

Con. 558-18.

Professional Communication Skills

RG-5184

(3 Hours)

[Total Marks : 80

- N.B. : (1) Attempt all questions.
(2) Figures to the right indicate full marks.

1. (a) What do you know about 7 C's of communication ? Explain each C with suitable examples. 10
OR
(b) Distinguish between Verbal and Nonverbal Communication.
2. (a) Define the concept of barriers to communication. Discuss various types of barriers to communication you have studied. 10
OR
(b) Write short notes on any two of the following :
(i) Cycle of process of communication
(ii) Nonverbal communication
(iii) Upward and Downward communications
3. (a) Describe the characteristic features of Business Letter. In what respect does it differ from other types of letter ? 10
OR
(b) Write short notes on any two of the following :
(i) Email
(ii) Memo
(iii) Components of letter /
4. (a) Write an application for the post of Junior Manager in Satyawan and Sons Pvt. Ltd. Mumbai. 10
As you are fresh graduate, you may use the single-letter format with bio-data.
OR
(b) Draft a Notice and Minutes for the Annual General Meeting of your company.
5. (a) Explain the concept of a report ? What is the significance of report writing to the modern business organisation ? 10
OR
(b) Imagine that you are a Chairperson of a committee formed to investigate the possibility of starting a new bank branch in a college premises. Write a detailed report with strong and general recommendations.
6. (a) Read the following paragraph and summarise it using the main points and relevant details : 10
India is very different from the West in social structure, religious orientation and political experience. But more importantly, its time-scale of recorded civilization is daunting, while its size and internal regional differences involve the student in an enterprise equivalent to that of investigating all the countries of Europe together.
Some factors have to be taken for granted in any study of India. The essential starting point is India's geography. Then one has to consider its social structure which is based on caste rather than class. This was a development that arose out of the particular ecological context of the sub-continent and the use I made of its human, resources. Thirdly, the ideological underpinning of society in Hindu-religious tradition has to be given due importance in any

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analysis of India. These factors have for centuries been accepted as facts in Indian history, and have constrained and, at times, even imprisoned those who attempted political dominion of the subcontinent whether Moghuls British or post-independence governments.

A myth commonly heard even in scholarly circles in the past was that of- an "unchanging India" where values and social relations inhibited change, and economic development' in particular. This myth has been dispelled. It has been shown that India's social structure and g many long-established attitudes have proved adaptable, enabling industrial production and modern investment within traditional towns. Village studies show much that is still traditional. Even here though, there is change. India's economic development, her involvement in an international economic community and' the emphasis on education are making their impact even in the villages.

But the "feel" of India is elusive, whatever the amount of academic study devoted to it. Among the best ways for the outsider to enter into India's culture and history is through the door of, imaginative literature.

OR

(b) Write short notes on any two of the following :

- (i) Formal and Informal Definitions
- (ii) Elements of formal instructions
- (iii) Structure of Report.

7. (a) What are the major types of reading ? Explain with examples.

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OR

(b) What is precis writing ? Discuss important steps to draft the précis writing.

8. (a) Proofread the following paragraph and edit it to make it meaningful.:

10

oral communication constitutes the bulk of allcommunication and is important to business for two reasons. Firstoral communication helps establish procedures for meetingobjectives. Second, oral communication helps establish humanrelationships. The advantages of oral communication are that it isfaster than written communication, permits immediate feedback, ismore effective for conveying messages with emotional content andhelps establish human relationships. Oral communications shouldbe organized to achieve the specific objectives of asking questionsgiving information, and persuading. Talking on the telephone is not the same as talking withsomeone face to face. Face-to-face communication supplementsthe spoken word with a wide variety, of nonverbal cues that helpthe listener understand the speaker. In a telephone conversation, each word must be understood without the addition of visual cues, so the speaker must be careful to speak distinctly and at amoderate rate. telephone use requires good manners and discretion so that the listener will not draw the wrong conclusion or overhear remarks intended for others.

OR

(b) Write a note on any ten important English spelling rules you have studied.

(3 Hours)

[Total Marks : 100

- N.B. : (1) Attempt all questions.
 (2) Figures to the right indicate full marks.

1. (a) Say whether the following statements are true or false : 5
- (i) Ideation is the last element in the cycle of communication process.
 - (ii) Salutation in a letter is shown by the phrases like Dear Sir/Madam.
 - (iii) Complement is one of the seven C's of effective communication.
 - (iv) A report is a statement of the results of an investigation or of any matter on which definite information is required.
 - (v) Dying is the present participle of the verb, 'die'.
- (b) Fill in the blanks : 5
- (i) The plural of stratum is
 - (ii) The example of physical barrier is
 - (iii) There are types of communication.
 - (iv) The full form of 'eg' is
 - (v) In the job interview, interviewer and communicate within a framework of well-established rules.
2. (a) What is nonverbal communication ? Explain in detail the importance of nonverbal communication. 15
- OR
- (b) Write notes on any three of the following:
- (i) Upward communication
 - (ii) Any 3 C's of effective communication
 - (iii) Process of communication
 - (iv) Grapevine communication
 - (v) Telephone communication
3. (a) What do you understand by barriers to communication? Explain in detail the various barriers to communication. 15
- OR
- (b) Write notes on any three of the following:
- (i) Oral communication
 - (ii) Status symbol as a barrier
 - (iii) Importance of listening
 - (iv) Ways to overcome language barrier
 - (v) importance of charts, maps and graphs.
4. (a) You have just passed your B. Sc examination. Write an application for the post of Assistant Manager, along with bio-data to Mrs. Sumithra Sampath, Manager, New Age Software Pvt. Ltd, Navi Mumbai. 15
- OR
- (b) Imagine that you are working as a section head of a reputed company in Mumbai and you have observed that your subordinate is involved in misconduct while on duty. Draft a memo in appropriate format to be issued to your subordinate colleague.

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5. (a) Your college Management has constituted a committee to investigate the possibilities of starting a stationery centre in your college premises. You are appointed as a Chairperson of the committee. Draft a report on behalf of the committee. 15

OR

- (b) Write notes on any three of the following :
- | | |
|--|-----------------------------|
| (i) Structure of a report | (ii) Steps to write summary |
| (iii) Methods of data collection | (iv) Abstract |
| (v) Guidelines for preparing instructions. | |

6. (a) What do you understand by reading ? Explain in detail the ways of improving reading skill. 15

OR

- (b) Write notes on any three of the following :
- | | |
|---------------------------------|---------------------------|
| (i) Importance of listening | (ii) Types of reading |
| (iii) Advantages of note-making | (iv) Good speaking skills |
| (v) Brochure | |

7. (a) Write a summary of the following paragraph and give it a suitable title : 7

Internet is a network of computer systems that have been connected to each other using standard communication protocols. Internet gives access to a large volume of precious and useful information.

Internet operations began when the US Department of Defense connected some computers through optical cable networks. These networks also used satellites for transmission of data to far-off places. Internet has given the most exciting mode of communications to all the email. We can send as e-mail to all the corners of the world. The data cost of internet for sending an E-mail is very low.

Further, Internet can be used to collect information from various websites on different subjects. This information could relate to education, medicines, literature, software, computers, business, entertainment, friendship and leisure. Internet is also used for carrying out business operations and that set of operations is known as Electronic Commerce (ecommerce). The Internet service is provided by both Government and private organizations.

All the newspapers, magazines and journals of the world are available on Internet. The possibilities an Internet are endless. The advantages of Internet are low cost, large volumes of information, high speed of access and good quality of entertainment. Its disadvantage is that people often waste time while surfing through various websites on Internet. The new century has ushered into a new era of Information Technology and Internet is the backbone of this modern era.

- (b) Proofread the following paragraph, and make it meaningful and readable : 8

speech is great blessings but it can also be great curse for while it helps us to make our intentions and desires known to our fellows it can also if we use it carelessly make our attitude completely misunderstood slip of the tongue the use of unusual word or of an ambiguous word and so on may create an enemy where we had hoped to win a friend again, different classes of people use different vocabularies And the ordinary speech of an educated may strike an uneducated listener as pompous. unwittingly we may use a word which bears a different meaning to our listener from what it does to men of our own class thus speech is not a gift to use lightly without thought, but one which demands careful handling only a fool will express himself alike to all kinds and conditions to men.

- N.B. : (1) All questions are compulsory.
(2) Figures to the right indicate full marks.

Q.1 Attempt any one :-

(a) Find the inverse of A by adjoint method if $A = \begin{bmatrix} 1 & 1 & -1 \\ 0 & 2 & 1 \\ 2 & -1 & 1 \end{bmatrix}$ 10

(b) If $\sin u = \frac{x^2 + y^2}{x + y}$ then prove that $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = \tan u$. 10

Q.2 Attempt any three :-

(a) Determine the rank of matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 1 & 0 \\ 0 & 1 & 2 \end{bmatrix}$. 5

(b) Solve the following equations - 5
 $x_1 - x_2 + x_3 = 0$
 $x_1 + 2x_2 - x_3 = 0$
 $2x_1 + x_2 + x_3 = 0$

(c) Show that the matrix $A = \begin{bmatrix} \cos \alpha & \sin \alpha \\ -\sin \alpha & \cos \alpha \end{bmatrix}$ is orthogonal. 5

(d) Under what condition the rank of the matrix $A = \begin{bmatrix} 2 & 4 & 2 \\ 2 & 1 & 2 \\ 1 & 0 & x \end{bmatrix}$ is 3? 5

Q.3 Attempt any three :-

(a) Is the system of vectors $x_1 = (2, 2, 1)^T$, $x_2 = (1, 3, 1)^T$, $x_3 = (1, 2, 2)^T$ linearly dependent. 5

(b) Find Eigen values and Eigen vectors for $A = \begin{bmatrix} 1 & 0 \\ 2 & 4 \end{bmatrix}$ 5

(c) Show that the matrix is $\begin{bmatrix} 2 & 2 & 1 \\ 1 & 3 & 1 \\ 1 & 2 & 2 \end{bmatrix}$ derogatory. 5

(d) Prove that the matrix $A = \frac{1}{\sqrt{2}} \begin{bmatrix} 1 & i \\ -i & -1 \end{bmatrix}$ is unitary. 5

Q.4 Attempt any three :-

- (a) Find the directional derivative of $f(x, y, z) = xy^2 + yz^3$ at the point $(1, -1, 1)$ in the direction of $(3, 1, -1)$. 5
- (b) If $a = a_1i + a_2j + a_3k$ and $r = xi + yj + zk$, find $\text{curl}(r \times a)$. 5
- (c) Find a unit normal vector to the surface $x^4 - 3xyz + z^2 + 1 = 0$ at the point $(1, -1, 1)$. 5
- (d) Show that the vector $F = (x + 3y)i + (y - 3z)j + (x - 2z)k$ is solenoid. 5

Q.5 Attempt any three :-

- (a) Obtain the differential equation for the relation $y = Ae^{3x} + Be^{5x}$ where A and B are arbitrary constants. 5
- (b) Solve $\frac{dy}{dx} + 1 = e^{x+y}$. 5
- (c) Solve $\frac{dy}{dx} = \frac{x - y + 3}{2x - 2y + 5}$. 5
- (d) Solve $x \frac{dy}{dx} = y(\log y - \log x + 1)$. 5

Q.6 Attempt any three :-

- (a) Solve $(x + 2y^3)dy - ydx = c$. 5
- (b) Solve $\frac{d^2y}{dx^2} + 9y = \cos 2x$. 5
- (c) Solve $\frac{d^3y}{dx^3} + 4\frac{d^2y}{dx^2} + \frac{dy}{dx} - 6y = 0$. 5
- (d) The differential equation of motion of a body is $\frac{d^2x}{dt^2} + n^2x = f \cos pt$. Solve this equation, what is the solution if $n = p$? 5

Q.7 Attempt any three :-

- (a) Find the n^{th} derivative of x^2e^{3x} by using Leibniz theorem. 5
- (b) Verify Lagrange's Mean value theorem and find the value of 'c' for $f(x) = \log x$ on $[1, e]$. 5
- (c) Time period T of a pendulum of length 'l' is given by $T = 2\pi\sqrt{\frac{l}{g}}$. Find error in g due to 3% error in l and 1% in T. 5
- (d) If $f(x, y) = \tan^{-1}\left(\frac{x+y}{x-y}\right)$. Compute $x \frac{df}{dx} + y \frac{df}{dy}$. 5

- N.B. : (1) All questions are compulsory.
(2) Figures to the right indicate full marks.

Q.1 Attempt any two :-

(a) Find inverse of the matrix by the adjoint method $A = \begin{bmatrix} 1 & 1 & -1 \\ 0 & 2 & 1 \\ 2 & -1 & 1 \end{bmatrix}$ 5

(b) Discuss the consistency of
 $2x + 3y - 4z = -2$
 $x - y + 3z = 4$
 $3x + 2y - z = -5$ 5

(c) Determine the rank of matrix A if $A = \begin{bmatrix} 1 & -1 & -2 & -4 \\ 2 & 3 & -1 & -1 \\ 3 & -1 & 3 & -2 \\ 6 & 3 & 0 & -7 \end{bmatrix}$ 5

Q.2 Attempt any two :-

- (a) Check whether the following matrix is derogatory or non-derogatory also find its minimal polynomial. 5

$$A = \begin{bmatrix} 2 & -2 & 3 \\ 1 & 1 & 1 \\ 1 & 3 & -1 \end{bmatrix}$$

- (b) Show that the given matrix A is satisfy its characteristic equation - 5

$$A = \begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$$

- (c) Is the system of Vectors $x_1 = (2, 2, 1)^T$, $x_2 = (1, 3, 1)^T$, $x_3 = (1, 2, 2)^T$ linearly dependent. 5

Q.3 Attempt any two :-

- (a) If $F = xy^2i + 2x^2yzj - 3yz^2k$ find *curl* F and *div* F at the point (1, -1, 1). 5
(b) Find the directional derivative of $f(x, y, z) = xy^2 + yz^2$ at the point (1, -1, 1) in the direction of (3, 1, -1). 5
(c) If $\phi = 2x^3y - y^2z$ find *grad* ϕ at (1, -1, 2). 5

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Q.4 Attempt any two :-

(a) Express the matrix, $A = \begin{vmatrix} 2+i & 1 & 3-3i \\ i & 1-i & 2+i \\ 1+i & -3 & 5 \end{vmatrix}$ As the Hermitian Matrix and Skew

Hermitian Matrix.

(b) Show that the vector $F = (x + 3y)i + (y - 3z)j + (x - 2z)k$ Solenoid.

(c) Find Eigen values and Eigen vectors for $A = \begin{bmatrix} 1 & 3 & 0 \\ 3 & -2 & -1 \\ 0 & -1 & 1 \end{bmatrix}$

Q.5 Attempt any two :-

(a) Solve $x + y \frac{dy}{dx} = \sec(x^2 + y^2)$ by putting $x^2 + y^2 = v$.

(b) From differential equation for $Ax^2 + By^2 = 1$ by eliminating arbitrary constants A and B.

(c) Solve $\frac{dy}{dx} = \frac{x + y + 1}{2x + 2y + 3}$

Q.6 Attempt any two :-

(a) Solve $\frac{dy}{dx} + y \sec x = \tan x$

(b) Solve $2 \frac{d^2y}{dx^2} + 5 \frac{dy}{dx} - 12y = 0$.

(c) Solve $(D^3 - 3D + 2)y = x$.

Q.7 Attempt any two :-

(a) Find n^{th} derivatives of the $y = e^x \cos x \cos 2x$.

(b) If $f(x, y) = \tan^{-1} \left(\frac{x+y}{x-y} \right)$ than show that $x \frac{\partial f}{\partial x} + y \frac{\partial f}{\partial y} = 0$.

(c) Find the value of 'c'. Verify Cauchy's Mean value theorem for $f(x) = \log x$, $g(x) = \frac{1}{x}$ on $[1, e]$.

Q.8 Attempt any two :-

(a) The differential equation of motion of a body is $\frac{d^2x}{dt^2} + n^2x = f \cos pt$. Solve this equation, what is the solution if $n = p$?

(b) Solve $(x^2 + y^2) dx = 2xy dy$.

(c) Find maxima and minima for $f(x, y) = x^3 + 3xy^2 - 15y^2 - 15x^2 + 72x$.

(3 Hours)

[Total Marks : 80

1. Answer the following (Attempt any two) :—

- (a) Explain the formation of p-type semiconductor with necessary diagram. 5
- (b) Define AM. Explain it with waveforms. 5
- (c) State the advantages of SSB over AM. 5

2. Answer the following :—

- (a) The turns ratio of transformer used in a half wave rectifier circuit is 80:8. The primary is connected to 230 V_{RMS} main supply. Assuming diode voltage drop to be 0.5 V, find the dc voltage across the load resistance & the PIV of each diode. Also find the load current if a load resistance of 100 Ω is used. 6
- (b) Explain the working of N-P-N transistor with necessary diagrams. 4

OR

- (c) With the help of circuit diagram explain the working of bridge rectifier using PN junction. 4

3. Answer the following :—

- (a) With the help of circuit diagram explain the working of single stage CE amplifier. Also discuss its frequency response curve. Explain the need for multistage amplifier. 10

OR

- (b) What are the different types of coupling? With circuit diagram explain the working of RC coupled amplifier. State its advantages and drawbacks. 10

4. Answer the following (Attempt any two) :—

- (a) Explain the working of Colpitt's oscillator with its circuit diagram. 5
- (b) Explain need of tank circuit in an oscillator. Explain the LC tank circuit. 5
- (c) An RC phase shift oscillator is to be design to provide sine wave frequency of 1kHz. If the value of capacitance is 0.016μF. Calculate the value of resistance. 5

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5. Answer the following :— 10
- (a) What is modulation? Why do we need modulation? 6
 - (b) Draw & explain the block diagram of third method to generate the SSB. 4
- OR
- (c) Explain the high level modulator. 4
6. Answer the following :—
- (a) Explain the super heterodyne receiver with the block diagram. 10
- OR
- (b) With the help of suitable block diagram explain transmitter and Receiver in frequency Division multiplexing. 10
7. Answer the following (Attempt any two) :—
- (a) Explain the characteristics of P-N junction diode with necessary diagrams. 5
 - (b) In astable 555 timer determine R_A and C if $R_B = 750\Omega$. Duty cycle=80% and clock frequency= 1MHz . 5
 - (c) Compare AM, FM and PM. 5
8. Answer the following :—
- (a) Write a note on LED & photodiode .State advantages and disadvantages. 6
 - (b) Explain types of optical fiber. 4
- OR
- (c) Explain the Vestigial Sideband Transmission. 4
-

(3 Hours)

[Total Marks : 100

1. Answer the following :— 10
- (a) Explain the working of a single stage CE transistor amplifier. Also draw its frequency response curve.
 - (b) Explain Balanced Modulator.
2. Any Three :— 15
- (a) Explain the concept of doping. State the types of extrinsic semiconductors. Explain any one type in detail.
 - (b) Explain the working of NPN transistor.
 - (c) The turns ratio of a transformer uses in a bridge rectifier is 20: 1 the primary is connected to a 230 V mains supply. Assuming diode voltage drop to be 0.3 V, find the dc voltage across the load resistance & the PIV of each diode. Also find the load current if a load resistance of 45 Ω is used.
3. Any Three :— 15
- (a) Explain the RC coupled amplifier. State its advantages and disadvantages.
 - (b) Explain the necessity of biasing .Explain any one method of transistor biasing.
 - (c) How is the classification of transistor amplifiers done as class A and B. Explain with suitable graphs.
 - (d) In a transistor amplifier if $V_{cc} = 9V$, $R_c = 3k \Omega$, zero signal base current = $20\mu A$ and common emitter current gain = 80. Find the coordinators of load line and the operating point.

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4. Any Three :—

15

- (a) Explain negative feedback. State their advantages and disadvantages.
- (b) Explain the working Colpitt's Oscillator with its circuit diagram.
- (c) In an astable multivibrator, determine values of R_1 and C if $R_B = 750 \Omega$. Duty cycle is 80% and clock frequency is 1MHz.
- (d) Draw & Explain block diagram of IC 555 Timer.

5. Any Three :—

15

- (a) Draw & Explain the block diagram of the basic communication system.
- (b) An audio signal is given by $E_m = 100 \sin(3140)t$. It amplitude modulates a carrier given by $E_c = 125 \sin 4\pi 10^6 t$. Find modulation index, percentage modulation, frequency of carrier, frequency of modulating signal, amplitude of side band components & their frequency.
- (c) Explain vestigial sideband transmission.
- (d) Explain filter method for side band suppression with block diagram.

6. Any Three :—

15

- (a) Explain PPM generator with waveforms.
- (b) Explain superheterodyne receiver with the block diagram.
- (c) Compare FM and AM systems.
- (d) With the help of Block diagram explain transmitter and Receiver in time division multiplexing.

7. Any Three :—

15

- (a) Explain the propagation of light in optical fiber.
 - (b) Explain the block diagram of fiber optic communication.
 - (c) Explain LED in detail.
 - (d) Write a note on Ray model.
-

Fundamental of Digital Computing

P4-Exam.-1st Half -2017-87

Con. 566-18.

RG-5572

(3 Hours)

[Total Marks : 100

N.B. : All questions are compulsory.

- Q.1 Attempt all questions :-** 10
- What is number system ? Explain various types of number system.
 - Explain basic organization of Computer with the help of neat and clean diagram.
- Q.2 Attempt any three :-** 15
- Convert Following:
 $(76.45)_{10} = (?)_2$ and $(786.235)_8 = (?)_{10}$
 - What is Hamming code ? How to generate hamming code for a given data? Detect and correct the error generated in received hamming code (1011001) using even parity.
 - Subtract using 1's complement $(56 - 61)_{10}$
 - Perform following conversion: $(1101)_2 = (?)_8$ and $(1FD)_{16} = (?)_{10}$
- Q.3 Attempt any three :-** 15
- Using truth table explain EX-OR and EX-NOR gate.
 - What do you mean by universal gates ? Why are they called universal gates ? Form basic OR gate by making use of NAND Gate.
 - Prove Demorgan's Theorem using truth table.
 - Prove the following Boolean function $\overline{B} + \overline{C} (B + A) = \overline{B} + \overline{C}$.
- Q.4 Attempt any three :-** 15
- What is encoder ? Explain the concept of encoder with a logic circuit diagram.
 - Write notes on Full Subtractor.
 - Explain Multiplexer tree and construct 8:1 multiplexer using two 4:1 multiplexer.
 - Implement the expression using 8:1 multiplexer $f(A,B,C) = \sum m(1,2,4,6)$.
- Q.5 Attempt any three :-** 15
- Explain the working of J-K flip flop.
 - Explain T Flip Flop.
 - Explain shift register and its types.
 - What is sequential circuit? Differentiate between combinational and sequential circuit ?
- Q.6 Attempt any three :-** 15
- Explain Multiprocessor operating system in detail.
 - Explain Real Time Operating System.
 - Write notes on cache memory.
 - What is output device? Explain any four types of output device.
- Q.7 Attempt any three :-** 15
- Explain various types of ROM.
 - Explain Multiprogramming operating System.
 - Write notes on Linux Operating System.
 - Write short note on Hard Disk and Optical Disk.

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- N.B. :** (1) All questions are compulsory.
 (2) Each question carries 10 marks.
 (3) Internal choices are there in each question.
 (4) Figures in right indicates full marks.

- Q1. Attempt any two questions :- 10
- What are binary codes? Why are they used ?
 - What is number system? Explain various types of number system.
 - Perform following conversion operation:
 $(1111.10111)_2 = (?)_{10}$ and $(121)_8 = (?)_{10}$
- Q2. Attempt any two questions :- 10
- What do you mean by universal gates? Why are they called universal gates?
 - Design circuit diagram for given expression: $Y = ABC + AB + AC$
 - Using truth table explain EX-OR and EX-NOR gate.
- Q3. Attempt any two questions :- 10
- What is Demultiplexer? Explain working of 1:4 demultiplexers.
 - Explain Multiplexer tree and construct 8:1 multiplexer using two 4:1 multiplexer.
 - What is Digital Encoder? Explain 4-to-2 Bit Binary Encoder with help of suitable diagram.
- Q4. Attempt any two questions :- 10
- Solve following: $(1010.1100)_2 * (111)_2$ and $(1110111)_2 / (1001)_2$
 - Solve the following minterm using K-Map: $f(A,B,C,D) = \sum m(0,1,2,3,5,7)$
 - What is Adder ? Explain Half Adder Circuit with truth table and Circuit.
- Q5. Attempt any two questions :- 10
- What is sequential circuit? Differentiate between combinational and sequential circuit.
 - Explain the working of J-K flip flop.
 - Explain D-Type flip flop.
- Q6. Attempt any two questions :- 10
- Explain Basic Organization of Computer with the help of neat and clean diagram.
 - What is ROM ? Explain various types of ROM.
 - Explain in brief about output devices of computers.
- Q7. Attempt any two questions :- 10
- What is operating system ? Explain the functions of operating system.
 - State the advantages of Linux Operating System.
 - Explain the use of following Linux Commands: rmdir, cat, kill, cd, chmod
- Q8. Attempt any two questions :- 10
- What is Shift register? Explain 4-bit serial - in Parallel-out Shift Register with the help of diagram.
 - Explain structure and working of Optical disk and Magnetic tape.
 - Explain Time sharing operating system in detail.

(3 Hours)

[Total Marks : 80

- N.B. :** (1) All questions are **Compulsory**.
(2) Draw **neat** and labelled diagram.
(3) Give **suitable** examples wherever necessary.

1. Answer the following (Any 2)

- (a) Define Algorithm, Explain with simple example. 5
(b) Draw flowchart to check number is positive or negative or zero. 5
(c) Write c++ program to display sum and average of 3 numbers. 5

2. Answer the following :—

- (a) Explain and draw different symbols of flowchart. Write advantages and disadvantages of flowchart. 6
(b) Write an algorithm to display series of odd numbers from 1 to 100. 4
OR
(b) Write an algorithm to display smallest number from 3 numbers. 4

3. Answer the following :—

- (a) Explain simple 'if' statement, 'if....else' statement, and 'nested if' statement with syntax and explain each with example. 10
OR
(a) Explain 'while' and 'for' loop with syntax and example. 10

4. Answer the following :—

- (a) Explain various data types available in c++ with example. 6
(b) How to declare a variable ? Write down rules for declaring variables. 4
OR
(b) What do you mean by reference variable ? Explain with example. 4

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5. Answer the following (Any 2) :—

(a) Write a program in c++ to display following output. 5

1 2 3 4

1 2 3

1 2

1

(b) Write note on functions. Explain declaration, calling and definition of function. 5

(c) Write a program in c++ to check number is prime or not. 5

6. Answer the following :—

(a) Write a note on function overloading. Explain with example. 10

OR

(a) Explain getchar (), putchar (), getc (), gets (), puts () functions. 10

7. Answer the following :—

(a) Explain passing array elements to a function with example. 6

(b) What is array ? what are different types of array ? 4

OR

(b) Write a program in c++ to find sum and average of 10 array elements. 4

8. Answer the following (Any 2) :—

(a) Explain strcpy () and strcmp () function with example. 5

(b) Write a program in c++ to search given character in the given string. 5

(c) Explain the concept of structure. Explain with example. 5

Con. 561-18.

RG-5911

(3 Hours)

[Total Marks : 100

N.B. :(1) All questions are **Compulsory**.

(2) Figures to the right indicate full marks.

1. Answer the following :— 10
- (a) Define Algorithm. What are the characteristics of algorithm. Write algorithm to display addition of 2 numbers ?
- (b) Explain and draw different symbols of flowchart. Write advantages and disadvantages of flowchart.
2. Answer the following (any 3) :— 15
- (a) Explain syntax and logical errors ?
- (b) Write note on Program Design Process.
- (c) Draw flowchart to display smallest number from 3 numbers.
- (d) Write algorithm to display square and cube of a number.
3. Answer the following (any 3) :— 15
- (a) Explain logical, relational, arithmetical operator with example.
- (b) What are data types in c++ ?
- (c) State following variable names are valid or not.
1) Emp*10 2) Stud name 3) Sales_2018 4) Gross@income 5) marks
- (d) What do you mean by reference variable ? Explain with example.
4. Answer the following (any 3) :— 15
- (a) Explain 'if' statement, and 'switch' statement with syntax and example.
- (b) Explain 'for' loop with syntax and example.
- (c) Write a program in c++ to display sum and average of 1 to 100 numbers.
- (d) Explain 'break' and 'continue' statement with example.
5. Answer the following (any 3) :— 15
- (a) Write a note on function overloading, explain with example.
- (b) Write a note on function recursion. Explain with example.
- (c) Write a note on inline function.
- (d) Write a program in c++ to check number is prime or not using function.

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6. Answer the following (any 3) :—

15

- (a) Write a note on pointers.
- (b) What is an array ? How do you initialize and access elements in an array ?
- (c) How to pass array elements to a function ?
- (d) Write a program in c++ to input 20 elements in array, and display it in reverse order.

7. Answer the following (any 3) :—

15

- (a) Explain any two string handling functions with the help of examples.
- (b) Write a program in c++ to display string in reverse order.
- (c) What is a vector ? How do you access elements in vectors ?
- (d) Write a program in c++ to search given character in the given string.

(March-18)

F.Y.B.Sc (I.T.) (Sem-1)

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