. a) Find the equation of tangents to the hyperbola $3x^2 - 4y^2 = 12$, which are perpendicular to the line $y=x+2$. 7
6. b) Find by vector method the equation of the plane through A (2,1,-1) and perpendicular to the line of intersection the planes $2x + y - z = 3$, $x + 2y + z = 2$ 7
- b) Define Scalar and Vector Triple Product. If $[\vec{a}, \vec{b}, \vec{c}] = 0$, show that $[\vec{a} \times \vec{b}, \vec{b} \times \vec{c}, \vec{c} \times \vec{a}] = 0$. 8
7. Attempt all questions 4×2.5
- a) Find the radius of curvature of $x = r \cos \theta$, $y = r \sin \theta$
- b) Find the arc length of the curve $y = x^2$ from $x = -1$ to $x = 2$
- c) Find the center, vertex of the hyperbola $9(x-2)^2 - 4(y+3)^2 = 36$
- d) Determine the value of λ , so that $\vec{a} = 2\vec{i} + \lambda\vec{j} + \vec{k}$ and $\vec{b} = 4\vec{i} - 2\vec{j} - 2\vec{k}$ are perpendicular.

POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2017

Programme: BE

Full Marks: 100

Course: Engineering Mathematics I

Pass Marks: 45

Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1.

Examine the continuity and derivability at $x = 0$ and $x = \frac{\pi}{2}$ of the

8

a)

$$\text{function } f(x) = \begin{cases} 1 & \text{when } (-\infty, 0) \\ 1 + \sin x & \text{when } x \in [0, \frac{\pi}{2}) \\ 2 + (x - \frac{\pi}{2})^2 & \text{when } x \in [\frac{\pi}{2}, \infty) \end{cases}$$

OR

State Leibnitz theorem for successive derivative of the product of two functions. If $y = \sin^{-1} x$ then show that

$$\text{i. } (1 - x^2)y_2 - xy_1 = 0$$

$$\text{ii. } (1 - x^2)y_{n+2} - (2n + 1)xy_{n+1} - n^2 y_n = 0.$$

b)

State and prove Rolle's Theorem. Verify the theorem for the function

$$f(x) = \log\left(\frac{x^2 + ab}{(a+b)x}\right) \text{ in } [a, b] \text{ where } 0 < a < b.$$

7

2.

a) A cone is inscribed in a sphere of radius r , prove that its volume as well as its curved surface is greatest when the altitude is $\frac{4r}{3}$.

8

OR

Find the asymptote to the curve $y^2x^2 - 3yx^2 - 5x y^2 + 2x^2 + 6 y^2 - x - 3y + 2 = 0$.

$$\text{b) Show that } \lim_{x \rightarrow \infty} \left(x - x^2 \ln \left(1 + \frac{1}{x} \right) \right) = \frac{1}{2}.$$

7

3. Evaluate Any Three

3x5

a) $\int \frac{\cos x dx}{\sqrt{2\sin^2 x + 3\sin x + 4}}$

b) $\int \frac{2\sin x + 3\cos x}{3\sin x + 4\cos x} dx$

c) $\int_0^1 \frac{\log(1+x) dx}{1+x^2}$

d) Evaluate $\int_a^b e^{-x} dx$ by summation method.

4. a) Find the volume of the solid generated by revolving the region in the first quadrant bounded by the parabola $y=x^2$, below by the x-axis and on the right by the line $x=2$ about y-axis.

- b) Find approximate values of $\int_2^5 (x^2 + 1) dx$ using Simpson's and Trapezoidal rules with $n = 6$. Also compare the results with exact value.

5. a) Find the plane through $A(1,1,1)$ and perpendicular to the line of intersection of the planes $2x+y+3z=5$ and $3x+2y+z=7$.

- b) Prove that the four points having position vectors

$-i + 2j - 4k, 2i - j + 3k, 6i + 2j - k$ and $-12i - j - 3k$ are coplanar.

6. a) Define conic section by their eccentricity and classify them. Derive standard equation of parabola $y^2 = 4ax$.

- b) Find the condition that the line $y = mx + c$ may be tangent to the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$.

7. Attempt all

- a) Find the vertical asymptotes to the curve $x^2 + xy + 4y + 3 = 0$
 b) Find the radius of curvature at the origin of the curve $x^3 + y^3 = 3axy$
 c) Evaluate $\int x^5 e^x dx$
 d) Transform to parallel axis through the point $(3, -4)$ the equation $x^2 - y^2 + 2x - 3y = 0$.

4x2.5

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Engineering Mathematics I

Semester: Fall

Year : 2016

Full Marks: 100

Pass Marks: 45

Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Prove that the continuity of a function at a point is the necessary but not the sufficient condition for the existence of the derivative of the function at that point. 8

OR

State Leibnitz theorem. If $y = e^{x^2}$, show that $y_{n+1} - 2xy_n - 2ny_{n-1} = 0$

- b) State and prove Cauchy's mean value theorem. 7

2.

a) Evaluate $\lim_{x \rightarrow 0} \left(\frac{\sin x}{x} \right)^{1/x^2}$. 7

- b) An open tank of a given volume with a square base and vertical sides has to be constructed. Show that the amount of tin required will be minimum when the height of the tank is half the side of the square base. 8

OR

Find the asymptotes of the curve $x^2(x-y)^2 - a^2(x^2+y^2) = 0$.

3. Integrate any three of the following

3×5

a) $\int \frac{e^x(1+\sin x)}{1+\cos x} dx$

b) $\int \frac{1}{5-13\sin x} dx$

c) $\int_0^{\pi/4} \log(1+\tan \theta) d\theta$

4. a) Find the area of the region of the circle $x^2 + y^2 = 4$ cut off by the line $x - 2y = -2$ in the first two quadrants. 7

OR

Find the volume of the solid in the region bounded by the parabola $y = x^2$ and the line $y = 2x$ in the first quadrant about y-axis.

- b) Find the approximate area using Simpson's and Trapezoidal rules for the area bounded by curve $y = x^2 + 4$, the x-axis and the lines $x=1$ and $x=4$ (using $n=6$) and compare these results with exact values. 8
5. a) Define eccentricity of a conic section, and derive the equation of a hyperbola in its standard form. 8

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$

- b) Find the centre, vertices, foci and equation of directrix of the ellipse $25x^2 + 9y^2 - 100x + 54y - 44 = 0$. 7
6. a) Find by vector method the equation of plane perpendicular to $4x-y+z=0$ and passing through $(3,2,1)$ and $(1,2,3)$. 7
- b) Define scalar triple product. Give its geometrical interpretation. If the vectors $2\vec{i} - \vec{j} + 2\vec{k}$, $5\vec{i} + \lambda\vec{j} + 2\vec{k}$ and $\vec{i} + 6\vec{k}$ are coplanar, Find the value of λ . 8

7. Attempt all 4×2.5

- a) $\int \tan^{-1} x dx$
- b) Find all horizontal and vertical asymptotes of $y = \frac{x^2 - 4}{x^2 - 1}$
- c) Find the eccentricity foci and vertices of the hyperbola $9(x-2)^2 - 4(y+3)^2 = 36$

- d) Evaluate $\int_0^{\frac{\pi}{2}} \sin^4 x \cos^4 x dx$

9

POKHARA UNIVERSITY

Level: Bachelor

Semester: Spring

Year : 2016

Programme: BE

Full Marks: 100

Course: Engineering Mathematics I

Pass Marks: 45

Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Define continuity and differentiability of a function $f(x)$ at $x = a$. Find 8

$$f'(0) \text{ if it exists, where } f(x) = \begin{cases} x^2 \cos \frac{1}{x} & \text{for } x \neq 0 \\ 0 & \text{for } x = 0 \end{cases}$$

OR

If $y = \tan^{-1}x$, then show that

$$(1+x^2)y_{n+1} + (2nx)y_n + n(n-1)y_{n-1} = 0.$$

- b) State L'Hopital Rule for indeterminate forms. 7

$$\text{Evaluate } \lim_{x \rightarrow 0} \left(\frac{\tan x}{x} \right)^{1/x^2}.$$

2. a) State and prove Cauchy's Mean value Theorem. 7

- b) A cylindrical tin closed at both ends with given capacity has to be constructed. Show that the amount of tin required will be minimum when the height is equal to the diameter. 8

OR

Define asymptotes. Find the asymptotes of the curve

$$(x^2 - y^2) - 2(x^2 + y^2) + x - 1 = 0$$

3. Integrate (Any three) 3×5

a) $\int \frac{1}{5 - 13 \sin x} dx$

b) $\int \frac{x e^x}{(x+1)^2} dx$

c) $\int_0^{\pi/4} \log(1 + \tan \theta) d\theta$

4. d) $\int_0^1 \sqrt{x} dx$, by using limit as a summation methods 7
 a) Find the area bounded by $x^2 = 4y$ and $y = |x|$. 8
 b) Use Trapezoidal and Simpson's rule, estimate the Integral
 $\int_0^4 \frac{1}{x^2+4} dx$ with $n = 6$. 8
5. a) Derive the standard equation of ellipse with centre $(0, 0)$. 8
 b) Show that the line $lx + my + n = 0$ touches the hyperbola
 $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ if $a^2l^2 - b^2m^2 = n^2$. 7
6. a) Find the equation of plane passing through $(1, 2, 3), (3, 2, 1)$ which is perpendicular to the plane $4x-y+2z=7$. (Use vector method.) 7
 b) Define vector triple product of three vectors. Derive the expression of vector triple product of vectors. 8
7. Attempt all: 4×2.5
- a) Find the radius of curvature of curve $y^2 = 4x$ at $(0, 0)$
 b) Integrate $\int x \sin^2 x dx$
 c) If $\vec{a} = i + 2j + k$ and $\vec{b} = i + 2j - k$ find unit vector of $\vec{a} \times \vec{b}$
 d) Find the arc length of the curve $y = x^2 + 1$ from $x = 1$ and $x = 2$.

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Engineering Mathematics I

Semester: Fall

Year : 2015
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

*The figures in the margin indicate full marks.
Attempt all the questions.*

1. a) Examine the continuity and differentiability at $x = 2$ of the function 8
 $f(x)$ defined as follows $f(x) = 2-x \quad \text{for } 0 < x < 2$
 $\qquad\qquad\qquad = -2+3x-x^2 \quad \text{for } 2 \leq x < 4$

OR

If $y = \sin^{-1} x$ show that

i. $(1-x^2)y_2 - xy_1 = 0$

ii. $(1-x^2)y_{n+2} - (2n+1)xy_{n+1} - n^2y_n = 0$

b) State Lagrange's Mean Value theorem: Is Lagrange's mean value theorem applicable to the function $f(x) = |x|$ in the interval $[-1, 1]$? 7
 Give reasons.

2. a) Find the asymptotes of the curve 8
 $x^3 - 2y^3 + 2x^2y - xy^2 + xy - y^2 + 1 = 0$

OR

A cylindrical tin closed at both ends with given capacity has to be constructed. Show that the amount of tin required will be minimum when the height is equal to the diameter. 7

b) Evaluate: $\lim_{x \rightarrow 0} \left(\frac{\tan x}{x} \right)^{\frac{1}{x^2}}$

3. Integrate (Any three) 3×5

a) $\int \frac{dx}{5+4\cos x}$

b) $\int_0^\pi \frac{x \sin x}{1+\cos^2 x} dx$

c) $\int \frac{x^3}{(x-2)(x-3)} dx$

4. d) $\int_0^\infty e^{-x^2} dx$
- a) Find the volume of the solid generated by revolving the region between the parabola $x = y^2 + 1$ and the line $x=3$ about the line $x=3$. 7
- b) Using Trapezoidal and Simpson's rule, estimate the integral 8

$\int_0^4 \frac{1}{x^2 + 4} dx$ with $n=4$ subintervals.

5. a) Find the volume of a tetrahedron whose one vertex is at the origin and the other three vertices are $(3, 2, 1)$, $(2, 3, -1)$ and $(-1, 2, 3)$. 7
- b) Find the equation of plane passing through $(2, 4, 5)$, $(1, 5, 7)$ and $(-1, 6, 8)$. 8

6. a) Find the condition that the line $lx + my + n = 0$, may touch to the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ 7

- b) Define conic section and derive the standard equation of Ellipse. 8

7. Do the followings: 4×2.5

- a) Evaluate $\int_1^{\infty} x \log x dx$
- b) Find the radius of curvature of $y = x^2 + 4$ at $(0, 4)$.
- c) Evaluate $\int \frac{x}{(x-3)(x+1)} dx$
- d) Find the scalar projection of $\vec{a} = i - 2\vec{j} + \vec{k}$ on $\vec{b} = \vec{i} + 2\vec{j} - \vec{k}$.

63

POKHARA UNIVERSITY

Level: Bachelor

Semester: Spring

Year : 2015

Programme: BE

Full Marks: 100

Course: Engineering Mathematics I

Pass Marks: 45

Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) If a function $f(x)$ is defined by

$$\begin{aligned} f(x) &= x+2 \quad \text{for } x \geq 2 \\ &= 4-x^2 \quad \text{for } x < 2 \end{aligned}$$

Show that it is continuous at $x=2$ but not differentiable at $x=2$.

OR

If, $y = \sin^{-1}x$, show that

$$\text{i. } (1-x^2)y_2 - xy_1 = 0$$

$$\text{ii. } (1-x^2)y_{n+2} - (2n+1)xy_{n+1} - n^2y_n = 0$$

- b) State L'Hopital Rule for indeterminate form.

$$\text{Evaluate } \lim_{x \rightarrow 0} \left(\frac{\tan x}{x} \right)^{1/x}$$

2. a) An oil tank is to be made in the form of a right circular cylinder to contain one quart of oil. What dimension of the can will require the least amount of materials.

OR

Find the asymptotes of the curve:

$$x^2(x-y)^2 - a^2(x^2+y^2) = 0$$

- b) State and prove that Lagrange's Mean value theorem. What is its geometrical meaning?

3. Integrate any THREE of the following:

7

$$\text{a) } \int \frac{x^3}{(x-2)(x-3)} dx$$

$$\text{b) } \int_0^{\pi} \sin^4 x \cos^2 x dx$$

8

7

8

3x5

78

- c) $\int_0^1 x^3 dx$ (by summation method)
- d) $\int \frac{dx}{4+5\sin x}$
4. a) Find the reduction formula for $\int \cos^n x dx$ and then evaluate $\int \cos^7 x dx$

OR

Approximate the integral $\int_1^4 \frac{1}{1+x} dx$ with n = 4, using Trapezoidal and Simpson's rule.

- b) Find the area of the region in the first quadrant that is bounded above by $y = \sqrt{x}$ and below by the x-axis and the line $y = x - 2$.
5. a) Find by vector method the equation of the plane through the points (2,4,5), (1,3,7) and (-1,6,8).
- b) Define vector triple product. If $a = i - 2j - 3k$, $b = 2i + j - k$ & $c = i + 3j - 2k$ find $(a \times b) \times c$.
Also verify that $a \times (b \times c) = (a \cdot c)b - (a \cdot b)c$.
6. a) Define eccentricity of a conic section, and derive the equation of a hyperbola in its standard form. $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$
- b) Find the condition for the line $y = mx + c$ to be tangent to the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$.
7. Write short notes on:
- a) Find the radius of curvature of curve $y^2 = 4x$ at (0,0). 4x2.1
- b) Find center and vertices of the conic section $x^2 - y^2 - 2x + 4y = 4$.
- c) Evaluate: $\int \frac{dx}{x + \sqrt{x}}$
- d) Let two functions $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ defined as $f(x) = x + 2$, $g(x) = 3x^2$, $x \in \mathbb{R}$. Find $fog(x)$ and $gof(x)$.

POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2014

Programme: BE

Full Marks: 100

Course: Engineering Mathematics I

Pass Marks: 45

Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Define continuity and differentiability of a function. Show that differentiability of a function $f(x)=a$, implies continuity but converse may not be always true. 7/1

OR

If $\log y = \tan^{-1}x$, show that

$$\text{i. } (1+x^2)y_2 + (2x-1)y_1 = 0$$

$$\text{ii. } (1+x^2)y_{n+2} + (2nx+2x-1)y_{n+1} + n(n+1)y_n = 0$$

- b) State and prove Rolle's theorem. Is Rolle's theorem applicable to the function $f(x) = \tan x$ in the interval $(0, \pi)$? 8/1

2. a) Define indeterminate forms. State L'Hopital rule and using it, show that $\lim_{x \rightarrow 0} \left(\frac{\sin x}{x}\right)^{1/x} = 1$. 8/1
- b) Find the altitude of the right circular cylinder of maximum volume that can be inscribed in a given right circular cone of height h. 7/1

OR

Define the asymptotes of a curve and classify them. Find the asymptotes of the curve:

$$x^4 - y^4 + 3x^2y + 3xy^2 + xy = 0$$

3. Integrate Any Three

3×5

a) $\int \frac{dx}{4-5 \sin^2 x}$

b) $\int_a^b x^m dx$ (by summation method)

c) $\int \frac{e^x dx}{e^x - 3e^{-x} + 2}$

d) $\int_0^{\frac{\pi}{4}} \log(1 + \tan x) dx$

4. a) Find the area bounded by $x^2 = 4y$ and $y = |x|$. 7

OR

Find the volume of the solid in the region in first quadrant bounded by the parabola $y = x^2$, the y -axis and the line $y=1$ revolving about the line $x = 3/2$.

- b) Use Trapezoidal and Simpson's rule with $n = 6$ to approximate the area between the curve $y = (2x+1)^2$ ordinates $x = 1, x = 4$ and x axis. 8

Compare the result with exact value.

5. a) Define vector triple product. If $\vec{a} = \vec{i} - 2\vec{j} - 3\vec{k}$, $\vec{b} = 2\vec{i} + \vec{j} - \vec{k}$ and $\vec{c} = \vec{i} + 3\vec{j} - 2\vec{k}$ find $(\vec{a} \times \vec{b}) \times \vec{c}$. Also verify that $\vec{a} \times (\vec{b} \times \vec{c}) = (\vec{a} \cdot \vec{c})\vec{b} - (\vec{a} \cdot \vec{b})\vec{c}$. 8

- b) Find the equation of the plane through the point $(2,4,5)$ and perpendicular to the line $x=5+t, y=1+3t, z=4t$. 7

6. a) Define eccentricity of a conic section, and derive the equation of a hyperbola in its standard form. 8

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$

- b) Find the condition that the line $lx+my+n=0$ touches the parabola $y^2=4ax$. Find the point of contact. 7

7. Answer the followings:

- a) Find the radius of curvature of the curve $y^2 = 4ax$ at (x,y) . 4x2.5

b) Integrate $\int x \sin^2 x dx$

c) Evaluate improper integral $\int_0^{\infty} \frac{1}{x^2 + 9} dx$

- d) If $\vec{a} = \vec{i} + 2\vec{j} + \vec{k}$, $\vec{b} = \vec{i} + \vec{j} + \vec{k}$, find unit vector along $\vec{a} \times \vec{b}$



POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Engineering Mathematics I

Semester: Spring

Year : 2014
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Define continuity and differentiability of a function. Show that the function:

$$\begin{aligned} f(x) &= x^2 + 2 \quad \text{for } x \leq 1 \\ &= 3x \quad \text{for } x > 1 \end{aligned}$$

is continuous at $x=1$ but not differentiable at $x=1$

OR

If $y = (x^2 - 1)^n$ show that;

$$\text{i. } (x^2 - 1)y_2 + 2(1-n)xy_1 - 2ny = 0$$

$$\text{ii. } (x^2 - 1)y_{n+1} + 2xy_{n+1} - n(n+1)y_n = 0$$

- b) State and prove that Lagrange's Mean value Theorem with its geometrical interpretation.

2. a) State the L'Hospital Rules and evaluate the limit:

$$\lim_{x \rightarrow 0} \left(\frac{1}{x^2} - \frac{1}{\sin^2 x} \right)$$

- b) Define the asymptotes of a curve and classify them. Find the asymptotes of the curve

$$x^2(x-y)^2 - a^2(x^2 + y^2) = 0$$

OR

Find the altitude of the right circular cone of maximum value that can be inscribed in a sphere of radius a .

3. Integrate (Any three)

3×5

a) $\int \frac{dx}{2 - 3 \sin 2x}$

b) $\int_a^b e^{mx} dx$ (by summation method)

c) $\int \frac{x^3 dx}{(x-2)(x-3)}$

d) $\int_0^1 \cot^{-1}(1-x-x^2) dx$

4. a) Find the area inside the circle $x^2 + y^2 = 1$ and outside the parabola $y^2 = 1 - x$. Also sketch the region. 7

OR

Find the volume of the solid in the region in the first quadrant bounded above by the curve $y = x^2$, below by the x -axis and on the right by the line $x = 1$, about the line $x = -1$.

- b) Find approximate value of $\int_1^2 \frac{1}{x} dx$ using Trapezoidal and Simpson's rule with $n = 10$ and then compare the results with the exact value of the integral. 8

5. a) Define eccentricity of a conic section and derive the equation of a ellipse in its standard form. 7

- b) Find the equation of the tangents to the parabola $y^2 = 7x$ which is perpendicular to the line $4x + y = 0$. Also, find the point of contact. 8

6. a) Define scalar and vector triple product vectors. Show that $(\vec{a} \times \vec{b}) \times \vec{c} = \vec{a} \times (\vec{b} \times \vec{c})$ if the vectors \vec{a} and \vec{c} are collinear. 7

- b) Find the equation of the plane through $(3,2,1)$ and $(1,2,3)$ which is perpendicular to the plane $4x-y+2z=7$. 8

7. Write short notes on: 4x2.5

- a) Find the arc length of the curve $y = x^{3/2}$ from $x = 0$ to $x = 2$

- b) Evaluate the improper integral $\int_0^\infty \frac{dx}{1+x^2}$.

- c) Find the radius of curvature at

$$(s, \Psi) \text{ for the curve } s = 8a \sin^2 \frac{\Psi}{6}$$

- d) If $\vec{a} = 2\vec{i} + \vec{j} - \vec{k}$ and $\vec{b} = \vec{i} + 2\vec{j} + \vec{k}$, find a unit vector perpendicular to both \vec{a} and \vec{b} .

Level: Bachelor

Programme: BE

Course: Engineering Mathematic I

Semester: Spring

Year : 2013

Full Marks: 100

Pass Marks: 45

Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Examine the continuity and differentiability at $x = 0$ of the function 8

$$f(x) \text{ defined as follows } f(x) = 3 + 2x \quad \text{for } -\frac{3}{2} < x \leq 0$$

$$= 3 - 2x \quad \text{for } 0 < x < \frac{3}{2}$$

OR

If $y = (x^2 - 1)^n$ show that

$$\text{i. } (x^2 - 1)y_2 - 2(1 - n)xy_1 - 2ny = 0$$

$$\text{ii. } (x^2 - 1)y_{n+2} + 2xy_{n+1} - n(n + 1)y_n = 0$$

- b) State and prove Rolle's theorem. 7

2. a) Show that $\lim_{x \rightarrow 0} \left(1 + \frac{1}{x^2}\right)^x = 1$. 7

OR

Find the total surface area of the right circular cylinder of greatest surface that can be inscribed in a given sphere of radius r . 8

- b) Find all the asymptotes of the curve $y^3 - 3axy + x^3 = 0$. 8

3. a) Find approximate values of $\int_1^3 (2x+1)^2 dx$, using Simpson's and

Trapezoidal rules with $n = 4$. Also compare the results with exact value. 8

OR

Find reduction formula for $\int \sec^n x dx$ and use it to evaluate $\int \sec^3 x dx$

- b) The area bounded by $y = x^2$, below by x-axis and on the right by the line $x = 1$ is revolved about the line $x = -1$. Find the volume of the solid thus generated. 7
4. Integrate following integrals: (Any three) 3×5
- $\int \frac{dx}{1-\cos x + \sin x}$
 - $\int_0^\pi \frac{x \sin x dx}{1+\cos^2 x}$
 - $\int_0^1 x^{3/2} (1-x)^{3/2} dx$
 - $\int_a^b e^{mx} dx$ [By using summation method].
5. a) Define vector product of three vectors; Show that: $\vec{a} \times (\vec{b} \times \vec{c}) = (\vec{a} \cdot \vec{c})\vec{b} - (\vec{a} \cdot \vec{b})\vec{c}$ 8
- OR
- Define improper integral. Evaluate the improper integral $\int_0^2 \frac{dx}{(1-x)^2}$.
- b) Find the equation of the plane passes through $(2,4,5)$, $(1,5,7)$ and $(-1,6,8)$ by vector method. 7
6. a) Find the condition, when the line $lx+my+n=$ touches the parabola $y^2=4ax$. Find the point of contact. 8
- b) Find center, foci, vertices of the conic section: $4x^2 + y^2 - 16x + 4y + 16 = 0$. Also sketch the conic section. 7
7. Solve the following (Any Two) 2×5
- Find the radius of curvature of $y = 4x^4 - 3x^3 + 18x^2$ at $(0, 0)$.
 - Evaluate $\int_0^e \log x dx$
 - If $\vec{a}, \vec{b}, \vec{c}$ are coplanar then show that $(\vec{b} \times \vec{c}) \times (\vec{c} \times \vec{a}) = 0$
 - Find the equation of a conic section with focus at $(2,0)$, directrix $x=4$ and eccentricity $e=1$.

71

POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2013

Programme: BE

Full Marks: 100

Course: Engineering Mathematics I

Pass Marks: 45

Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Define continuity and differentiability of a function. Show that the function $f(x)$ defined by 8

$$f(x) = \begin{cases} -x & \text{when } x \leq 0 \\ x & \text{when } 0 < x < 1 \\ 2-x & \text{when } x \geq 1 \end{cases}$$

सुगम स्टेसनरी सल्लार्फर एण्ड फोटोकारी सर्विस
बालकुमारी, ललितपुर ९८४९५९५९९
NCIT College

is continuous at $x=0$ and $x=1$, but is not derivable at $x=1$.

OR

State Leibnitz and prove theorem. If $y=e^{x^2}$, show that

$$y_{n+1} - 2xy_n - 2ny_{n-1} = 0$$

- b) State and prove Lagrange's Mean Value theorem. If $f(x)$ is positive in $[a, b]$ show that $f(x)$ is increasing in $[a, b]$ 7

2. a)

Show that $\lim_{x \rightarrow 0} \left(\frac{\sin x}{x} \right)^{\frac{1}{x^2}} = e^{-\frac{1}{6}}$

OR

Find the total surface area of the right circular cylinder of greatest surface that can be inscribed in a given sphere of radius r .

- b) Find all the asymptotes of $y^3 + x^2y + 2xy^2 - y + 1 = 0$ 7

3. Integrate the followings: (Any three) 15

i. $\int \frac{x+5}{(x+1)(x+2)^2} dx$

1. 0 1

ii. $\int \sqrt{\frac{a+x}{x}} dx$

iii. $\int_0^{\pi/4} \log(1 + \tan x) dx$

iv. $\int_a^b e^{mx} dx$ (by summation method)

- a) Find the area of the region of the circle $x^2 + y^2 = 4$ cut off by the line $x - 2y = -2$ in the first two quadrants.

OR

Find the volume of the solid in the region bounded by the curves $x = y^2$, $x = 0$, $y = -1$, $y = 1$ revolved about y-axis.

- b) Evaluate $\int_1^5 (2x^2 + 1) dx$ using Simson's and Trapezoidal rule with $n=4$ and compare it with the exact value.

- a) Obtain the vertices, coordinates of foci, directrix, and eccentricity of the following hyperbola $x^2 - 4y^2 - 4x = 0$

- b) Find the equation of tangent to the ellipse $\frac{x^2}{4} + \frac{y^2}{9} = 1$, which is parallel to the line $x = y + 4$

- a) Using vector method obtain the equation of plane passing through the Point $(4, 1, 3)$ and perpendicular to the line $\frac{x-1}{2} = \frac{y+1}{3} = \frac{z}{4}$

- b) If $(\bar{a} \times \bar{b}) \times \bar{c} = \bar{a} \times (\bar{b} \times \bar{c})$ Prove that \bar{a} and \bar{c} are collinear.

Attempt all questions:

- a) Find the radius of curvature of $y = x^2 + 4$ at $(0, 4)$

- b) Integrate; $\int_{-1}^1 \frac{dx}{x^3}$ if exists.

- c) Show that $\int_0^{\pi/2} \frac{\sin \theta d\theta}{\sin \theta + \cos \theta} = \frac{\pi}{4}$

- d) Find the volume of a parallelepiped whose concurrent edges are represented by $\vec{i} + \vec{j} + \vec{k}$, $\vec{i} - \vec{j} + \vec{k}$ and $\vec{i} + 2\vec{j} - \vec{k}$.

7

8

8

7

8

7

4x2.

5



POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2014

Programme: BE

Full Marks: 100

Course: Basic Electrical Engineering

Pass Marks: 45

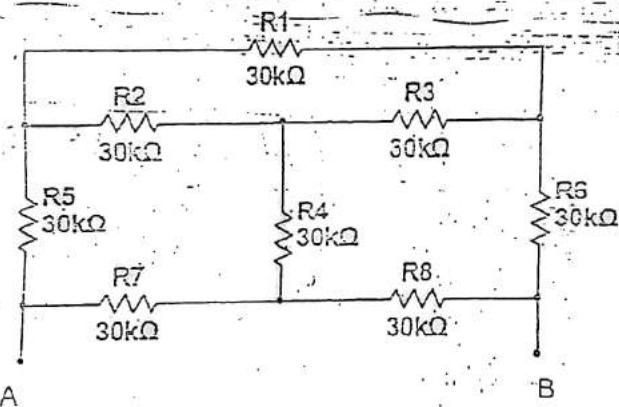
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

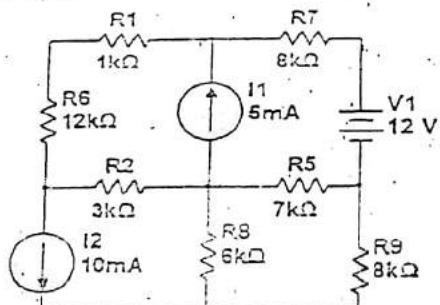
The figures in the margin indicate full marks.

Attempt all the questions.

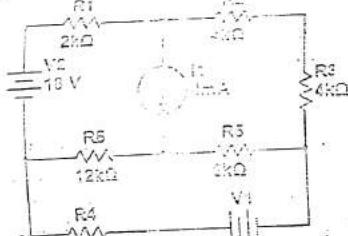
1. a) Find the equivalent resistance across the terminals A-B for the circuit shown in figure below. 8



- b) State and explain maximum power transfer theorem with necessary derivation. 7
2. a) Determine the voltage across 3KΩ resistor using mesh analysis for the circuit shown below. 8

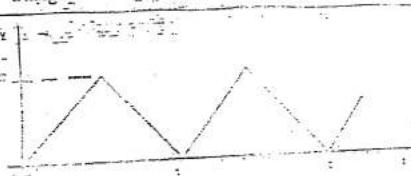


a) Find the voltage across $6\text{m}\Omega$, employing Norton's theorem.



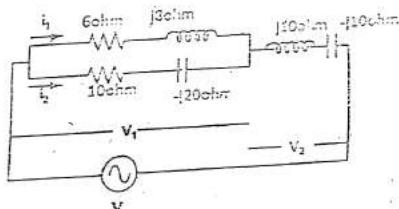
7

- a) Find the average value, rms value and form factor of the given triangular waveform?



8

- b) In the circuit given below, total current $i=(20+j0)$
- Calculate branch currents i_1 and i_2
 - Voltage V_1 and V_2
 - Power factor of entire circuit
 - Active and Reactive power in the entire circuit



2

- c) In an R-L-C series circuit, current supplied by the single phase ac

source is $15\angle-38^\circ$ Amperes. Determine the value of all three kind of power if $R=100$ ohm, $X_L=35$ ohm and $X_C=15$ ohm. If inductance is 8 Henry, find the resonant frequency.

- b) A three-phase balanced star connected load with $6+j8$ ohm per phase is supplied by 440 V, 3-phase source. Find the line and phase currents, and the total power dissipated in the load. Derive the relationship between line and phase voltage in three phase balanced star connection.

- c) Explain with a neat diagram the two wattmeter method for the measurement of three phase power and determine watt meter reading when it is connected to resistive load.

- d) A 10KVA, 200/1000 V, 50 Hz, single-phase transformer gave the following test results:

$$\text{O.C. test(L.V. Side): } 200 \text{ V}, 2.4 \text{ A}, 100 \text{ W}$$

$$\text{S.C. test(H.V. Side): } 50 \text{ V}, 10 \text{ A}, 150 \text{ W}$$

- i. Calculate the parameters of the equivalent circuit referred to L.V. side.

- ii. Calculate efficiency for V_L rated 0.8 P.F. lagging, & load current for which it gives maximum efficiency

- e) A 220V dc shunt motor runs at 500 rpm when armature current is 50A. Calculate the speed if the torque is doubled Given that armature resistance is 0.2 ohm and flux remain constant.

- f) Explain the working principle of induction motor with neat diagram.

- g) Write short notes on: (Any two)

- Ideal voltage & current source
- Quality factor of RLC series CKT.
- Power factor and its significance

2x5

प्राप्त करने वाली एक दोस्ती सेवा
कल्याणी लिंग १८५४२३
NCIT College

3

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Basic Electrical Engineering

Semester: Fall

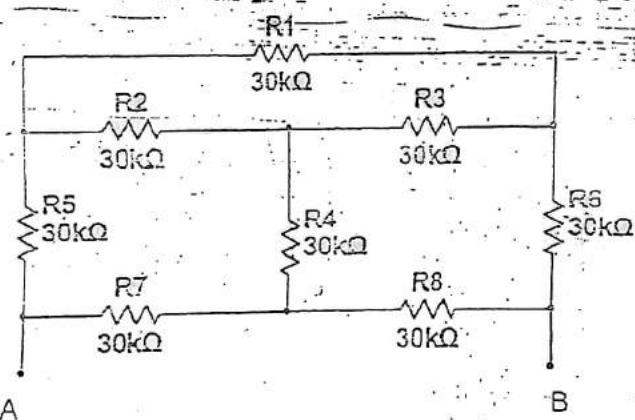
Year : 2014
 Full Marks: 100
 Pass Marks: 45
 Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

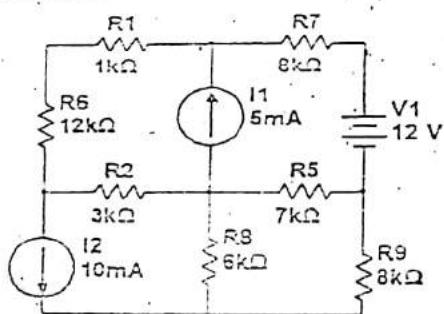
The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Find the equivalent resistance across the terminals A-B for the circuit shown in figure below. 8



- b) State and explain maximum power transfer theorem with necessary derivation. 7
2. a) Determine the voltage across 3KΩ resistor using mesh analysis for the circuit shown below. 8



source is $15\angle-30^\circ$ Amperes. Determine the value of an open load of power if $R=100$ ohm, $X_L=35$ ohm and $X_C=25$ ohm. If inductance is 8 Henry, find the resonant frequency.

- b) A three-phase balanced star connected load with $6+j8$ ohm per phase is supplied by 440 V, 3-phase source. Find the line and phase currents, and the total power dissipated in the load. Derive the relationship between line and phase voltage in three phase balanced star connection.

- c) Explain with a neat diagram the two wattmeter method for the measurement of three phase power and determine watt meter reading when it is connected to resistive load.

- d) A 10KVA, 200/1000 V, 50 Hz, single-phase transformer gave the following test results:

O.C. test(L.V. Side): 200 V, 2.4 A, 100 W

S.C. test(H.V. Side): 50 V, 10 A, 150 W

- i. Calculate the parameters of the equivalent circuit referred to L.V. Side.

- ii. Calculate efficiency for $\frac{1}{2}$ rated 0.8 P.F. lagging, & load current for which it gives maximum efficiency

5. a) A 220V dc shunt motor runs at 500 rpm when armature current is 50A. Calculate the speed if the torque is doubled given that armature resistance is 0.2 ohm and flux remain constant.

- b) Explain the working principle of induction motor with neat diagram.

7. Write short notes on: (Any two)

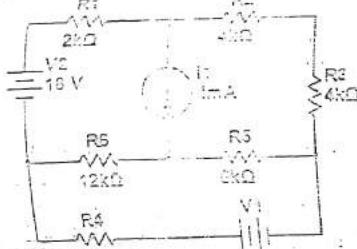
- a) Ideal voltage & current source

- b) Quality factor of RLC series CKT.

- c) Power factor and its significance

पुस्तकालय नवलपाटी एवं पटेली सरकार
हायनगर, लखनऊ, १२०५४३३२२
NCIT College

Find the voltage across $5\text{ k}\Omega$, relate using Norton's theorem.

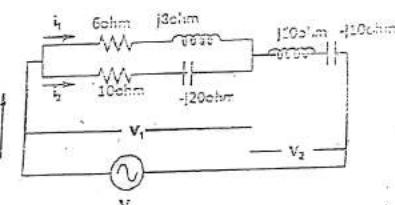


Find the average value, max value and form factor of the given triangular waveform.



- b) In the circuit given below, total current $i=(20+j0)$

- Calculate branch current i_1 and i_2
- Voltage V_1 and V_2
- Power factor of entire circuit
- Active and Reactive power in the entire circuit.



- c) In an R-L-C series circuit, current supplied by the single phase ac

POKHARA UNIVERSITY

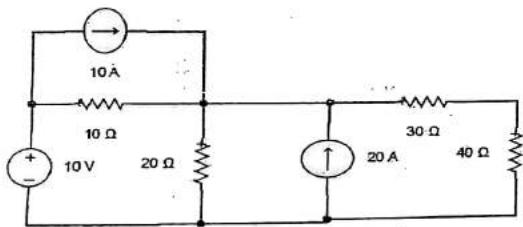
Level: Bachelor Semester: Spring Year : 2018
 Programme: BE Full Marks: 100
 Course: Basic Electrical Engineering Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

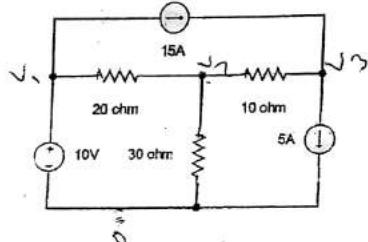
The figures in the margin indicate full marks.

Attempt all the questions.

- a) Explain in brief about generation, transmission and distribution of electrical power with the help of single line diagram. 7
 b) Using Mesh analysis method, find the voltage across 10Ω resistor of the circuit as shown below. 8

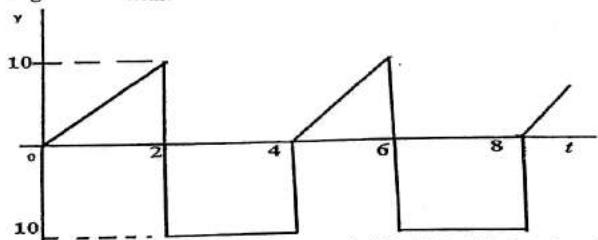


- a) State Superposition Theorem. Find voltage drop across 20Ω resistor using Superposition Theorem. 8

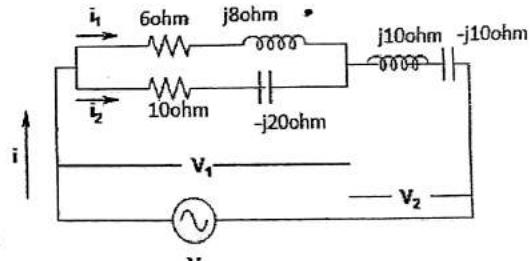


73

- b) State and explain Norton's Theorem with an appropriate example. 7
 3. a) Find the average value, rms value and form factor of the given triangular waveform? 7



- b) In the circuit given below, total current $i=(20+j0)$ A. Calculate branch current i_1 and i_2 (ii) voltage V_1 and V_2 (ii) power factor of entire circuit(iv) Active and Reactive power in the entire circuit. 8



4. a) A balance delta connected load of $(2+j3)\Omega$ per phase is connected to the balanced 3-phase, 440v 50Hz supply. Find: (a) Line current (b) Total active power. (c) Total Reactive power. (d) Total apparent power. 8

- b) The following results were obtained on a 4kVA, 200/400V, 50Hz transformer.

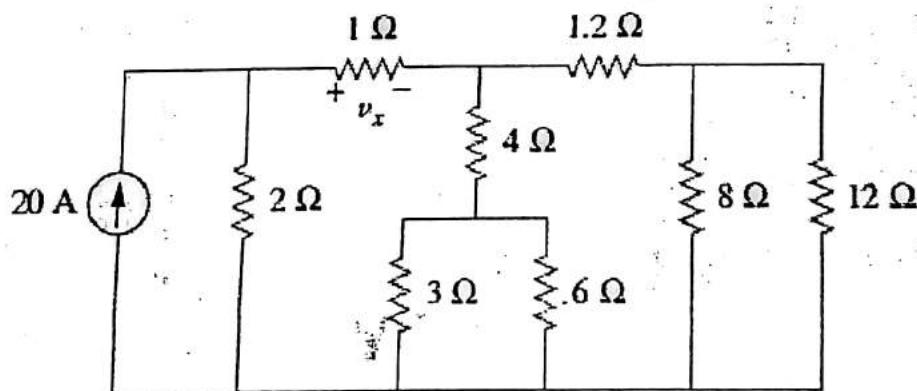
Open circuit	test:	100W,	1A,	200V
Short circuit	test:	85W,	10A,	15V

Determine equivalent circuit parameters referred to LV side and HV

2

side.

5. a) A 220V, dc shunt motor draws a current of 50A at full load and runs with a speed of 1700rpm. Calculate the value of resistance to be inserted in the armature circuit so that the speed drops to 1200rpm at constant load. Given that armature resistance and field resistance are 0.04 ohm and 155 ohm respectively. 8
- b) Explain the working principle of induction motor with neat diagram. 7
6. a) Show that bandwidth of RLC resonance ac series circuit is $W = R/L$ rad/sec, where symbols have their usual meanings. 7
- b) Using Kirchoff's law, in the circuit shown below, determine v_x and the power absorbed by 12 Ohm resistor. 8



7. Write short notes on: (Any two) 2×5
- a) Maximum power transfer theorem
- b) Power factor and its significances
- c) Advantages of 3-phase system over 1-phase system

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall
Programme: BE
Course: Basic Electrical Engineering

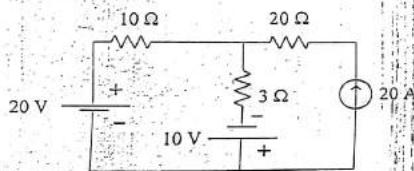
Year : 2017
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

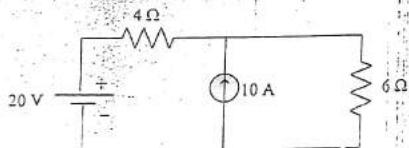
The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Throw light on role of electricity in modern society. 5
- b) What are the ideal and non-ideal (practical) sources? Explain each briefly. 5
- c) What is power factor and explain its significances. 5
2. a) Using superposition theorem, find the current through 10Ω resistor of the circuit as shown below. 8



- b) Differentiate between Thevenin's theorem and Norton's theorem. 7
Also find the voltage across 6Ω resistance by using Norton's theorem.

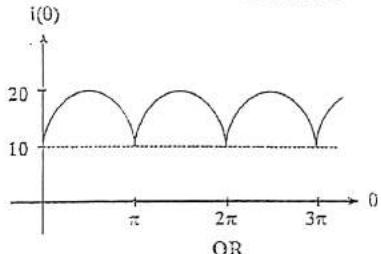


3. a) Compare mesh analysis and nodal analysis. Find node potentials for the given network. Also find the power dissipated in 3-ohm resistor. 3
- b) Write the difference between series resonance and parallel resonance? Show that the bandwidth for the series resonant circuit is the ratio of resonant frequency and quality factor. 7

1

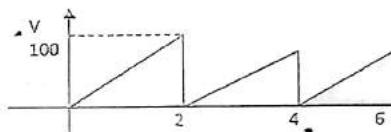
77

4. a) What are advantages of AC over DC? Find the average and rms value of the given waveform. Also find the form factor.

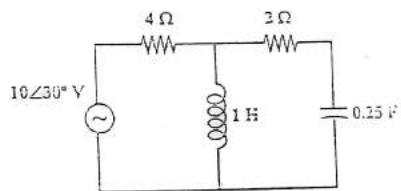


OR

Calculate the mean value and effective value of the wave shown.



- b) For the given circuit determine:
 - i. circuit impedance
 - ii. supply current and its phase angle
 - iii. circuit power factor
 - iv. active, reactive and apparent power.



5. a) Three similar coils having impedance of $15\angle 20^\circ \Omega$ are connected star to 400v, 3φ, 50HZ supply. Calculate:
 - i. line and phase current
 - ii. Power factor
 - iii. Total 3φ powers

2

b) Define transformer and deduce the expression for EMF.

6. a) 25kVA, 18, 250/500v transformer gives the following results on tests:

Open circuit test	200V	1A	70W
Short circuit test	25V	5A	80W

Categories:

- Parameters of the transformer
- Secondary terminal voltage if it supplies 50A at 0.8 pf lag

OR

A 250 V DC shunt motor takes 8A line current on no load and runs at 1000 rpm. The resistance of the field winding and armature winding are 200Ω and 0.8Ω respectively. If the full load line current is 20A,

calculate the full load speed, assuming constant air gap flux.

(b) Explain the working principles of 3 - \varnothing synchronous motor.

7. Write short notes on: (Any two)

- 3 ϕ induction motor
- Three phase power measurement by two wattmeter method
- Maximum power transfer theorem

2x5

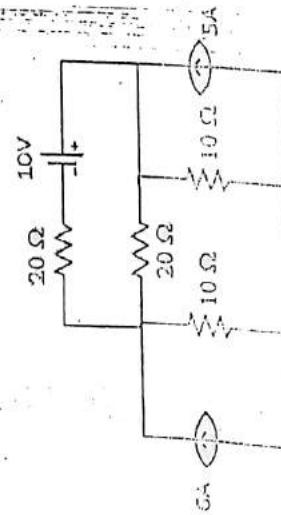
8

POKHARA UNIVERSITY

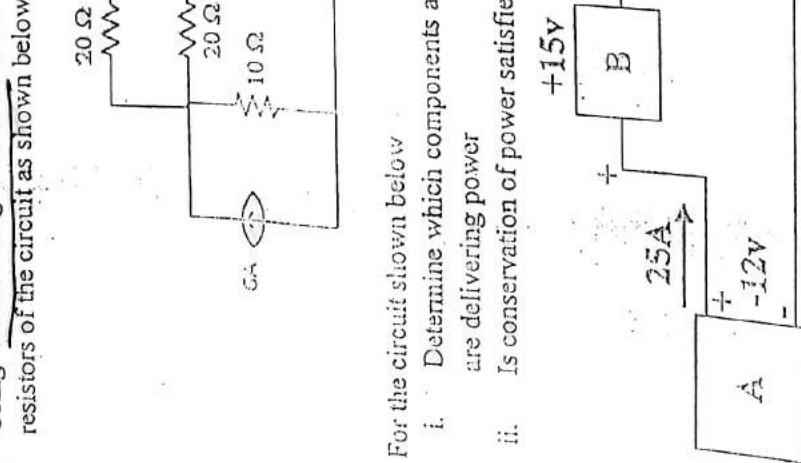
Semester: Spring Year : 2017
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

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

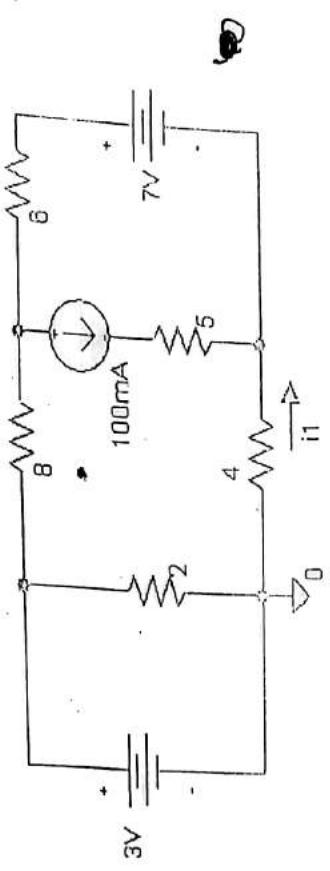
1. a) Explain generation, transmission and distribution with the help of single line diagram.
b) Using Node voltage method, find the current through each 10Ω resistors of the circuit as shown below.



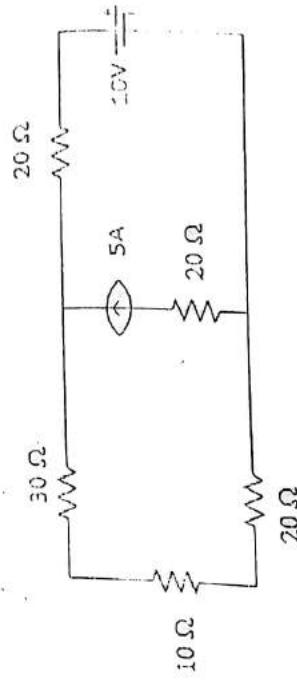
2. a) For the circuit shown below
i. Determine which components are absorbing power and which are delivering power
ii. Is conservation of power satisfied? Explain your answer.



3. a) Solve for the current in (through the 4Ω resistor) in the circuit shown below using superposition theorem. (All resistors are in Ohm).

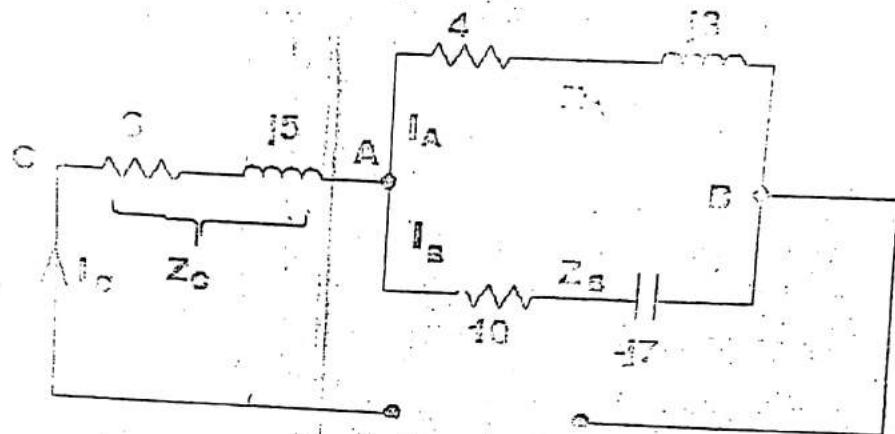


- b) Explain Thevenin's theorem. Also find the current across V_{CD} resistance by using Norton's theorem.



4. a) Calculate the average value, RMS (effective) value and form factor of the output of half wave rectifier when the input to the rectifier is a purely sinusoidal alternating current.
b) A series RLC circuit consists of a 100Ω resistor, an inductor $0.318H$ and a capacitor of unknown value. When this is energized by $v = 230\sqrt{2}\sin\omega t$ Volts supply, the current was found to be $i = 2.3\sqrt{2}\sin\omega t$ Amperes. Find i. value of capacitance, ii. Voltage across the inductor and iii. Total power consumed (Assume $\omega = 314.15$ rad/sec)
- b) In a series, parallel circuit two impedances are connected with series impedances as shown in figure below. If the voltage applied to the circuit is 200V, 50Hz. Calculate:

- i. Calculate I_A , I_B and I_C
- ii. Calculate power AB
- iii. Active and reactive Power of the entire circuit
- iv. Draw the Phasor diagram



5. a) Explain the differences between single phase and three phase system. 4
b) List out the advantages and disadvantages of star connected supply. 4
c) Explain the practical transformer with the help of phasor diagram with unity power factor load. 7
6. a) A 250V shunt motor on no load runs at 1000 rpm and takes 5A. The total armature and shunt field resistance are respectively 0.2Ω and 250Ω . Calculate the speed when loaded and taking a current of 50A, if the armature reaction weakens the field by 3%. 7
b) Explain the construction and operating principle of 3φ induction motor. 8
7. Write short notes on: (Any two) 2×5
 - a) Star/Delta transformation
 - b) Two wattmeter method of power measurement
 - c) Speed control of dc motor

POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2016

Programme: BE

Full Marks: 100

Course: Basic Electrical Engineering

Pass Marks: 45

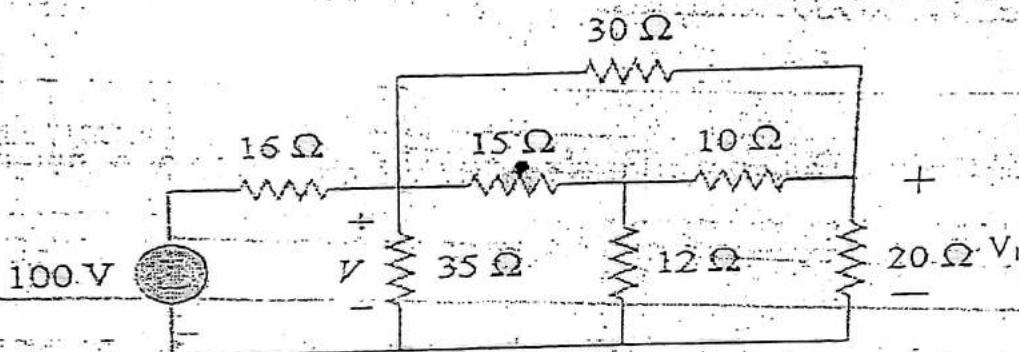
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

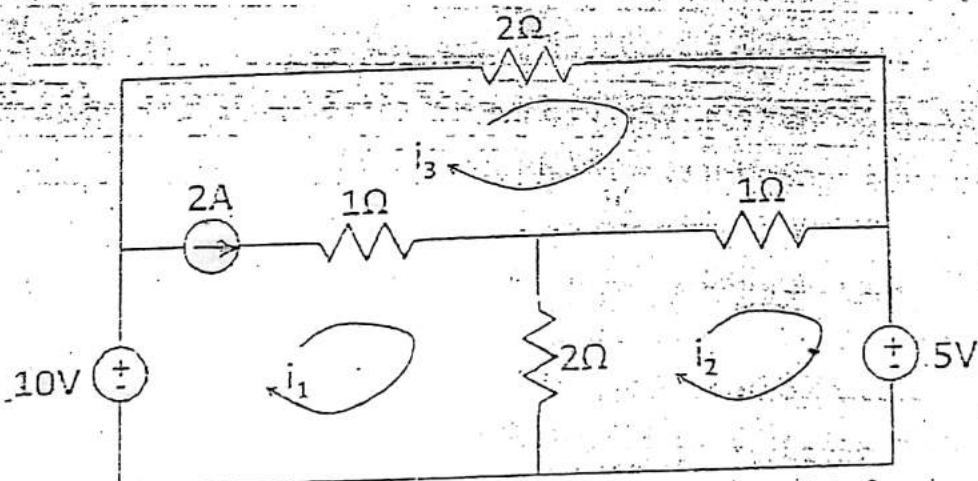
The figures in the margin indicate full marks.

Attempt all the questions.

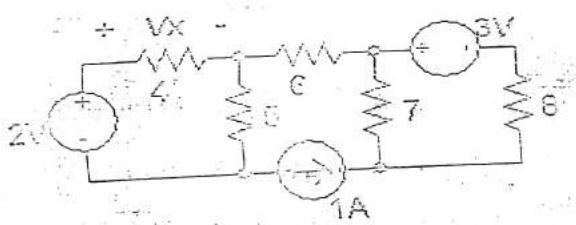
1. a) Obtain the equivalent resistance seen from source terminal and find V_i . 7



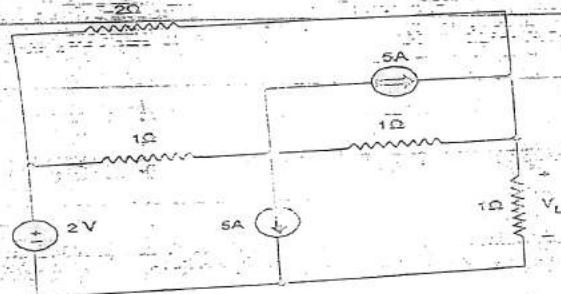
- b) Define active and passive elements. Calculate the power absorbed or delivered by 2A current source using super mesh analysis. 3



2. a) State Superposition theorem and use it to calculate V_x for the circuit shown below (All resistors are in Ohm). 7



- State Thevenin theorem and calculate V_x for the below ckt using Thevenin theorem.

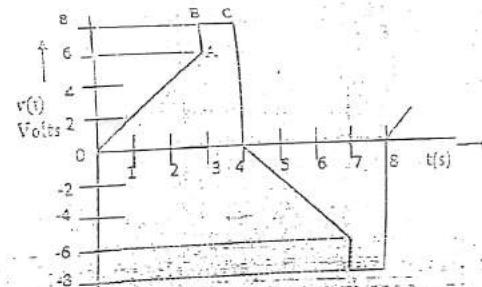


- a) A series circuit consists of a non-inductive resistance of 5Ω , and inductive reactance of 10Ω . When connected to a single-phase A.C. supply, it draws a current: $i(t) = 27.69 \sin(628.3t - 45^\circ)$ A.

Find:
i. the voltage applied to the series circuit in the form: $v(t) = V_m \sin(\omega t + 0^\circ)$

ii. the inductance (iii) Power drawn by the circuit.

- b) A voltage wave has the variations as shown below:



Find the average and effective values of the voltage. If above voltage is applied to a 50Ω resistor, calculate power dissipated in watts.

4. a) Explain the measurement of 3φ power by two wattmeter method with phasor diagram.
b) Three similar coils having resistance of 10Ω and inductance of $0.25H$ are connected in star to $34.400V, 50Hz$ supply. Calculate:
i. Line and phase currents
ii. P_f
iii. Power consumed

5. a) Define transformer and derive the expression for emf induced in transformer.

- b) A single phase, $25KVA, 250/500V$ transformer has following results on tests:

Open circuit test	250V	1A	80W
Short circuit	25V	10A	100W

Obtain the parameters of the transformer referred to both LV and HV sides.

6. a) A $240V$ shunt motor runs at 1450 rpm at full load with an armature current of 11 A. The total resistance of armature and brush is 0.6Ω . If the speed to be reduced to 1000 rpm with the same armature current, calculate the value of resistance to be connected in series with the armature.

- b) Explain the construction and operating principle of 3ϕ induction motor.

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall
 Programme: BE
 Course: Basic Electrical Engineering

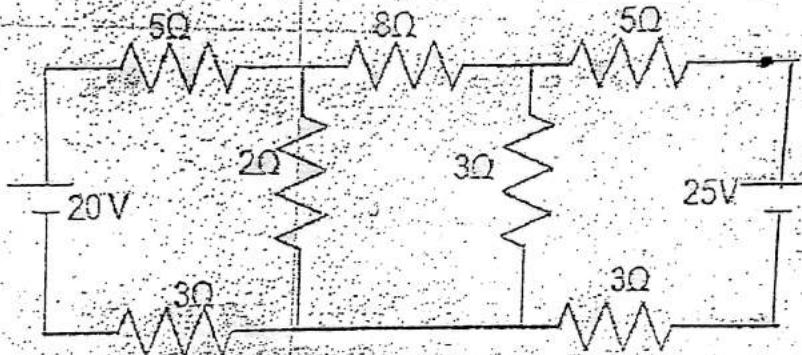
Year : 2015
 Full Marks: 100.
 Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

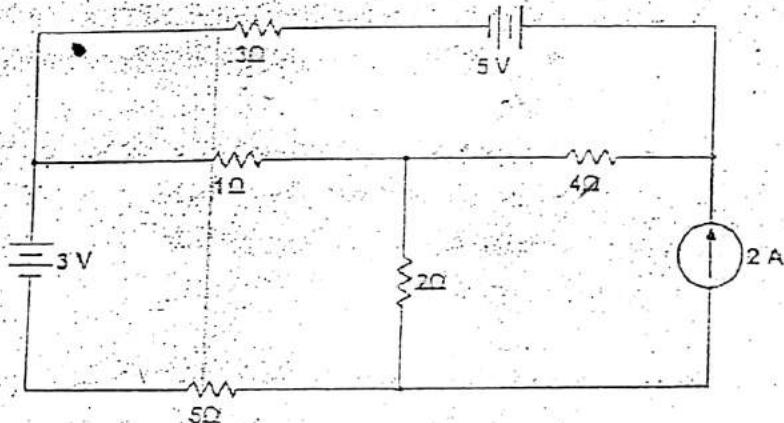
The figures in the margin indicate full marks.

Attempt all the questions.

1. (a) Explain generation, transmission and distribution with types with the help of single line diagram. 7
 (b) Find the current across 8Ω resistor using nodal analysis. 8



2. (a) For the circuit shown in figure, implement Norton's theorem to determine voltage drop across 1Ω resistor. 8



POKHARA UNIVERSITY

Semester: Spring

Level: Bachelor

Programme: BE

Course: Basic Electrical Engineering

Year : 2016

Full Marks: 100

Pass Marks: 45

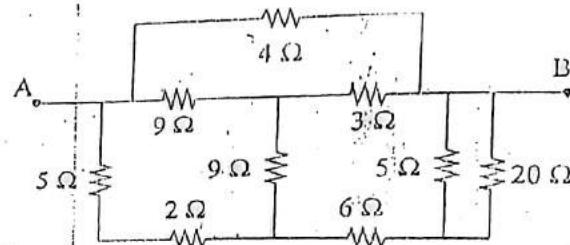
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

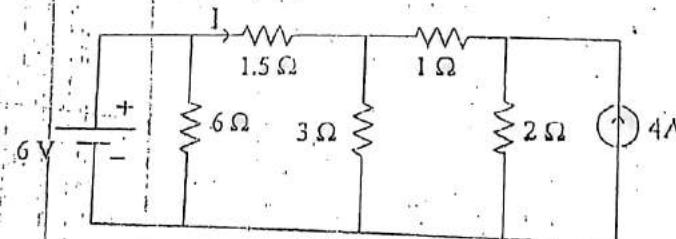
The figures in the margin indicate full marks.

Attempt all the questions.

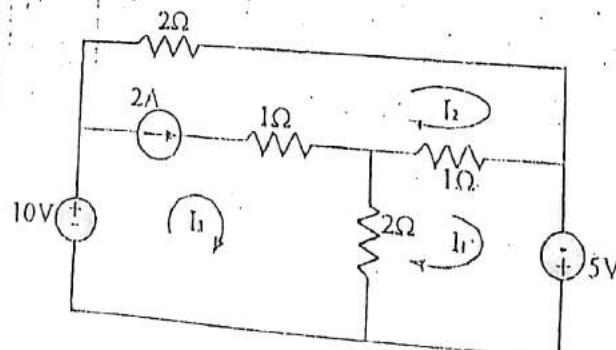
1. a) Explain the importance of electricity in real life. How the life would be in the absence of electricity? 5
- b) Illustrate about voltage divider and current divider circuit. 5
- c) Find the equivalent resistance R_{AB} for the network given below. 5



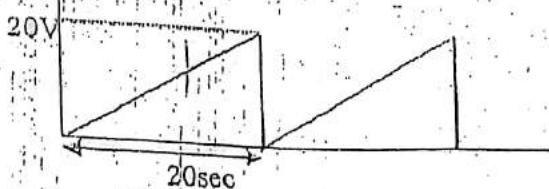
2. a) Find the current I using superposition theorem. 8



- b) Find the mesh current I_1 , I_2 and I_3 in the circuit given below using the concept of mesh analysis. 7



3. a) Find the average value, RMS value and form factor for a wave given below. 8



OR

Find the average value, effective (RMS) value, form factor and amplitude (peak) factor of the sinusoidal waveform.

- b) Explain the parallel resonance in RLC circuit. 7
4. a) Explain how three phase AC voltage is generated. Differentiate between single phase and three phase system. 3
- b) Two impedances $(20+j5)\Omega$ and $(30+j8)\Omega$ are connected in series across a 200V, 50Hz supply. Find current, active power, reactive power, apparent power and power factor of the whole circuit. 7
5. a) A 400V, balanced Y-connected supply is connected to three equal impedances $(40+j30)\Omega$ in a Y formation. Calculate: phase current, line current, power factor and total power. Also draw the phasor diagram. 8
- b) Explain the principle of operation of synchronous motor. 7
6. a) A 25 KVA, 3300/1100V, 50 Hz single phase transformer has primary and secondary winding resistances of 0.2Ω and 0.06Ω respectively. The primary and secondary winding leakage reactances are 0.32Ω and 0.012Ω respectively. Find the equivalent winding resistance, reactance and impedance referred to
- HV side
 - LV side.
- b) A shunt generator has induced voltage of 250V. When the machine is loaded, the terminal voltage drops down to 230V. Determine the load current if the armature resistance is 0.05Ω and the field circuit resistance is 23Ω . 7

OR

Explain operating principle of 3 phase induction motor. 2x5

7. Write short notes on: (Any two)
- Maximum power transfer theorem
 - Ideal and practical voltage source
 - Transformer efficiency
 - Power factor and its significances

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Basic Electrical Engineering

Semester: Spring

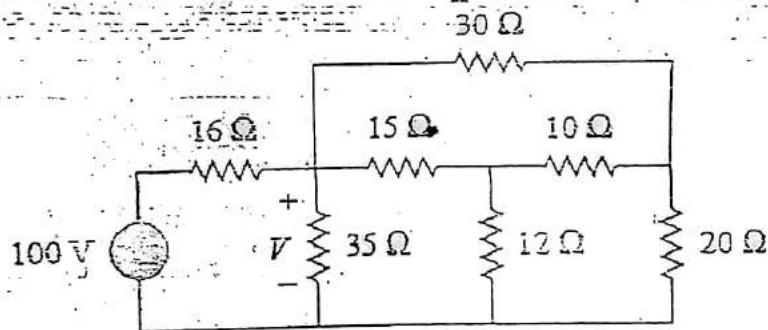
Year : 2014
 Full Marks: 100
 Pass Marks: 45
 Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

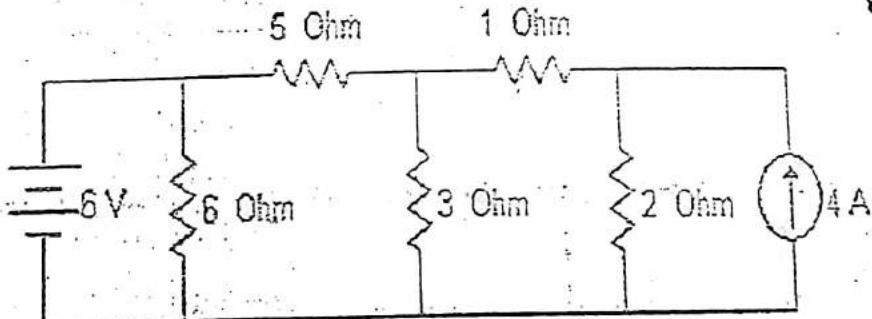
The figures in the margin indicate full marks.

Attempt all the questions.

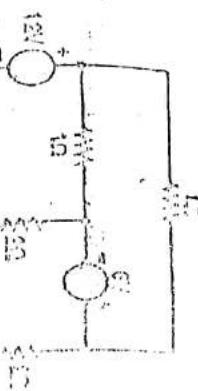
1. a) Obtain the equivalent resistance and use it to find source current for the circuit shown below. Also find V. 7



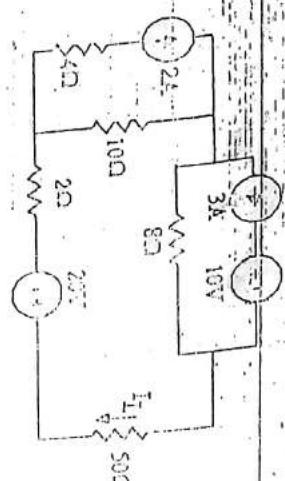
- b) Applying Superposition theorem, calculate the current in 5Ω resistor of circuit given below. 8



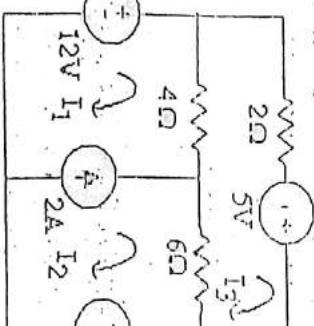
2. a) Calculate the power absorbed/ delivered by 6V source for the network shown in Fig. using nodal analysis. 7



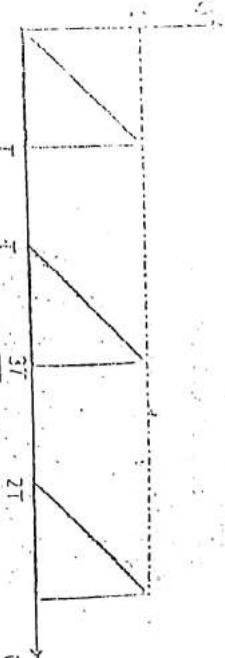
For the circuit shown in Fig. compute the load current using Thevenin theorem and determine the value of the load for which power transfer is maximum.



2) Solve the circuit in Fig. use mesh analysis to determine the mesh currents I_1 , I_2 and I_3 and evaluate the power developed in 10V source.



3) Solve the circuit in Fig. use mesh analysis to determine the mesh currents I_1 , I_2 and I_3 and evaluate the power developed in 10V source.



4) a) A 2 Ω resistor in series with a 6H inductor is connected across a 220 V, 50 Hz. Source. Determine

i. The impedance

ii. Input current

iii. The voltage across the resistor and inductor.

Power-factor

Power input to the circuit =

b) A balanced star connected load of $(2 + j3)$ Ω per phase is connected to a 3-C, 220 V, 50 Hz supply. Find the line current, power factor, power, volt-amperes and reactive power. Draw the phasor diagram showing the line voltage, phase voltage and phase currents.

5. a) Mention the condition for maximum efficiency, and state the different losses in case of a transformer.

b) The test data were obtained for 20 KVA, 50 Hz, 2000/200 V distribution single phase transformer. Calculate the approximate equivalent circuit parameter refer to both H.V. and L.V. side.

Test	Voltage (V)	Current (A)	Power (Watt)
OCC with HV open Circuited	200	4	120
SC with L.V. short circuited	60	10	300

Also determine efficiency for half load of 0.8 lagging Power Factor.

6. a) Explain the working principle of three phase induction machine.
b) For a DC separately excited motor, when the field circuit is connected to rated supply, and rated voltage is supplied to armature terminal, motor runs at 1000 rpm at no load. Then estimate the approximate speed of motor is the armature voltage to reduce to 50% of rated value.

- 7) Find the Average Voltage and rms Voltage of the waveform shown in Fig.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

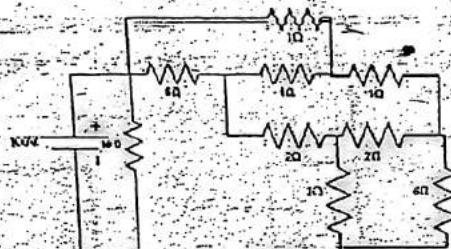
Attempt all the questions.

1. a) Explain in brief about generation, transmission and distribution of electrical power. 7

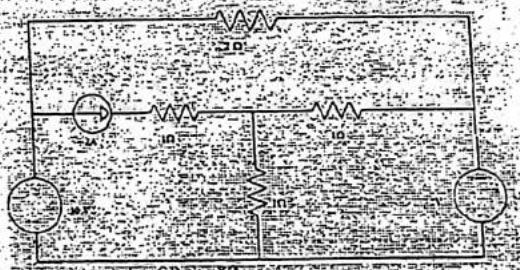
OR

Explain the construction and operation of single phase energy meter.

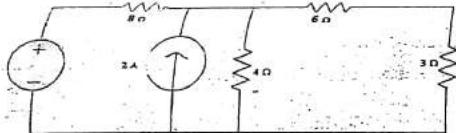
- b) Define active and passive elements. Find the equivalent resistance of the given network seen from the source. 8



2. a) By using Supermesh concept calculate voltage across 2Ω resistor of the circuit shown below. 7



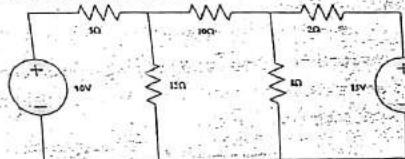
- b) State Thevenin's theorem and use it to calculate power consumed by 3Ω resistor for the circuit shown below. 8



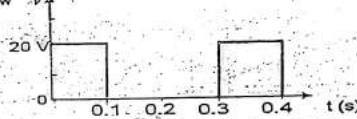
OR

State maximum power transfer theorem. Prove that the maximum power transferred to the load is $V_{th}^2/4R_{th}$.

- a) Use superposition theorem to calculate the current through 10Ω resistor of the circuit shown below.



- b) Compute the average and effective values of the square voltage wave shown in figure below



- a) Define resonance in electric circuit. Explain the variation of inductive reactance, capacitive reactance, impedance and current with frequency in RLC series circuit. Also find the resonant frequency in RLC series circuit.

- b) A coil of resistance 40Ω and inductive reactance of 25Ω is connected in series to $220V$, $50Hz$ supply. Calculate

- i. Active and reactive components
- ii. Total power of the circuit.

- a) A three phase balanced load connected in star draws a total power of $20kW$ at 0.8 pf lag when connected to 3ϕ , $400V$, $50Hz$ supply.

- Calculate
 i. Resistance of coil
 ii. Inductance of coil

OR

The star-connected stator of a three-phase, $50Hz$ alternator supplies a balanced delta-connected load. Each phase of the load consists of a coil of resistance 15Ω and inductance $36mH$, and the phase voltage generated by the alternator is $231V$. Calculate a) the phase and line currents b) the load power factor c) the power delivered to the load.

- b) A $240V$ shunt motor runs at 1450 rpm at full-load with an armature current of $11A$. The total resistance of armature and brush is 0.6Ω . If the speed to be reduced to 1000 rpm with the same armature current, calculate the value of resistance to be connected in series with the armature.

6. a) A $50kVA$, $500/250V$ transformer has a primary winding resistance of 0.5Ω and leakage reactance of 0.7Ω . The secondary winding resistance is 0.8Ω and leakage reactance of 0.9Ω . Calculate the equivalent resistance, reactance and impedance of transformer referred to

- i. Primary
- ii. Secondary

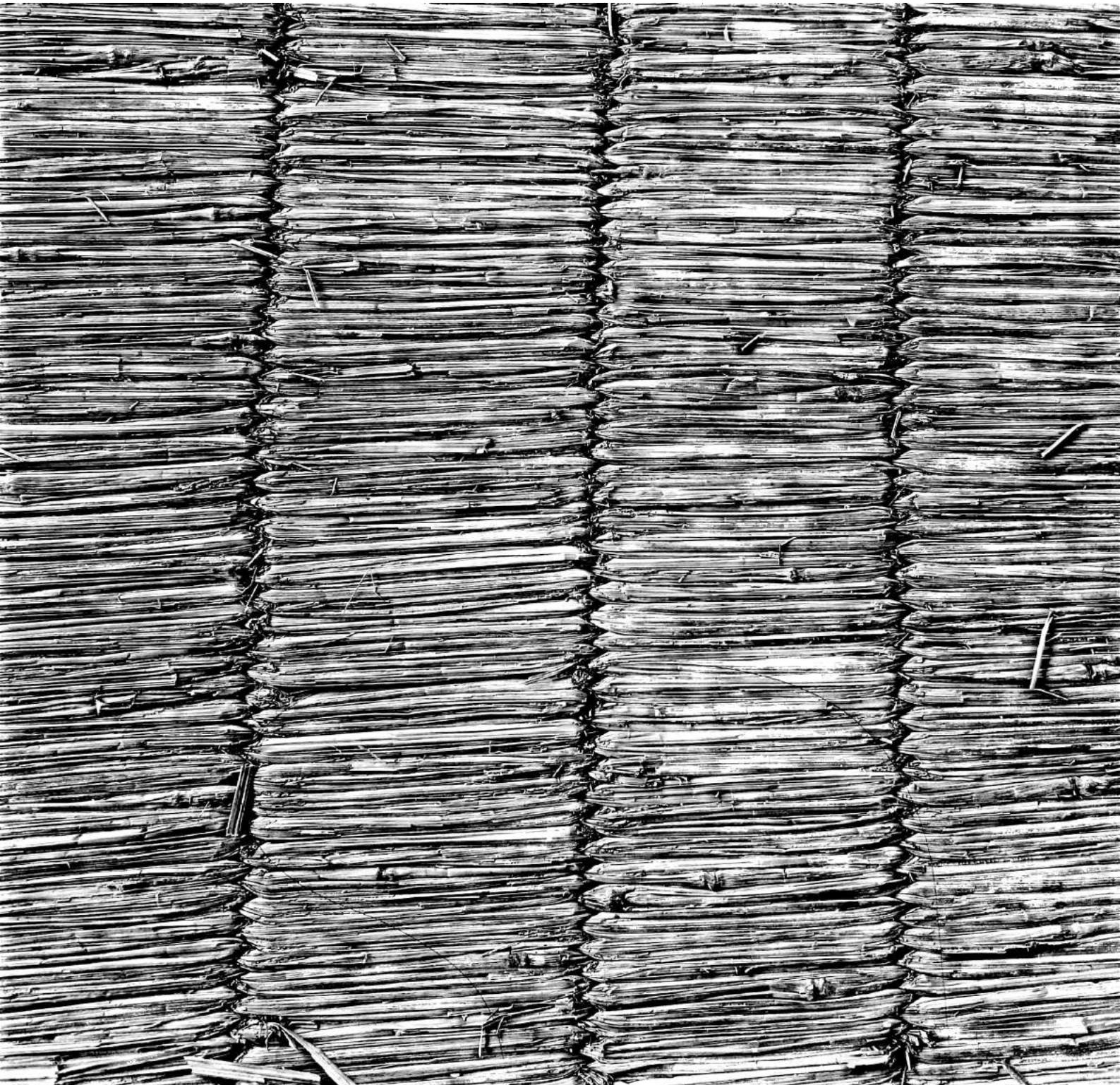
- b) Explain the construction and operating principle of 3ϕ induction motor.

OR

Explain the construction and operation of synchronous motor.

7. Write short notes on: (Any two)

- a) Advantages of 3ϕ system
- b) Magnetic circuit analogy with electric circuit.
- c) Power factor and its significance.



Level: Bachelor Semester: Spring Year: 2018
 Programme: BI Full Marks: 100
 Course: Communication Technique Pass Marks: 45
 Time: 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. Read the following passage and answer the question given below: 15

People usually object the use of new meaning of the old meaning of a word on the ground of word's history or etymology. They believe that older meaning is the correct meaning. The word 'decimate' means now "destroy a lot of" which meant in Latin "destroy one tenth of" which can be hardly used in modern contexts." History" really meant "investigation" in Greek."Nice" really meant "fastidious" in Shakespeare's time, which still means, "a nice distinction" in modern context."Nice" can be traced back to old French , where it meant "silly", and in Latin nescius meant "ignorant" ,which in turn, probably meant "cut" in Indo-European origin from which Latin derived. Though some people prefer an older meaning to the modern one, it is quite unpractical because the obscure or lost original meanings of words cannot be applied in modern contexts. New senses can't be condemned and old senses cannot be kept artificially alive. It is quite interesting to trace the changes in meaning in different periods of history, but yet etymology is never a true guide to meaning. If someone thinks opposite to this fact, he is, in fact, engaged in the "etymological fallacy".

- a) Why do some people object to the modern usages of a particular word?
- b) Why is an older meaning preferred to a modern one?
- c) How has the meaning "decimate" been broadened in the modern usage?
- d) Trace the various meanings of the word "nice" chronologically?
- e) What does the writer mean by the term "etymological fallacy"?
- a) "Science is the enemy of mankind." Argue for or against the 5

- b) What three concepts has Sontag mentioned in the essay beauty? 5
- c) How is cultural upbringing important compare to biological heritage? Prove with a suitable example from the passage.
- 3. a) Suppose that you are the Secretary of the newly elected youth club in your locality. Imagine at least three agenda and write the complete minutes of meeting held recently.
- b) Prepare a manuscript of a technical talk on "the scope of road construction in Rural Areas" of your country.
- 4. a) Explain the role of engineering in the development of a nation.
- b) Imagine that you are the secretary of Toyota Company and Suppliers, Kathmandu, Draft a minute of your 12th meeting held at Hotel Shankar, Kathmandu on the date 28th August, 2018, with the decision made as follow:

 - 12.01 Adoption of the minutes of the last meeting
 - 12.02 Opening of the regional base office
 - 12.03 Income Tax and appointment of contract base staff
 - 12.04 Addition of the new building
 - 12.05 Schedule for the next meeting

- 5. a) Read the following passage and make notes and summarize from it. 8
- The sense of a doom in us today is not a fear of science; it is a fear of war. Science has enlarged the mechanism of war, and it has distorted in two ways. First, science has obviously multiplied the power of the war makers. The weapons of the moment can kill more people secretly and more unpleasantly than those of the past. Grapeshot, TNT, and gas have not helped to outlaw quite new occasions for falling out. Science has created the surplus in our societies. It has increased the working day and the working diet. As a third aspect, science has created war nerves and the war of nerves. The last 20 years have given us frightening shows of the mental states. There is division in the mind of each of us. The man has submerged with the meanest tools of envy and frustration. Science is mysterious and powerful. Most people are impressed by it but they are ignorant and helpless. They have failed to make themselves comfortable because of the distrust and fear. People believe that we should be better off without science. However, science has provided the means, for good or bad, and it is the society that has seized it for science and our social habits. All that

science has created is comfort. It has increased the average span of life. Ideas of science have been applied to daily life, to clothing and bedding to hygiene and infection, to birth and death. The ideas of science have created life. They are creative.

- b) Suppose that there is a vacancy announcement at the Innovative Engineering Consult Pvt. Ltd. for the post of an Engineer for its new project aided by UNDP. Now, write a job application for the post as a qualified and competent candidate. 7
6. a) It is known that the country is facing the political and economic crises in these days. In your point of view, what are the effective solutions with examples? 7
- b) Write a report on the topic "Hanumante Corridor Construction", stepping the following process as Cover Page, Abstract, Introduction, Objectives, Methodology, Findings, and Conclusion, to be submitted to Ministry of Infrastructure Development. 7
7. a) Change the following sentences according to the variety labels in the parentheses. 5
- i. One should not ignore his parents' advises. (BrE)
 - ii. They urged that the culprit should be produced before the police within twenty four hours. (AmE)
 - iii. I wonder if you would mind lending me your car. (Familiar)
 - iv. You must abide by the rules and regulations of the college. (Impersonal)
 - v. He couldn't attend the exam as he was ill. (Common core)
- b) Transform the following sentences as indicated in the brackets. 5
- i. I have lost the book which my sister gifted me. (Compound)
 - ii. Sitting at the top the hill, the poet gazed into the sea. (Complex)
 - iii. Tell me what your plan is. (Simple)
 - iv. The proprietor scolded the servant for her negligence. (Complex)
 - v. Although Jack attempted his best, he failed to win the gold medal. (Simple)

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2018
 Programme: BE Full Marks: 100
 Course: Communication Techniques Pass Marks: 45
 Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. Answer the following questions after reading the passage given below. 15
- Oil the major source of energy in the world today, has had a dramatic effect on the world's economy. Quite recently, the demand for oil seemed unlimited. This enormous demand motivated several multinational companies to sum of money in locating and exploiting any large oil deposits that could be found. Some of these multinationals became extremely wealthy although the countries in which they found oil did not always have much of a share in this new-found wealth.

However, oil-rich countries came to realize that if they acted together, oil deposits could be a source of great power and wealth. Indeed, in 1973, the organization of petroleum exporting countries(OPEC) which together produced 56 percent of the world's petroleum at that time, decided to act together to force a increase in the price of oil by united action, OPEC was able to control of the rates of production and of prices away from the multinational companies. This action by a group of developing countries almost held the developed world to ransom. Limiting the supply of oil to sharp increases in what was becoming scarce, though still vital, commodity. Without oil, the economies of the developed countries would have come to a virtual standstill. Almost overnight, there was a huge shift of wealth from industrial nations to the oil-exporting nations. Another effect was that industrialized countries became more interested in energy conservation. Indeed by 1980, world oil consumption was won by 3 percent on 1973 levels. A more long term effect was that other sources of energy which levels a more effect was that other sources of energy which had previously been considered too costly now become economically feasible.

Questions:

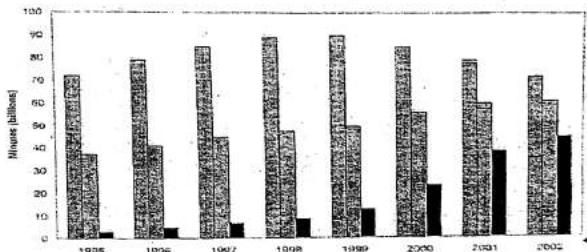
- What motivated the exploitation and location of oil deposits?
- What did the oil rich countries realize?
- What is OPEC and what was their total production?

95

- d. Why was there a shift of wealth from industrial nation to oil exporting nation?
 e. Summarize the passage and give a suitable title to it.
2. Answer any three of the following questions:
- Do you think that the doctor's declaration about Mrs. Mallard's death is right? Support your answer. (*The Story of an Hour*)
 - Why does the young man tell his mother 'weep not for me, my mother'? (*A Leuer from the Foreign Grave*)
 - Are Sontag's claims about the place of beauty in a culture applicable to our culture as well? Elaborate your answer. (*Beauty*)
 - How is knowledge deeply associated with wisdom? Describe with reference to the text you have read. (*Knowledge and Wisdom*)
3. a) As a head of any organization you are worried about the amount of time employees are spending during the Tea Break. Prepare a memo and circulate to all employees, asking them to be at their desk during duty hours.
 b) Write a job application along with an effective CV/Resume for the post of Electrical and Electronics Engineer at municipality office of your district advertised in the local newspaper
4. a) The chart shows the total number of minutes (in billions) of telephone calls in the UK, divided into three categories, from 1995-2002. Summarise the information by selecting and reporting the main features, and make comparisons where relevant. Write few paragraphs.

UK telephone calls, by category, 1995–2002

Call type: Local – fixed line National and International – fixed line Mobiles (all calls)



2

- b) Prepare notes first and then write a précis on the basis of the following passage: 8

It is very easy to acquire bad habits, such as eating too many sweets or too much food, or drinking too much fluid of any kind, or smoking. The more we do a thing, the more we tend to like doing it; and, if we do not continue to do it, we feel unhappy. This is called the force of habit, and the force of habit should be fought against. Things which may be very good when only done from time to time, tend to become very harmful when done too often and too much. This applies even to such good things as work or rest. Some people form a bad habit of working too much, and others of idling too much. The wise man always remembers that this is true about him, and checks any bad habit. He says to himself, "I am now becoming idle," or "I like too many sweets," or "I smoke too much" and then ads, "I will get myself out of this bad habit at once."

One of the most widely spread of bad habits is the use of tobacco. Tobacco is now smoked or chewed by men, often by women, and even by children, almost all over the world. It was brought into Europe from America by Sir Walter Raleigh, four centuries ago, and has thence spread everywhere. It is doubtful whether there is any good in the habit, even when tobacco is not used to excess; and it is extremely difficult to get rid of the habit when once it has been formed. Alcohol is taken in almost all cold climates, and to a very much less extent in hot ones. Thus it is taken by people who live in the Himalaya Mountains, but not nearly so much by those who live in the plains of India. Alcohol is not necessary in any way to anybody. Millions of people are beginning to do without it entirely; and once the United States of America have passed laws which forbid its manufacture or sale thorough out the length and breadth of their vast country. In India it is not required by the people at all, and should be avoided by them altogether. The regular use of alcohol, even in small quantities, tends to cause mischief in many ways to various organs of the body. It affects the liver; it weakens the mental power, and lessens the general energy of the body.

5. a) As an engineer of a technical section, prepare a proposal to be submitted to the Municipality Management Committee for the construction of any bridge required for your context. (Include: Introduction, Problems, Objectives, Methodology, Budget and Output) 8
- b) Suppose you are a responsible person of Pokhara University and you want to run a three-day workshop in the conference hall of Hotel Barahi on Writing Process by the renowned resource person Prof. Dr. Shreedhar Lohani. Now write an inquiry letter asking about booking the hall for three days in a reasonable price. (Inquire : cost, accommodation & presentation tools) 7

6. a) Suppose you are a president of any youth club of your place. You know a family has been affected by an earthquake. Now write a persuasive letter to the successful business man, Anil Chaudhary of your town convincing him to aid the earthquake affected child, Raju and his family to build their house. 8
- b) Make a neat sketch and write the technical description on any one of the following topics below: 7
- i. Cell phone
 - ii. Motorbike
 - iii. Laptop
7. a) Transform the following sentences as directed in the brackets. 5
- i. All believed that he was guilty of murder. (Simple)
 - ii. I selected this car after I had tried several times. (Compound)
 - iii. The teacher scolded the student for his disobedience. (Complex)
 - iv. The ship was wrecked, but the crew were saved. (Complex)
 - v. He was furious when he heard the result. (Simple)
- b) Transform the variety levels of the following sentences as indicated in the brackets. 5
- i. One should always do as he speaks. (BrE)
 - ii. Would you please let me use your bicycle? (Familiar)
 - iii. Join us for a birthday party at a restaurant. (Tactful)
 - iv. Who did you give it to? (Formal)
 - v. This question is too difficult for me to answer. (Impersonal)

POKHARA UNIVERSITY

Level: Bachelor	Semester: Spring	Year : 2017
Programme: BE		Full Marks: 100
Course: Communication Techniques		Pass Marks: 45
		Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. Read the following passage and answer the given questions:

The surveying of any regional area such as a state or two, is a multi-step process. First, two controlling survey lines are established: a baseline, which runs east-west and a principal meridian, which runs north-south. The locations of the two are determined by a previously chosen initial point, where they originate and thus intersect. Next, at a defined distance interval, commonly 24 or 30 miles (48 km) depending on the year and location, standard parallels of latitude are established parallel to the baseline. The meridian, baseline and standard parallels thus established form a lattice upon which all further surveying is then based. Subsequent work divides the land into survey townships of roughly 36 square miles ($\sim 93 \text{ km}^2$) or 6 miles ($\sim 9.7 \text{ km}$) on each side. This is done by the establishment of township and range lines. Township lines run parallel to the baseline (east-west), while range lines are true meridians and thus run north-south; each are established at six mile (10 km) intervals. Lastly, townships are subdivided into 36 sections of approximately one square mile (640 acres, $\sim 2.6 \text{ km}^2$) and sections into four quarter-sections of 0.25 square mile (160 acres, $\sim 0.65 \text{ km}^2$) each. The intersection of a township line (or baseline) with a range line (or principal meridian) constitutes a township corner, of a section line with any other type of line a section corner, and a point halfway between any two section corners a quarter corner. The federal government typically surveyed only to this quarter-section level, the subdivision of smaller parcels being carried out subsequently by private surveyors after original sale.

Because the survey design is two-dimensional (rectangular), while the actual earth is three-dimensional (~ spherical), adjustments to land areas must be made periodically to prevent error propagation; not all sections can be one square mile nor can all townships be exactly 36 square miles. More specifically, all north-south running lines (all range lines and half of all section lines), as with the prime meridian, are always established with reference to

15

97

true, geodetic north. But it is a physical impossibility to meet this condition and still maintain a rectangular land grid, because such lines converge on the North Pole—they are meridians.

These adjustments are done at two different scales. At the small scale (within a township), it is done by starting the sectional surveys (township "subdivisions") in the southeast corner and moving progressively toward the northwest corner. The algorithm used is to move northward to establish the six eastern-most sections (and quarter-sections), then move west at one mile intervals, parallel to the eastern boundary of the township, repeating this process, until the western side of the township is reached. The result of this is that the northernmost and westernmost tiers of sections—11 in all—are thus allowed to deviate from one square mile, but the other (southeasterly-most) 25 sections are not. This method accommodates the curvature problem within a township, and it also allows for any errors made during the surveying itself—which were nearly unavoidable due to the physical difficulty of the work and the crude equipment used—without overly compromising the basic rectangular nature of the system as a whole. At the larger multiple township scale, the standard parallels mentioned above allow a longitudinal re-setting of township corner locations, so that townships widths do not continually decrease as one proceeds north (and is in fact the primary reason for their establishment). Thus, corrections for curvature of the earth exist at two separate spatial scales—a smaller scale within townships, and a larger scale between multiple townships and within standard parallels.

Questions:

- a) How are the two survey lines determined on the basis of land survey?
- b) What are the differences between township lines, range lines and base lines?
- c) Why is there physical impossibility to meet the condition of different dimension of survey design?
- d) How does township method accommodate problem in curvature method?
- e) How does the federal government use land-surveying system?

2. Answer *any three* the following questions:

- a) "Spring days, summer days and all sorts of days that would be her own" Describe it with reference to the text. (The Story of an Hour)
- b) How do 'Sense of Proportion' 'Emancipation' and 'Impartiality' help to explain more about wisdom? Would you like to be knowledgeable or wise? Explain with your logical argument. (Knowledge and Wisdom))
- c) Do you believe anyone in this world is free? How is human being laden in the vicious circle of slavery? (Freedom)
- d) What does the poet appeal to his mother in the poem? Explain about the phrases used in the poem "eyes welling up with tear", "Seven hundred seas away" ((Letter from Foreign Grave)

49

3×5

2

1

3. a) Suppose you are the secretary of the Student Council of your college. And draft a notice with agenda summoning the council meeting on first Sunday of next month. 5
- b) Unique Construction Center is seeking a young, energetic and self motivated BE graduate for the post of technical officer. Candidate should possess good communication skill, and sound knowledge of subject matter along with two years' experience in related field .Write a winning application with impressive curriculum vitae to apply for the post. 10
4. a) Make note after reading the passage. 7
- In the first half of the 19th century, suspension bridges occasionally collapsed under wind loads because girders tended to have insufficient rigidity. In the latter half of the 19th century, such collapses decreased because the importance of making girders sufficiently stiff was recognized. In the beginning of the 20th century, stiffening girders with less rigidity reappeared as the deflection theory was applied to long-span suspension bridges. The Tacoma Narrows Bridge collapsed 4 months after its completion in 1940 under a wind velocity of only 19 m/s. The deck of the bridge was stiffened with I-girders formed from built-up plates. The I-girders had low rigidity and aerodynamic stability was very inferior as shown in recent wind-resistant design.
- After this accident, wind tunnel tests for stiffening girders became routine in the investigation of aerodynamic stability. Truss-type stiffening girders, which give sufficient rigidity and combined partially with open deck grating, have dominated the design of modern suspension bridges in the United States. A new type of stiffening girder, however, a streamlined box girder with sufficient aerodynamic
- Stability was adopted for the Severn Bridge in the United Kingdom in 1966. In the 1980s, it was confirmed that a box girder, with big fairings (stabilizers) on each side and longitudinal openings on upper and lower decks, had excellent aerodynamic stability. This concept was adopted for the Tsing Ma Bridge, completed in 1997. The Akashi Kaikyo Bridge has a vertical stabilizer in the center span located along the centerline of the truss-type stiffening girder just below the deck to improve aerodynamic stability. In the 1990s, in Italy, a new girder type has been proposed for the Messina Straits Bridge, which would have a center span of 3300 m. The 60-m-wide girder would be made up of three oval box girders which support the highway and railway traffic. Aerodynamic dampers combined with wind screens would also be installed at both edges of the girder. Stiffening girders in recent suspension bridges are shown in the text it shows the wind-resistant design procedure specified in the Honshu-Shikoku Bridge Standard. In the design procedure, wind tunnel testing is required for two purposes: one is to verify the airflow drag, lift, and moment coefficients which strongly influence the static design; and the other is to verify that harmful vibrations would not occur. Gust response analysis is an analytical method to ascertain the forced vibration of the structure by wind gusts. The results are used to calculate structural deformations and stress in addition to those caused by mean wind. Divergence, one type of static instability, is analyzed by using finite displacement analysis to examine the relationship between wind force and deformation. Flutter is the most critical phenomenon in considering the dynamic stability of suspension bridges, because of the possibility of collapse. Flutter analysis usually involves solving the motion equation of the bridge as a complex Eigen value problem where unsteady aerodynamic forces from wind tunnel tests are applied. 8
- b) Suppose you are the chief executive officer at Marie's Fashion. Ms Maud, an out-of-town customer, bought an expensive dress from you and mailed it back three weeks later, asking for a refund. Ms Maud explained that the dress was not a good fit and that she really did not like it anymore. But perspiration stains on the dress proved that she had worn it. Now, write a letter of refusal with proper explanation why you can't refund the money. 8
5. a) Suppose you have shop named Pritam Science Lab Equipment Shop and you have demanded some science lab equipments from Harati Science Lab Company, Gorakhpur India, but some of the equipments are found damaged and smashed while opening. Write a complaint and adjustment letter for the damaged items. 8
- b) Write a technical description of any product you like and explain the parts, functions and use. 7
6. a) Prepare cover page, abstract, introduction, objectives findings and results of a Report to be submitted in Urban Development Ministry of Nepal on the topic of 'Dhobikhola and Bagmati Corridor Construction' Kathmandu. 8
- b) Prepare a technical talk on *Problem on Reconstruction after the Earthquake*. 7
7. a) Transform the following sentences as indicated in brackets. 5
- She will do her assessment very quickly. (passive)
 - This technical talk is not being written. (active)
 - As students, we should follow the schedule. (British)
 - He has served as attorney for many years. (American)
 - The friend said, "Man is mortal". (indirect)
- b) Write a short paragraph on "A Business Trip to Pokhara" using simple, compound, complex, and compound complex sentences. 5

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

Attempt all the questions.

1. a) Read the following passage and answer the questions given below it: 7
- FORMAL DRESS CODE FOR COMPANY EMPLOYEES**
- At Transit European, the company's objective in establishing a formal dress code is to enable our employees to project the professional image that is in keeping with the needs of our clients and customers who seek our guidance, input, and professional services. Because our industry requires the appearance of trusted business professionals and we serve clients at our site on a daily basis, a more formal dress code is necessary for our employees.
- Formal Dress Code Guidelines**
- In a formal business environment, the standard of dressing for men and women is a suit. Alternatively a jacket may be worn with appropriate accessories. Torn, dirty, or frayed clothing is unacceptable. Clothing should be pressed and never wrinkled. No dress code can cover all contingencies so employees must exert a certain amount of judgement in their choice of clothing to wear to look. If you experience uncertainty, please ask your supervisor for advice.
- Shoes and Footwear**
- Conservative walking shoes, dress shoes, loafers, boots, flats, dress heels, and backless shoes are acceptable for work. Not wearing stocking or socks is inappropriate. Tennis shoes and any shoe with an open toe are not acceptable in the office.
- Accessories and Jewellery**
- The wearing of ties, scarves, belts, and jewellery is encouraged, provided they are tasteful. Items which are flashy should be avoided.

Maintenance, Perfume, and Cologne

A professional appearance is encouraged and excessive makeup is unprofessional. Remember that some employees may have allergic reactions to the chemicals in perfumes and makeup, so wear these substances in moderation.

Hats and Head Covering

Hats are not appropriate in the office. Head covers that are required for reasons of faith or to honour cultural tradition are permitted.

Dress Down Days

Certain days can be declared dress down days, generally Fridays. On these days, business casual clothing is allowed. Clothing that has our company logo is strongly encouraged. Sports team, university, and fashion brand names on clothing are generally acceptable. However, you may wish to keep a jacket in your office in case a client unexpectedly appears.

Violation of Dress Code

If clothing fails to meet these standards, as determined by the employee's supervisor, the employee will be asked not to wear the inappropriate item to work again. If the problem persists, the employee will receive a verbal warning and may be sent home to change clothes.

Now choose **No More Than Two Words** from the text for each answer:

Notes on Company Dress Code

- i. Aim of formal dress code: to present a to clients
- ii. State of clothes: they must be and in good condition
- iii. Accessories: ties, scarves, belts and jewellery may be worn - these must be and not brightly coloured
- iv. Make up: avoid wearing too much make up and perfume - these sometimes cause
- v. Hats: hats should not be worn - head covers in line with religious reasons or are allowed
- vi. Dressing down: casual clothing is allowed on some Fridays - clothing with the on it is recommended
- vii. Breaking the dress code: if advice is repeatedly ignored, a is given

b) Read the following text again and do the activities that follow:

8 100

JLP RETAILS: STAFF BENEFITS
Whatever your role, your pay range will be extremely competitive and reviewed in the light of your progress. In addition to your salary, you will enjoy an array of excellent benefits from the moment you join the company.

Paid holiday

The holiday entitlement is four weeks per year, rising to five weeks after three years (or in the case of IT graduate trainees, after promotion to programmer or trainee analyst). There are further long-service increases for most staff after ten or fifteen years. Manager, including graduate trainees, receive five weeks' holiday from the outset.

Pension scheme
We offer a non-contributory final salary pension scheme, payable from the age of 60, to most staff who have completed the qualifying period of five years.

Life assurance

Our life assurance scheme pays a sum equivalent to three times your annual salary to your nominated beneficiary.

Discounts

After three months' service, all staff are entitled to a 12% discount on most purchases from the company's stores. This rises to 25% after one year's service.

Subsidised dining room

In most sites, we provide a dining room where you can enjoy excellent food at very reasonable prices.

Holiday and Leisure facilities

The business owns a number of residential clubs which offer subsidised holiday accommodation for staff with at least three years' service.

Sports clubs

We support an extensive range of sports activities including football, netball, golf, skiing, sailing, squash, riding and gliding.

Ticket subsidies

Ticket subsidies of 50% of the cost of plays or concerts are available. Staff may also take advantage of corporate membership to bodies such as the Science Museum.

We give generous financial support to staff who wish to acquire leisure skills or continue their education, e.g. through the Open University or evening classes.

Extended leave

Staff who complete 25 years' service can enjoy paid sabbatical leave of up to six months.

Health services

We have an occupational health service staffed by full-time doctors and health advisers.

Financial help, benefits and discounted deals

In cases of particular hardship, we will help staff with a loan. We have also negotiated a range of benefits for staff such as discounted private healthcare and a car purchase scheme, along with a number of one-off deals with hotels and amusement parks.

Now, complete the sentences below:

Choose No More Than Two Words And/Or A Number from the text for each answer.

- i. Pay increases depend on the that each member of staff makes.
- ii. Employees must work a minimum of to be eligible for a pension.
- iii. Staff may take a holiday at one of the provided by the company.
- iv. The company pay half the seat price for and plays.
- v. The company gives financial assistance for both educational courses and as part of staff development.
- vi. Employees may be entitled to a if they find themselves in difficult circumstances.
- vii. It has also been bargained a variety of benefits for such as medical attention, car purchase etc.
- viii. Irrespective of any role, the payment will be highly and reviewed depending on performance progress.

15

2. Answer any three of the following questions:

a) How is beauty devalued in the modern days?

Discuss it with reference to the text by Susan Sontag (*Beauty*)

(100)

- b) *Freet Body and Soul free!* Explain with reference to the text. (*The Story of an Hour*)
- c) What is the central theme of the poem "*A Letter from the Foreign Grave*"?
- d) "Pursuit of knowledge may become harmful unless it is combined with wisdom". Argue. (*Knowledge & Wisdom*)
3. a) You are the Principal of a college. It was reported to you that 24 computers were brought last week from ABC Computer Pvt. Ltd. New Delhi, to be used in Computer Laboratory. After receiving the consignment, 4 computers were found in corroded condition. Write a letter of complaint to the supplier asking refund or replacement. Invent all necessary details.
- b) Imagine that you are the CEO of the bank, write a memo to all the staff to be present in Dasarath stadium to observe the Inter-Banking Football Tournament as spectators and give the moral support to the players of the very bank.

4. a) Read the following paragraphs and write a Précis:

Man has made tremendous technological advancements. From humble beginnings last century with the Industrial Revolution we have come to the stage where we have invented and built so many gadgets that our very existence is threatened by them, like the atomic bomb.

We cannot deny that technology has improved the quality of our lives beyond measure. A journey to anywhere on the globe now takes merely a few hours by airplane, whereas it may have taken many years to do so on foot. We communicate with one another with increased ease and efficiency. All it takes is the pressing on a few buttons and we are able to talk to anyone almost anywhere in the world. A tap of the television switch gives us news, sports and entertainment in glorious color. Modern methods of cooking do not leave dirty messes behind. For the even more lazy ones, fast-foods are always available, some twenty four hours a day.

Modern computers have penetrated into all aspects of business, governments and even at home. City traffic is controlled by computers. Airline booking and air-traffic are also computer-controlled. So it is with many other things where computers are virtually indispensable. Computer breakdown means also the breakdown of whatever system it controls. The computer has become almost all-powerful. Such is our dependence on it.

8

7

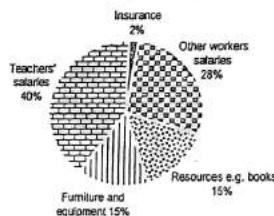
8

In war, our technological expertise has given us super-efficient weapons. Instead of swords and spears, we now have machine-guns, heat-seeking missiles, cruise missiles, jet-fighters and other tools of murder and mayhem. Our ability to kill and destroy is frightening. We have become so powerful that the possibility of killing ourselves completely is very real indeed.

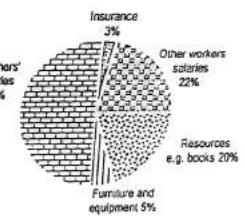
On one hand technology has made life easier to us. On the other, technology as created weapons of mass destruction that can destroy the whole human population. We have the means to keep making living better or eliminate it completely. The choice is up to us.

- b) The three pie charts below show the changes in annual spending by a particular UK school in 1981, 1991 and 2001. Summarise the information by selecting and reporting the main features, and make comparisons where relevant. Write at least 150 words.

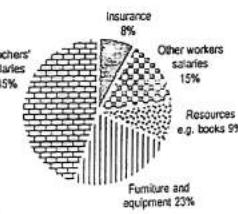
Total School Spending 1981



Total School Spending 1991



Total School Spending 2001



5. a) As an engineer of a technical section, prepare a proposal to be submitted to the College Management Committee for the construction

6

8

of an Auditorium required for your college premises. (Include sub-headings like: Introduction, Problems, Objectives, Methodology, Budget and Output)

- b) Suppose you have visited the earthquake victims of Barpak Gorkha, the people of that locality have not got subsidies ensured by the government and there are more processes to get that fund. Now write a persuasive letter to Chief District Officer of Gorkha District to grant all the facilities without any delay creating empathetic feeling. 7
6. a) Prepare a neat sketch of your CV/Resume for the post of Computer Engineer. 8
- b) Make a descriptive writing on any one of the followings: 7
- i. Motorbike ii. Cell Phone iii. Microscope
7. a) Transform the following according to the variety labels given in the bracket: 5
- i. The captain suggested that Sunil be dropped from the team.
(BrE)
 - ii. It is going to snow today. (Tentative)
 - iii. Come in and sit here. (Polite)
 - iv. What did he write it with? (Formal)
 - v. She has got a nice present. (AmE)
- b) Transform the following as indicated in the bracket: 5
- i. The moon having risen, the darkness disappeared. (Compound)
 - ii. My mother gave me a watch and I have lost it. (Complex)
 - iii. Although the car dashed against a wall, the driver was unhurt.
(Compound)
 - iv. You need not disbelieve his word. (Complex)
 - v. Tell me what your plan is. (Simple)

POKHARA UNIVERSITY

Level: Bachelor Semester: Spring Year : 2016
Programme: BE Full Marks: 100
Course: Communication Technique Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Read the following piece of information and do the activities that follow: 8

SYDNEY TRAVEL COLLEGE

At this College we recommend the Multiplan policy.

Travel Insurance Requirements

As this course includes a total of three months' travel Australia, travel insurance is Compulsory. If you are sick or have an accident in Australia, your medical bills will be fully covered-however, you cannot assume that everything will be covered overseas, so please read the following requirements carefully.

1. Medical

Australia has reciprocal arrangements with the governments of the eight nations you will be visiting. This arrangement will cover all emergency hospital treatment. However, students will have to take out insurance such as Multiplan to cover the costs of all visits to doctors, and other non-emergency medical situations.

If you have a serious accident or illness, Multiplan insurance will cover the cost of your flight back to Australia, if required. Depending on the circumstances, this may also pay for either medical personnel or a family member to company you home. Multiplan insurance may not cover all pre-existing medical conditions-so before you leave, be sure to check with them about any long-term illness or disabilities that you have.

If you do require medical treatment overseas, and you want to make a claim on your insurance, the claim will not be accepted unless you produce both your student card and your travel insurance card.

2. Belongings

The Multiplan policy covers most student requirements. In particular, it provides students with luggage insurance. This covers

102

any loss or theft of your everyday belongings.

For example, this insurance covers:

- the present value of items that are stolen-provided that you have purchase receipts for every item; if no receipts, no payment can be made
- replacement value of your briefcase or backpack and study books
- portable computers and CD players, if you specifically list them as items in the policy

3. Cancellation

This insurance covers any non-refundable deposit and other costs you have paid if you have to cancel due to 'unforeseen or unforeseeable circumstances outside your control'. It does not provide cover if you change your study or travel plans for other reasons.

Classify the following events as being

- A covered by government arrangements
B covered by the Multiplan policy
C not covered by the Multiplan policy
D covered in some situations

Write the correct letter, A, B, C or D for each statement given below

- i. A student travelling overseas suddenly needs hospital treatment.
- ii. A student consults a doctor regarding a minor problem while abroad.
- iii. A parent goes overseas to bring an injured or sick student to Australia.
- iv. A student is treated overseas for an illness he/she had before leaving Australia.
- v. A student who requires medical treatment has lost his/her travel insurance card.
- vi. A student's study books are lost.
- vii. A student's laptop is stolen.
- viii. A student changes his/her mind about plans to study and decides not to take the booked flight.

- b) Now read the passage again and do the activities that follow

Kenichi Software: Security Guidelines for Staff

7

General

It is in everyone's interest to maintain a high level of security in the workplace. You should immediately challenge any person who appears to be on the premises without proper authorisation, or inform

2

a senior member of staff about any odd or unusual activity.

Company Property

You are advised that it is within the company's legal rights to detain any person on the grounds that they may be involved in the unauthorised removal of company property. The company reserves the right to search staff members leaving or entering the premises and to inspect any article or motor vehicle on company property. It is a condition of employment that you submit to such action if requested. It is in your own interest to ensure that you have proper authority before removing any item of company property from a company building. Any member found removing company property from the building without proper authority will be subject to disciplinary action.

Identity Badges

You will be issued with an identity badge, which should be worn at all times when you are on company premises. The purpose of these badges is to safeguard our security. Badges are issued by Human Resources, and contractors and people visiting the company on a one-off basis are also obliged to wear them.

Confidential Matters

In the course of your work you may have access to information relating to the company's business, or that of a supplier or customer. Such material, even where it appears comparatively trivial, can have a serious effect on the company, supplier or customer if it falls into the wrong hands. It is, therefore, essential that you should at all times be aware of the serious view the company would take of disclosure of such material to outsiders.

You must treat as confidential all information, data, specifications, drawings and all documents relating to the company's business and/or its trading activities, and not divulge, use, or employ them except in the company's service. Before you leave the company, you must hand over to your manager all private notes relevant to the company's business, activities, prices, accounts, costs etc. Legal proceeding may be initiated for any misuse or unauthorised disclosure of such confidential information, whether during employment or afterwards.

Complete the sentences below:

Choose NO MORE THAN TWO WORDS from the text for each answer.

Rewrite your answers in the blanks.

- i. If you see anything suspicious, you should report it to a employee.
- ii. If the company wants to stop you and you, you have to agree to it.

3

15

- iii. If you take things belonging to the company without permission, you will face
- iv. Staff, and visitors must all wear a badge on company premises.
- v. You must not pass on confidential information to
- vi. If you leave the company, you have to hand in any you have made on matters concerning the company.
- vii. may be initiated for any misuse.

2. Answer any three the following questions:
a) Narrate the story A Story of an Hour in your own words. (A Story of an Hour)

- b) Do the disadvantages of the science outweigh the advantages? Discuss. (The Use & Misuse of Science)
- c) What does 'trap' imply in the essay by Susan Sontag? Do you think she is the savior of her own sex? (Beauty)
- d) How do you lay the foundation of the road? (Road Foundation)

3. a) Being a CEO of the reputed bank, write a memo to all the departments that the half yearly progress report should be submitted to your secretary on or before 1st of February 2017. Mention that you are going to have meeting/discussion with the Board of Directors and the figures are going to be tallied there.
- b) Suppose you have bought an expensive cell phone from the local showroom of a highly reputed brand. With the product, you have been given a card warranting that its battery will remain intact for at least two years. Despite the claim, just within six months, the battery was draining with less than an hour back up. Now write a claim letter for adjustment grant to the Sales Manager of the show room. Use details on your own to furnish the answer.

4. a) Read the following passage and make notes:
Most of the people are probably the most pain-conscious people on the face of the earth. For years we have had it drummed into us- in print, on radio, over television, in everyday conversation- that any hint of pain is to be banished as though it were the ultimate evil. As a result, we are becoming a nation of pill-grabbers and hypochondriacs, escalating the slightest ache into a searing ordeal. We know very little about pain and what we don't know makes it hurt all the more. Indeed, no form of illiteracy in the United States is so widespread or costly as ignorance about pain- what it is, what causes it, how to deal with it without panic. Almost everyone can rattle off the names at least a

4

3×5

8

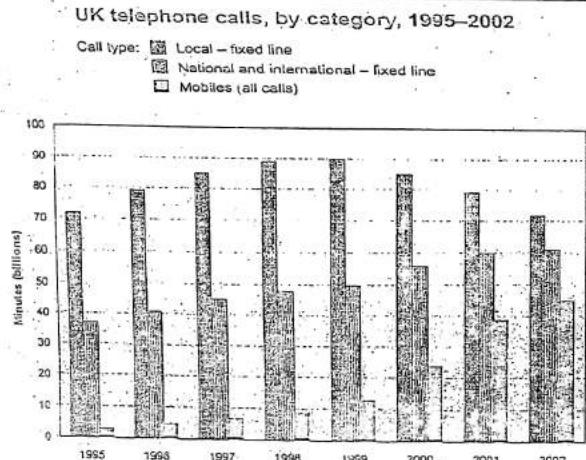
7

8

dozen drugs that can deaden pain from every conceivable cause- all the way from headaches to hemorrhoids. There is far less knowledge about the fact that about 90 percent of pain is self-limiting, that is not always an indication of poor health, and that, most frequently, it is the result of tension, stress, worry, idleness, boredom, frustration, suppressed rage, insufficient sleep, overeating, poorly balanced diet, smoking, excessive drinking, inadequate exercise, stale air or any of the other abuses encountered by the human body in modern society. The most ignored fact of all about pain is that that the best way to eliminate it is to eliminate the abuse. Instead, many people reach almost instinctively for painkillers- aspirins, barbiturates, codeines, tranquilizers, sleeping pills, and dozens of other analgesics or desensitizing drugs.

Read the following info-graphic information and write in few paragraphs.

The chart below shows the total numbers of minutes (in billions) of telephone calls in the UK, divided into three categories, from 1995-2002. Summarize the information by selecting and reporting the main features, and make comparisons where relevant.



a) Make a neat sketch of CV for the post of Civil Engineer.

104

- b) You are a sales representative for your company. Write a sales letter to Mike Mason of ABC Enterprises, introducing one of your new products newly arrived in the market or services. Be sure to give important details about your product/service.
6. a) Write a request refusal letter to Johnsons & Johnsons Company where you have been invited as a chief guest on its celebration of 25th anniversary, but unable to attend for the eve.
- b) Write a technical description about any one of the products with its spares and their functions.
- i. Motorbike
 - ii. Cell phone
 - iii. Personal Computer
7. a) Transform the following sentences as indicated in the brackets:
- i. The management is thoroughly bad. (Complex)
 - ii. Youth is the time when the seeds of the character are sown. (Simple)
 - iii. Despite his hard work, he couldn't succeed. (Compound)
 - iv. He not only robbed the poor child but also murdered her. (Simple)
 - v. He confessed his crime. (complex)
- b) Change the following sentences as directed in brackets.
- i. Landers insisted that Carole should dance. (AmE)
 - ii. The program will commence at 10 am sharp. (Informal)
 - iii. We will distribute the questionnaire to you. (Impersonal)
 - iv. Prof. Kim's father has passed away in 88 years old. (Tactful)
 - v. Shakira is very attractive. (Slang)

7

8

6

53

Sommer

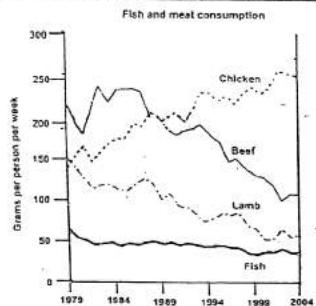
501

6) Prepare a talk about the different categories (types) of earthquakes and their preventive measures.

Write in few paragraphs regarding the information given below:

The graph shows the consumption of fish and some different kinds of meat in a European country between 1979 and 2004.

Summarise the information by selecting and reporting the main features, and make comparisons where relevant.



b) Imagine any product you like and write in few paragraphs describing how the product functions operationally in terms of its process.

6. a) Suppose you are a responsible member of your local club. You know that Bhola, 7 years old is undergoing a serious treatment of Cardiac Surgery. Now write a persuasive letter to the Chief District Officer to waive fund or any initiative for the treatment further.

b) Prepare a neat sketch of your CV/Resume for the post of an Electrical Engineer.

7. a) Transform the following sentences as indicated in the brackets.

- i. I am certain that she has done it. (Into compound)
- ii. Finding it difficult, she gave up. (Into complex)
- iii. He studied so hard that he could be sick. (Into simple)
- iv. Tell me where you are from? (Into simple)
- v. He has brought his brother's books. (Into complex)

b) Transform the variety levels of the following sentences as indicated in the brackets.

- i. For what post was he selected? (informal)
- ii. He suggested that David should be the manager (AmE)
- iii. What's your name? (polite)
- iv. There is not any chocolate left for you. (tactful)
- v. It is going to rain today. (tentative)

8

(06)

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall

Programme: BE/Architecture

Course: Communication Technique

Year : 20.6

Full Marks: 100

Pass Marks: 45

Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

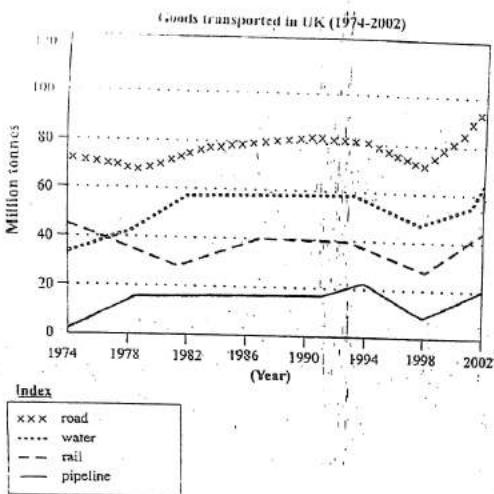
Attempt all the questions.

1. a) Read the following passage and answer the questions given below.

The success of the Bailey bridge was due to the simplicity of the fabrication and assembly of its modular components, combined with the ability to erect and deploy sections with a minimum of assistance from heavy equipment. Most, if not all, previous designs for military bridges required cranes to lift the pre-assembled bridge and lower it into place. The Bailey parts were made of standard steel alloys, and were simple enough that parts made at a number of different factories could be completely interchangeable. Each individual part could be carried by a small number of men, enabling army engineers to move more easily and more quickly than before, in preparing the way for troops and material advancing behind them. Finally, the modular design allowed engineers to build each bridge to be as long and as strong as needed, doubling or tripling up on the supportive side panels, or on the roadbed sections.

The basic bridge consists of three main parts. The bridge's strength is provided by the panels on the sides. The panels are 10-foot-long (3.0 m), 5-foot-high (1.5 m), and cross-braced rectangles that each weigh 570 pounds (260 kg), and can be lifted by six men. The panel was constructed of welded steel. The top and bottom chord of each panel had interlocking male and female lugs that engineers could inset panel connecting pins. The floor of the bridge consists of a number of 19-foot-wide (5.8 m) transoms that run across the bridge, with 10-foot-long (3.0 m) stringers running between them on the bottom, forming a square.¹² Transoms rest on the lower chord of the panels, and clamps hold them together. Stringers are placed on top of the completed structural frame, and wood planking is placed on top of the stringers to provide a roadbed. Ribands bolt the planking to the stringers. Later in the war, the wooden planking was covered by steel plates, which were more resistant to the damage caused by tank tracks.

Each unit constructed in this fashion creates a single 10-foot-long (3.0 m) section of bridge, with a 12-foot-wide (3.7 m) roadbed. After one section



7. a) Change the following sentences according to the variety labels given in the brackets: 5
- They have gotten only one ticket for the flight. (BrE)
 - What's your father's name? (Polite)
 - In what country was he born? (Informal)
 - One cannot succeed unless one tries hard (AmE)
 - Prepare the minutes of the meeting (Tactical)
- b) Transform the following sentences as indicated in the brackets. 5
- Since the boy accomplished the task he was rewarded. (Simple)
 - The weather being foul we didn't go out (Complex)
 - If you don't control your bad temper, you will not get the job (Compound)
 - This is school where he studied (Simple)
 - It was midnight and I reached to Pokhara (Complex)

103

POKHARA UNIVERSITY

Level: Bachelor Semester: Spring Year : 2015
 Programme: BE Full Marks: 100
 Course: Communication Technique Pass Marks: 45
 Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. Read the following passage and answer the question given below. 15

Edmund Burke called the Press, the Fourth Estate of the realm. I think he did not use this title for the press thoughtlessly as a social ruling group or class. The three Estates or realms (in England) are the Lords Spiritual i.e., the Bishops in the house of Lords the Temporal i.e. other lords and Commons' i.e., the common people. The Press has been rightly called Fourth Estate as it constitutes a ruling group or class like the lords and Commons. It cannot be denied that the press exercises a good deal of influence in shaping public opinions and pointing out the weakness or defects of the society or of Government and in general, bringing to light all these good or bad things in society which would have otherwise remained unnoticed. The power is not limited or put under any check. The Press, instead of being controlled by anyone, controls life and thoughts of nation. Hence the press constitutes an Estate by itself.

Obviously, the power which the Press in any country yields depends upon the number of newspaper readers. The opinions and comments of newspapers can influence the life of nation only when they are read by people. Reading in turn, requires that the general mass of people should be educated. Thus, the spread of education determines the extent of newspapers. Where readers are few, newspapers must necessarily be few. Their influence in the case can extend only to a small minority of population. In a country like India the percentage of literacy is very low and the standard of journalism is not very high. So, the press has to play the role of a teacher here.

Questions

- a) Why was the title given as the Fourth Estate by Edmund Burke to

the Press?

(69)

- b) How does the press exercise its power?
- c) Why does the press have to play the role of a teacher?
- d) Summarise the paragraph in three lines.
- e) Give a suitable title to the passage with reasons.

15

2. Answer any three of the following questions in short:

- a) Describe the various purposes of survey while planning a foundation of the road. (Road Foundation)
- b) Interpret the story from a feminist as well as psychological point of view. (*The Story of an Hour*)
- c) What concept of beauty does Susan Sontag bring out? How has it been downplayed over the year? (*Beauty*)
- d) What is the central theme of the poem? (*A Letter from the Foreign Grave*)

8

- a) Imagine that your organization is going to organize a "Blood Donation Program" on the auspicious occasion of your organization's Anniversary. Being the Head, draft a memo to be circulated to all the staff to participate in the program. Invent the necessary details to furnish your answer.
- b) Suppose you have recently received the delivery of your order of fifteen SZR 150CC motorbikes from Monang Automobiles Pvt. Ltd. Kathmandu. But upon your inspection of delivery your supervisor has found three motorbikes in a corroded condition. Now write a letter of complaint to the concerned authority for the immediate replacement.

7

4. a) Write notes after reading the following passage:

Happy is the man who acquires the habit of reading when he is young. He has secured a lifelong source of pleasure, instruction and inspiration. SO long as he has beloved books, he needs never feel lonely. He always has a pleasant occupation of leisure moments, so that he needs never feel bored. He is the possessor of wealth more precious than gold. Ruskin calls books. King's Treasures filled, not with gold and silver and precious stones but with riches much more valuable than knowledge; noble thoughts and high ideas. Poor indeed is the man does not read and empty is his life. The blessings which the reading habit confers on its possessor are many provided we choose the right kind of books we read simply for pleasure and amusement for example, good novels. And novels and

8

books of imagination must have their place in everybody's reading when we were tired or the brain is weary with serious study, it is a healthy recreation to lose ourselves in some absorbing story written by a master hand.

But it read nothing but books of fiction is like eating nothing but cakes and sweetmeats eats. As we need plain wholesome food for the body, so we have serious reading for the mind. And here we can choose according to our taste. There are many noble books on history, biography, philosophy, religion, travel and science which we ought to read and which will give us not only pleasure but an education. And we can develop a taste for serious reading so that in the end it will give us more solid pleasure than even novels and books of fiction.

Nor should poetry be neglected, for the best poetry gives us noble thoughts and fill imaginations clothed in lovely and musical language. Books are the most faithful of friends. Our friends may change or die, but our books always patiently waiting to talk to us. They are never cross, peevish or unwilling to converse as our friends sometimes are to wonder a reader becomes a "book-lover".

- b) Prepare a manuscript for the technical talk on the title "*A Role of Engineering for the Reconstruction of Nepal*".

7

- 5. a) Prepare a proposal to be submitted to the local authority regarding the earthquake resistance building. Claim your project in terms of appropriate technology for Nepal. (Include: Introduction, Hypothesis, Problems, Objectives, Methodology, Budget and Conclusion)

8

- b) Imagine any product you like and make a technical description in terms of how the product functions operationally. Include its spares/parts and their function.

7

- 6. a) There is a vacancy for the post of Civil Engineer at XYZ Municipality Nawalparasi. Imagine that you are a Civil Engineer candidate and apply for the post with a neat sketch of CV. Invent other details on your own.

8

- b) Now write a report based on the line graph below to be submitted to the Asst. Professor of University. Write at least 150 words. The graph shows the quantities of goods transported in the UK between 1974 and 2002 by four different modes of transport. Summarise the information by selecting and reporting the main features, and make comparisons where relevant.

7

is complete it is typically pushed forward over rollers on the bridgehead, and another section built behind it. The two are then connected together with pins, pounded into holes, in the corners of the panels. For added strength several panels (and transom) can be bolted on either side of the bridge, up to three. Another solution is to stack the panels vertically. With three panels across and two high, the Bailey Bridge can support tanks over a 200-foot span (61 m). Footways can be installed on the outside of the side-panels, the side-panels form an effective barrier between foot and vehicle traffic and allow pedestrians to safely use the bridge.

Questions:

- How is the floor of the bridge consisting of?
- Where and how can the footways be installed on the bridge?
- What are the major factors for the success of Bailey bridge?
- How were the Bailey parts made of?
- Why was wooden plankning covered with steel plates?

b) Read the following passage and do the activities below:

Write:

*If the statement agrees with the information
if the statement contradicts the information
if there is no information on this*

NOT GIVEN if there is no information on this

The race to break the four-minute mile reached a crescendo in the 1950s and became a major sporting challenge of the day. At the turn of the twentieth century the world record had stood at about four minutes ten seconds. But despite efforts around the globe, by 1952 the record remained intact. The press regularly stated at that time that man had reached his athletic limits; that room for improvement was minimal. Then in May 1954, in a run that was to go down in history, Roger Bannister stopped the clock at 3 minutes 59.4 seconds.

Few records have so captured the public's attention and provided such an enduring benchmark. Public fascination partly reflected the seeming symmetry of the event-four laps in four minutes. A very similar achievement is that of the less well-known Russian swimmer Vladimir Salnikov, who in 1980 became the first man to break 15 minutes for 1500 meters. That was 30 consecutive laps in less than 30 seconds, which had once been regarded as impossible.

Part of the appeal of athletes such as Bannister and Landy is linked to the amateur environment in which they competed. For both men running was an aside to the real matters of life and they received no monetary reward. And as evidence of the temporal nature of all records, Bannister's record has since been reduced by a further 17 seconds, but the four-minute mile remains a landmark in sporting history.

i. In the mid 20th century, there was little interest in breaking the four-minute miles.

- In the early 1950s, the media promoted the idea that nobody could run a mile in under four minutes.
 - In 1980, Vladimir Salnikov swam 1500 meters in less than 15 minutes.
 - John Landy and Roger Bannister were professional sportsmen.
 - Bannister's record was broken within three years.
- 3×5

3. Answer any three of the following questions:

- How does knowledge become harmful to us? Give reasons. (**Knowledge and Wisdom**)
 - What was the classical notion of beauty in Greek time and how is it changed over the years? (**Beauty**)
 - Do you think that the doctor's declaration about Mrs. Mallard's death is right (**The Story of an Hour**)
 - What's the central theme of the poem? (**A Letter from the Foreign Grave**)
 - Assuming yourself to be the Principal of the college, write a memo informing the staff and students to switch off fans & lights when not in use giving reasons.
 - Prepare a proposal to be submitted to your college for the construction of a library building. (**Use: Introduction, Statement of problem, Objectives, Methodology, Budget & Conclusion**)
 - Prepare notes after reading the following passage.
- In planning a road extensive preliminary surveys must be carried out to determine the precise line of the road and to work out how much earth will require to be moved and what quantities of surfacing material will be needed. A second purpose of the surveys will be to take samples of the different soils encountered at different depths, by boring, in order to decide whether they are suitable for use or whether they must be replaced by imported fill. This is of great importance, since various types of soil have properties which result in low bearing capacities. Failures in road surfaces are usually attributable to insufficient preparation and compaction of the sub-grade that is the soil on which the surface of the road is laid. Certain soil such as clay and peat are unstable, either because they are largely impermeable and hence difficult to drain or because they cannot be properly compacted. It is sometimes possible to establish some soils with cement but in most cases it will be necessary to excavate the soil to a considerable depth and to replace it by a suitable granular soil. The most stable sub-grade soils are gravel or sand, both being readily compactable and easy to drain. It's often unnecessary to excavate these soils to a depth of more than three or four inches, and if sufficient supplies are available they can be used as filling material, particularly on embankments where the soil must be capable of a high-degree of compaction.

Arrange the following sentences according to the variety labels given in the brackets.

- i. The teacher insisted that Ram should be dropped from the team. (AmE)
 - ii. We should submit our proposal before the assessment examination. (tentative)
 - iii. Hey! Shut the door. (polite)
 - iv. Feeling unwell, he hasn't taken his lunch. (common core)
 - v. He is a soccer player. (BrE).
- b) Transform the following sentences as indicated in the brackets:
- i. We know the name of the writer of that letter. (Complex)
 - ii. Despite the teacher's assurance the students continued their strike. (complex)
 - iii. Besides making a promise, she kept it. (Compound)
 - iv. ~~The sun rose and the fog disappeared.~~ (Simple)
 - v. Don't enter, unless you have permission. (simple).

2x5

(1)

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Communication Technique

Semester: Fall

Year : 2015
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. Read the following passage and answer the questions given below.
An excursion by the groups of college students is an educational excursion. In short, it is a formal visit to the historically, religiously and naturally important places. There are various objectives of excursion. It is generally organized once or twice a year to fulfill the curricula objectives. They may be a short hiking, adventurous trekking and a week-long trip. Although it is entirely an entertaining package for students, it helps to meet the set objectives of the curriculum. The students are taken to the traditionally, culturally and religiously important places. They visit the business trade centres, tourism centres, industrial places, the famous institutions and research centres. The excursion provides them the opportunities to work in a group. They learn to become social, helpful and co-operative. They are guided to write diary or expedition report. The excursion brings changes in their thinking and attitudes. It also helps to build up their confidence level. Most importantly they learn the importance of a group work. During the excursion period, teachers can study their students behaviors and attitudes as well. It may be to some extent expensive for some students. Therefore, the expedition cost should be minimized. In some cases, there is a fear of the accidents if a caring team is not pre-conscious regarding the expedition. The students can suffer from communicable diseases and a sudden change of climates. And they may learn bad habits if the teachers are not careful. However; we should not forget that it is a part of education. The students shouldn't miss this opportunity. The organizers should be much careful.

56

113

- i. We insist that meeting should be held as soon as possible.
 (Aff.)
- ii. I wonder if you would mind coming tomorrow. (Familiar)
- iii. You must wear uniform to enter the college premises.
 (Impersonal)
- iv. May be, he accepts our proposal. (Tentative)

b) Transform the following sentences as indicated in the brackets:

i. Tell me when and where you worked in the USA. (Simple)

5x1

ii. On reaching the room at top, you may not enjoy your life.
 (Complex)

iii. He is certain that he will give you profit. (Simple),

iv. Owing to bad health, he could not work. (Compound)

v. I have no money to spare. (Complex).

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

1. Answer the following questions after reading the passage given below.
- Venus is closer to the Sun than the Earth is, and the sunlight reaching Venus is twice as powerful as that reaching the Earth. However, it has also been found that Venus, which is covered in thick cloud, reflects twice as much sunlight as the Earth does. So it is quite possible to imagine that Venus might not be too hot to support life and even to picture it as the home of fair-haired Venusians chasing across the planet in flying saucers. Unfortunately, this attractive idea does not stand up to close examination. Instead of spinning anti-clockwise like most other planets, Venus revolves clockwise, and it turns so slowly that the Sun rises in the west and sets in the east 59 days later. This means that during the immensely long Venusians' "Day". The temperature has time to reach 450 degrees Centigrade, easily hot enough to melt tin or lead. Moreover, the polar axis is almost vertical, so there are no seasons.
- But the real shock comes when we consider the atmosphere. Normally you expect that the closer a planet is to the Sun, the less atmosphere it will be able to retain. Venus, however, has an atmosphere about 100 times as dense as ours. The air is much too thick to run in, and a swimming stroke would help you walk in it. On the other hand, the atmosphere is so thick that you could fly through it without any problem. The winds are very slow yet the atmosphere is so dense that a seven mile per hour wind would be strong enough to knock down a tall building.
- Questions
- Why might you expect the surface of Venus to be fairly cool?
 - Why in fact is the surface of Venus hot?
 - If you tried to walk on Venus, what problems would you have?

S2

Level: Bachelor Programme: BE Course: Communication Technique	Semester: Spring Year : 2074 Full Marks: 100, Pass Marks: 45 Time : 3 hrs
---------------------------------------------------------------------	---------------------------------------------------------------------------------------

1/3

- We insist that meeting should be held as soon as possible.
(Ant.)
- I wonder if you would mind coming tomorrow. (Familiar)
You must wear uniform to enter the college premises.
(Impersonal)
- May be, he accepts our proposal. (Tentative).
- Transform the following sentences as indicated in the brackets:
 - Tell me when and where you worked in the USA. (Simple) 5x1
 - On reaching the room at top, you may not enjoy your life.
(Complex)
 - He is certain that he will give you profit. (Simple)
 - Owing to bad health, he could not work. (Compound)
 - I have no money to spare. (Complex).
- Transform the following sentences as indicated in the brackets:
 - i.
 - ii.
 - iii.
 - iv.
 - v.

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

- Answer the following questions after reading the passage given below.
Venus is closer to the Sun than the Earth is, and the sunlight reaching Venus is twice as powerful as that reaching the Earth. However, it has also been found that Venus, which is covered in thick cloud, reflects twice as much sunlight as the Earth does. So it is quite possible to imagine that Venus might not be too hot to support life and even to picture it as the home of fair-haired Venusians chasing across the planet in flying saucers. Unfortunately, this attractive idea does not stand up to close examination. Instead of spinning anti-clockwise like most other planets, Venus revolves clockwise, and it turns so slowly that the Sun rises in the west and sets in the east 59 days later. This means that during the immensely long Venusians' "Day". The temperature has time to reach 450 degrees Centigrade, easily hot enough to melt tin or lead. Moreover, the polar axis is almost vertical, so there are no seasons.

But the real shock comes when we consider the atmosphere. Normally you expect that the closer a planet is to the Sun, the less atmosphere it will be able to retain. Venus, however, has an atmosphere about 100 times as dense as ours. The air is much too thick to run in, and a swimming stroke would help you walk in it. On the other hand, the atmosphere is so thick that you could fly through it without any problem. The winds are very slow yet the atmosphere is so dense that a seven mile per hour wind would be strong enough to knock down a tall building.

Questions

- Why might you expect the surface of Venus to be fairly cool?
- Why in fact is the surface of Venus hot?
- If you tried to walk on Venus, what problems would you have?

S/2

iv.	Why might you expect the surface of Venus to be bright?		
v.	Give a suitable title to the above text.		
2.	Solve any three		
a)	Give a feminist interpretation of 'The Story of an Hour'. Explain with textual examples. (<i>The Story of an Hour</i>)	5	
b)	How do knowledge and wisdom go together but differently in Bertrand Russell's essay? Why? (<i>Knowledge and Wisdom</i>)	5	
c)	How can science be used and abused? Write it with suitable examples. (<i>Use and Misuse of Science</i>)	5	
d)	What does the poet try to say in the poem "Letter from Foreign Grave"? (<i>Letter From Foreign Grave</i>)	5	
3.	a) As an organizer of the tour committee of your class, write a memo to all the members for the departure of the bus on already decided date, time and place. b) Write a brief report on your field visit to a major exhibition held at any place. Describe the process you observed there of any product.	8	
4.	a) Read the following passage carefully and make notes: An upsurge of new research suggests that animals have a much higher level of brainpower than previously thought. If animals do have intelligence, how do scientists measure it? Before defining animals' intelligence, scientists defined what not intelligence is. Instinct is not intelligence. It is a skill programmed into an animal's brain by its genetic heritage. Rote conditioning is also not intelligence. Tricks can be learned by repetition, but no real thinking is involved. Cuing, in which animals learn to do or not to do certain things by following outside signals, does not demonstrate intelligence. Scientists believe that insight, the ability to use tools, and communication using human language are all effective measures of the mental ability of animals. When judging animal intelligence, scientists look for insight, which they define as a flash of sudden understanding. When a young gorilla could not reach fruit from a tree, she noticed crates scattered about the lawn near the tree. She piled the crates into a pyramid, and then climbed on them to reach her reward. The gorilla's insight allowed her to solve a new problem without trial and error. The ability to use tools is also an important sign of intelligence. Crows use sticks to pry peanuts out of cracks. The crow exhibits intelligence by showing it	8	
		114	
		has learned what a stick can do. Likewise, otters use rocks to crack open crab shells in order to get at the meat. In a series of complex moves, chimpanzees have been known to use sticks and stalks in order to get at a favorite snack—termites. To make and use a termite tool, a chimp first selects just the right stalk or twig. He trims and shapes the stick, then finds the entrance to a termite mound. While inserting the stick carefully into the entrance, the chimpanzee turns it skillfully to fit the inner tunnels. The chimp attracts the insects by shaking the twig. Then it pulls the tool out without scraping off any termites. Finally, he uses his lips to skim the termites into his mouth.	
		b) Assume that you are going to present a 30 minutes talk on "Solution of Drinking Water shortage in Kathmandu valley". Prepare a manuscript for this technical talk.	7
5.	a) Prepare a proposal to be submitted to the 'Department of road', Western Development Region to construct a 'Ring Road' around Pokhara city. (Include subheadings like - Introduction, Problems, Objectives, Methodology, Budget, Output etc.).	10	
		OR	
		A big cement factory is planning to establish its branch in a small village near Kathmandu. You are asked to study the area and prepare a suitable report about the feasibility of starting the factory. Mention the availability of raw materials and labor in the area in your report. (Furnish your report with Abstract, Introduction, Procedure of Data Collection, Analysis of Data and Conclusion & Recommendation).	
	b) Write a notice to all the classmates on behalf of the class Representative (CR) informing them that they should manage extra classes from now onwards as your classes are seriously affected by the unexpected political strikes.	5	
6.	a) Write few paragraphs on a product, a cell phone or a motorbike with technical description how it works operationally in terms of its mechanism. (Use: Introduction, Utility, Spares/Parts, Process and Conclusion)	8	
	b) Prepare a neat sketch of your CV/Resume for the post of Civil Engineer.	7	
7.	a) Change the following sentences according to the variety labels given in the brackets:	5x1	

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Communication Technique

Semester: Fall

Year : 2014
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. Read the following passage and answer the questions given below:

The radar waves are generated in the transmitter which is occupied with ratio tubes of special design. The transmitting antenna usually also functions as the receiving antenna. This process is called periodic changeover. The receiver picks up the reflected beam and the corresponding electronic circuits are used to deflect electron beam in the cathode ray tube (CRT). The beam is so deflected that it scans the luminescent screen from the centre to the edge while it rotates at the same speed as antenna.

An echo picked up by the receiver strengthens the flow of electron in the CRT, causing a point of light to appear on the screen and to remain visible by phosphorescent afterglow until fresh echoes are picked up on next revolution of the scanning antenna. In this way the points of light build up a picture of the area scanned by the radar beam. The brightness of the display of the signal (the radar echo) on the luminescent screen of the CRT depends on the reflecting power of the objects with regard to the high-frequency radio waves sent out by the radar transmitter for this reason, a radar image generally looks quite different from an optical image, though as a rule they have the same outlines. Most radar sets employ pulse radar. This is so called because the transmitter sends out short intense bursts or pulses of energy with a relatively long interval between the pulses. The receiver is active during this interval. When sufficient time has elapsed to permit the reception of echoes from the most distant objects of interest, the transmitter sends another short pulse and the cycle is repeated.

5g

1

Good Luck

14

that this chemical destroys ozone layer, a shield around the atmosphere of the earth which absorbs 99% of the sun's ultra violet rays. Ultra-violet can cause significant damage to human immune system and natural ecosystem. In 1978, the US, Canada, Sweden and Norway banned the use of CFC in spray cans only. In 1985, scientists found that the ozone layer above Antarctica was depleting. So the nations signed an agreement in 1990 promising to stop the production of CFC by 2000. But the agreement was not seriously followed. And a big hole in the ozone layer above Antarctica was noticed in the year 2006. So once again in 2007, world's nations have agreed to phase out CFC by 2020 from developed nations and by 2030 from the underdeveloped ones. If the things go on as agreed, the ozone layer is expected to recover by 2065.

Now there are some people who consider these agreements to be remarkable achievements but there are some others who see the same events as the proof of collective misconduct. By 2065, two hundred and forty million people will have already contracted skin-cancer out of which 4 million will have already died. Similarly some 80 million will be suffering from eye diseases. The food chains will have been threatened and ecosystem will have been severe in many places. According to eco-critics like Asimov and Nissani, it is very foolish of our political leaders not to take immediate actions. They wonder what the leaders did from 1974 until now and why they want to lengthen it up to 2030. In line with them, Chaudhary thinks our tendency is suicidal. The monsters like CFC that we invented are threatening us and we are not serious. She warns if we are to survive, we need to bring fundamental change in our way of thinking and doing politics.

Prepare the manuscript of the technical talk on *The Management of Landslide in Mountainous Areas* with special reference to any one of the places of Nepal.

5. a) Prepare a neat sketch of CV/Resume assuming yourself as an Electrical & Electronics Engineer. Invent the details on your own to furnish the part.
 b) Suppose you are a principal of your college, you are going to arrange an E-library in your college. Now prepare an order letter to the computer dealer for rush service of the delivery of computers and other essential equipments required for your proposed E-library.

Questions:

- How does a streak of light appear on the screen?
- Describe the concept of periodic changeover.
- Why does a radar image appear distinct from an optical image?
- Describe the process of the repetition of radar cycle.
- Give a suitable title to the passage and summarise it within three lines.

Answer any three of the following questions:

3x5 2.

- 'The death of Mrs. Mallard is associated with the feminist as well as psychological reading of the story.' Justify this statement. (*A Story of an Hour*)
- Define knowledge and wisdom. Can wisdom be taught? What is the major worry of Russell about mankind? (*Knowledge and Wisdom*)
- Describe the various purposes of surveys while planning a road. (*Road Foundation*)
- Why is it to be called beauty, an essential feature for women's nature but for men it isn't? (*Beauty*)
- Imagine that your organization is going to organise a "Tree Plantation Program" on the auspicious occasion of your organization's Anniversary. Being the Head, draft a memo to be circulated to all the staff to participate in the program. Invent the necessary details to furnish your answer.
- Suppose you have recently bought few motorbikes of Bajaj Company from the authorized dealer, Narayani Motors, Narayangarh, Chitwan. But upon your inspection of delivery, your supervisor has found three motorbikes in a corroded condition. Now write a claim letter to the concerned dealer for the immediate replacement.
- Read the following passage and make notes from it:
 Anuradha Chaudhary, a professor of Environmental Biology thinks that environmental condition is related to social, economical and political system of the world. More specifically, the political leaders are responsible for the degradation of environment at an alarming rate. She concludes that our collective decision making process is irrational. She gives an example of CFC (chlorofluorocarbon) a man made substance which was invented in 1930s and was originally used in refrigerators, spray cans and computer chips. In 1974, scientists warned

you are using the process and mechanism:

- a) Cell phone
- b) Motorbike
- c) Washing Machine

OR

You know that the recent study of the W.H.O showed the official statistics that some 5 million school children are in danger round the world due to the excessive use of TVs and computers. The organization has coined a new terminology called *TV/Computer Vision Syndrome* for this. It is a great threat in children to turn them into adults. Such children were often found lethargic, unimaginative and above all unproductive for creative activities. Stuck to the unreal objects, they are also inviting the health hazards in abundance. Symptomatic are loss of sleep & appetite, indigestion, poor vision and to the extreme of brain cancer. Worst of all is they are facing lots of difficulties in communication as well as socialization. Now prepare, supposedly, a short research report on the use of TVs and computers round the town Pokhara as to know whether or not the children under 9 in your periphery are victimized as mentioned above. (Include: Title, Introduction with Objectives, Research Methodology, Findings, Conclusion & Recommendation)

- b) Imagine the product cell phone of any brand which has been recently launched in the market, laden with the features in abundance. Now write a sales letter to your customer, a wholesaler inventing details with scheme offer.
7. a) Change the following sentences according to the variety labels given in the brackets:
- i. They insist that every member should work ability by the rules of the company. (Ame.)
 - ii. Suva passed the exam easily. (Tentative)
 - iii. Would you please turn on radio and tune in BBC? (Familiar)
 - iv. Which country were you born in? (Formal)
 - v. My offsprings are good in their studies. (Common Core)
- b) Identify the following sentences whether they are simple, compound or complex sentences:
- i. Everything comes to a man if he waits patiently.
 - ii. Inspite of his desire, Ram has joined a workshop.
 - iii. Besides robbing the poor guy, the robbers also murdered him.
 - iv. The management is as bad as it could be.
 - v. Come under the roof or get wet in the rain.

117

POKHARA UNIVERSITY

Level: Bachelor Semester: Spring
Programme: Architecture
Course: Communication Technique

Year : 2013
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. Read the following passage and answer the questions given below:
There is increasing evidence that the impacts of meteorites have had important effects on Earth, particularly in the field of biological evolution. Such impacts continue to pose a natural hazard to life on Earth. Twice in the twentieth century, large meteorite objects are known to have collided with Earth. If an impact is large enough, it can disturb the environment of the entire Earth and cause an ecological catastrophe. The best-documented such impact took place 65 million years ago at the end of the Cretaceous period of geological history. This break in Earth's history is marked by a mass extinction, when as many as half the species on the planet became extinct. While there are a dozen or more mass extinction in the geological record, the Cretaceous-mass extinction has always intrigued paleontologists because it marks the end of the age of the dinosaurs. For tens of millions of years, those great creatures had flourished. Then, suddenly, they disappeared.
The body that impacted Earth at the end of the Cretaceous period was a meteorite with a mass of more than a trillion tons and a diameter of at least 10 kilometers. Scientists first identified this impact in 1980 from the worldwide layer of sediment deposited from the dust cloud that enveloped the planet after the impact. This sediment layer is enriched in the rare metal iridium and other elements that are relatively abundant in a meteorite but very rare in the crust of Earth. Even diluted by the terrestrial material excavated from the crater, this component of meteorites is easily identified. By 1990 geologists had located the impact site itself in the Yucatán region of Mexico. The crater, now deeply buried in sediment, was originally about 200 kilometers in diameter. This impact released an enormous amount of energy, excavating a crater about twice as large as the lunar crater Tycho. The explosion lifted about 100 trillion tons of dust into the atmosphere, as can be determined by measuring the thickness of the sediment layer formed when this dust settled to the surface.

1

59

4

Such a quantity of material would have blocked the sunlight completely from reaching the surface, plunging Earth into a period of cold and darkness that lasted at least several months. The explosion is also calculated to have produced vast quantities of nitric acid and melted rock that sprayed out over much of Earth, starting widespread fires that must have consumed most terrestrial forests and grassland. Presumably, those environmental disasters could have been responsible for the mass extinction, including the death of the dinosaurs.

Questions:

- i. What are the impacts of meteorites?
- ii. Why does the author include the information about the dinosaurs?
- iii. How did Scientist determine that that a large meteorite had impacted on earth?
- iv. Write the impact at the end of the cretaceous period?
- v. Summarize the text in three sentences.

2. Answer any three of the following questions.

- a) How does wisdom help an individual to use the knowledge for the betterment of mankind? (Knowledge and Wisdom)
- b) "For we are the lost citizens of the world, weep not for me oh my mother." What does this statement imply in the poem? (A letter from the foreign grave)
- c) What is the conventional attitude about beauty that Susan Sontag seeks to discredit? (Beauty)
- d) Interpret the death of Mrs. Mallard in your own way. (A story of an Hour).

15

- a) Some universities in Nepal offer their academic programs through distance learning mode of education. A large number of junior officers of a company have sought permission to improve their educational qualifications through these programs. As the Manager of Personnel Department of your company write a memo to be sent all junior officers spelling out the company's policy in this regard and the deadline for submitting their applications. You can also assure them that a decision would soon be taken and communicated to the applicants.

- b) Your company has recently connected internet through one of the most reputed communications with the assurance of fast internet. But after two months you notice that the internet is very slow. Now, write a letter of complaint to the supplier to rectify the mistake.

7

8

2

118

- a) Make notes after reading the following passage:
In "Robotics: Tactile Sensing" (Radio Electronics, August 1986), Mark J. Robillard states, "Most robots must move around to accomplish their tasks" (71). The information that is needed to accomplish these tasks is gathered through an assortment of sensors-touch sensors, sound sensors, and light sensors.

Depending on what type of tactile information is obtained through these sensors, objectives of the robot can be met. A robot's gripper could crush an object or not exert enough force to hold on to an object if it doesn't have sensors to determine the amount of force needed. Microwatches are used in the form of touch sensors. They are the simplest form of sensors used for this purpose. To eliminate weight and space used for switches, LED/Phototransistor pairs can be used. "If you've ever been blowing, that setup should look familiar"(71).

The phototransistor is then interfaced to a computer or other type of controller. The pairs of sensors provide more than just a there/not there signal. "The amount of light that is reflected provides an indication of how close the object is"(72). This approach is patented by "Health's Hero 2000" (72) and uses optical encoder disks. Integrated circuits that use "strain gauges and pressure sensitive pain" (72) are yet another way to detect the amount of force applied to an object.

All of these different methods of allowing a robot to interface will the real world "comprise a field of inquiry that is as large as robotics itself" (72). Thus, the above mentioned tactile sensing devices constitute an important part of successful robotics.

- b) Suppose you are applying for the post of senior Civil Engineer/ Architecture in a construction company. Write a job application for the post advertised. Invent details on your own.

7

- a) Prepare a technical talk on the title "*Impact of Computer in Modern Society*".

8

- b) Suppose that the faculty of Science and Technology of Pokhara University is running a three day training in Research Methodology, funded by UGC Nepal and you have already invited Prof. Dr Lohani as an expert. Now write a letter of inquiry to the manager of Hotel Barahi at Pokhara on behalf of the responsible person of PU. (Inquire: Cost, accommodation, presentation tools etc.)

7

- a) Write a technical essay on any one of the following topics. Remember

8

3

wasting their crucial time and money. Now write an ~~abstract~~
Summary of a report you have already prepared that tells public with
recommendation what prompted the students to bunk the classes in
your research study. (Include – Title, Objectives, Research methods,
Findings & Conclusion and Recommendation).

OR

Write a letter of adjustment grant to the customer who has claimed
that the newly bought motorbike from Narayani Motors was found in
corroded condition upon the inspection of delivery. As a responsible
manager maintain a good will expressing your concern to replace it
with a new one.

- b) Write in few paragraphs describing the processes involved in taking a photograph with an automatic camera or operating a photocopy machine. 7
7. a) Change the following sentences according to the variety labels given in the brackets: 5
- One should not take risk if he can avoid it. (BrE)
 - We insist that meeting should be held as soon as possible. (AmE)
 - I wonder if you would mind coming tomorrow. (Familiar)
 - You must wear uniform to enter the college premises. (Impersonal)
 - It rains in the evening. (Tentative)
- b) Transform the following sentences as indicated in the brackets: 5
- Everything comes if a man waits patiently. (Simple)
 - God made the country and man made the town. (Complex)
 - A guest is unwelcome when he stays very long. (Compound)
 - I have no money to spare. (Complex)
 - Distance and angles can be measured and read electronically. (Compound)

119

Level: Bachelor
Programme: BE
Course: Communication Technique

Semester: Fall

Year : 2013
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. Read the following passage and answer the questions given below:
Nanotechnology is science and engineering at the scale of atoms and molecules. It is the manipulation and use of materials and devices so tiny that nothing can be built any smaller. This is the scale at which the basic functions of the biological world operate and materials of this size display unusual physical and chemical properties. These profoundly different properties are due to an increase in surface area compared to volume as particles get smaller. Unwittingly, people have made use of some unusual properties of materials at the nanoscale for the centuries.

Experimental nanotechnology didn't come into its own until 1981, when the scientists in Zurich, Switzerland, built the first scanning tunnelling microscope (STM). This allows us to see single atoms by scanning a tiny probe over the surface of the silicon crystal. In 1990, scientists discovered how to use an STM, to move single xenon atoms around on a nickel surface. Engineering at the nanoscale is no simple feat, and scientists are having to come up with completely different solutions to build from the modern rather than traditional manufacturing techniques. Some nanomaterials such as nanowires and other simple devices have been shown to assemble themselves given the right conditions, and other experiments at larger scales are striving to demonstrate the principles of self-assembly. Micro-electronic devices might be persuaded to grow from the ground up, rather like trees.

In the short term, the greatest advances through nanotechnology will come in the form of novel medical devices and processes, new catalysts for industry and smaller components for computers. In medicine,

1

60

4

are already racing research on new ways to deliver drugs directly to cancer cells. The directing of drugs to tumours with tiny 'smart bombs' that seek and destroy tumours; starving cancer cells of oxygen; fighting diseases such as Alzheimer's, monitoring and curing heart attacks with tiny probes; and growing new organs in dish cultures are some of the many successes with tiny probes, and growing new organs from stem cells.

Ques. 1) What is nanotechnology in general?

1) In what way does STM help to support this technology?

2) It is engineering at the nanoscale too difficult task to carry out?

3) Can think this technology is limited only with industry and computers? How?

Ans. 1) Define the following questions:

a) What is a nuclear family? Describe the various ways in which it is.

b) Complete procedure how you lay the foundation of the road. (*Road Foundation*)

c) Write about various disadvantages of science according to the writer of *The Use and Misuse of Science*

d) How the concept of beauty changed in course of time? (*Beauty*)

Suppose you are the sales representative of Asta Computers and write a brief note write a sales letter to the wholesaler informing about any newly-arrived product with attractive features and it has recently been launched in the market.

b) Assume that you are the member of a newly-formed committee of Free Students' Union. Imagine at least three agendas and write the minutes of the meeting held recently.

2) Read the following passage and make notes:

A recent research suggests that animals have a much higher level of intelligence than previously thought. If animals do have intelligence, how do scientists measure it? Before defining animals' intelligence, it is a skill programmed into an animal's brain by its intelligent.

Intelligence is not a skill programmed into an animal's brain by its intelligent. Intelligence is also not intelligence. Tricks can

3x5

b) Suppose you are the president of Hirralayan Steels Industry which is facing a serious energy crisis. Now write a memo to all the employees as to draw their attention on what immediate measures can be taken up effectively as to conserve the energy.

b) Prepare a neat sketch CV/Resume on your own assuming yourself as an Electrical Engineer.

7 5. a) Suppose you are the president of Hirralayan Steels Industry which is facing a serious energy crisis. Now write a memo to all the employees as to draw their attention on what immediate measures can be taken up effectively as to conserve the energy.

8 6. a) You know that there's an increasing trend of bunking classes in the colleges of Kathmandu Valley and students like to join bunk party restaurant nearby. Actually this is a great challenge for educational institutions as students are growing up with learning disabilities by

be learned by repetition, but no real thinking is involved. Cuins in which animals learn to do or not to do certain things by following outside signals, does not demonstrate intelligence. Scientists believe that insight, the ability to use tools, and communication using human language are all effective measures of the mental ability of animals. When judging animal intelligence, scientists look for insight, which they define as a flash of sudden understanding. When a young gorilla could not reach fruit from a tree, she noticed crates scattered about the lawn near the tree. She piled the crates into a pyramid, and then climbed on them to reach her reward. The gorilla's insight allowed her to solve a new problem without trial and error. The ability to use tools is also an important sign of intelligence. Crows use sticks to pry peanuts out of cracks. The crow exhibits intelligence by showing it has learned what a stick can do. Likewise, otters use rocks to crack open crab shells in order to get at the meat. In a series of complex moves, chimpanzees have been known to use sticks and stalks in order to get at a favorite snack-termites. To make and use a termite tool, a chimp first selects just the right stalk or twig. He trims and shapes the stick, then finds the entrance to a termite mound. While inserting the stick carefully into the entrance, the chimpanzee turns it skillfully to fit the inner tunnels. The chimp attracts the insects by shaking the twig. Then it pulls the tool out without scraping off any termites. Finally, he uses his lips to skim the termites into his mouth.

b) Prepare a manuscript of technical talk on "Solution of Drinking Water Shortage in Kathmandu Valley". You are going to present it in 30 minutes talk.

7 7. a) Suppose you are the president of Hirralayan Steels Industry which is facing a serious energy crisis. Now write a memo to all the employees as to draw their attention on what immediate measures can be taken up effectively as to conserve the energy.

b) Prepare a neat sketch CV/Resume on your own assuming yourself as an Electrical Engineer.

8 8. a) You know that there's an increasing trend of bunking classes in the colleges of Kathmandu Valley and students like to join bunk party restaurant nearby. Actually this is a great challenge for educational institutions as students are growing up with learning disabilities by