

Roll No.

Total Pages : 02

BSIT/D-20

26161

COMMUNICATION SKILLS (ENGLISH)-I

BSIT-101

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt all *Five* questions. All questions carry equal marks.

1. (i) Discuss elements essential for effective communication.
(ii) Write a short note on distinction between official and business correspondence.
(iii) Explain the term 'Body Language'.
(iv) Write a short note on 'Telegram'. **4×2=8**
2. (a) Write a detailed note on channels of communication.
(b) Write short notes on 'Interview' and 'Meetings'. **8**
3. (a) Define Communication, its types and a detailed note on verbal communication.
(b) Define Communication, its types and a detailed note on non-verbal communication. **8**
4. (a) What do you understand by the term Writing Skills ? Elucidate.
(b) What is Draft ? What are the essentials of a draft ? **8**

- 5.** (a) Write short notes on the following :
- (i) Communiques
 - (ii) Notification.
- (b) Write short notes on the following : **8**
- (i) Employee Mannuals
 - (ii) Fax

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BSIT/D-20

26162

MATHEMATICAL FOUNDATIONS FOR
INFORMATION TECHNOLOGY-I
BSIT-102

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. (a) Find rank of matrix : 2

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

- (b) Check whether the given differential equation is exact or not : 2

$$(x^4 - 2xy^2 + y^4)dx - (2x^2y - 4xy^3 + \sin y)dy = 0$$

- (c) Define finite and infinite sets. Give examples. 2
(d) What is a proposition ? Explain. 2

Unit I

2. (a) Find row rank of the matrix A, where : 4

$$A = \begin{bmatrix} 3 & 4 & 1 & 2 \\ 3 & 2 & 1 & 4 \\ 7 & 6 & 2 & 5 \end{bmatrix}$$

by reducing it to normal form.

- (b) Using elementary row operations, find inverse of the matrix : 4

$$A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$$

3. (a) Find eigen vectors of matrix : 4

$$A = \begin{bmatrix} -2 & 2 & -3 \\ 2 & 1 & -6 \\ -1 & -2 & 0 \end{bmatrix}$$

- (b) Prove that characteristic roots of a skew Hermitian matrix are either zero or purely imaginary. 4

Unit II

4. (a) Solve the differential equation : 4

$$\left(1 + x^2\right) \frac{dy}{dx} + 2xy = 4x^2$$

- (b) Solve the differential equation : 4

$$(x^2 + y^2 + 2x)dx + 2ydy = 0$$

5. (a) Solve the differential equation : 4

$$\frac{d^2y}{dx^2} + 2\frac{dy}{dx} + y = e^x \sin 2x$$

- (b) Solve the differential equation : 4

$$x^2 \frac{d^2y}{dx^2} - 2x \frac{dy}{dx} - 4y = x^4$$

Unit III

6. (a) Prove that : 4

$$A - (B \cap C) = (A - B) \cup (A - C)$$

- (b) In a recent survey of 5000 people, it was found that 2800 read 'Indian Express', 2300 read 'The Tribune', while 400 read both the papers.

Then :

- (i) How many read neither Indian Express nor The Tribune ?
- (ii) How many read Indian Express only ?
- (iii) How many read The Tribune Only ? 4
7. (a) If $A = \{1, 2, 3, 4, 5, 6\}$, $B = \{4, 5\}$, $C = \{1, 2\}$ and $U = \{1, 2, 3, \dots, 8\}$, then find : 4
- (i) $(A \cap B)'$

(ii) $(A - B)'$

(iii) $(B - A)'$

(iv) $(A \cup C)'$

(b) Prove by principle of mathematical induction : **4**

$$3^{2n+2} - 8n - 9$$

is divisible by 64, for all natural numbers n .

Unit IV

8. (a) Let N be the set of natural numbers. Let R be a relation defined by $(a, b) R (c, d) \Leftrightarrow ad(b + c) = bc(a + d)$. Prove that R is an equivalence relation on $N \times N$. **4**

(b) Write all the minsets of sets generated by $A = \{0, 2, 4\}$, $B = \{1, 5\}$ and $U = \{0, 1, 2, 3, 4, 5\}$. **4**

9. (a) Prove that : **4**

$$\sim [p \vee (\sim q)] = (\sim p) \wedge q$$

(b) How many students were born in same month from a group of 50 students ? **4**

BSIT/D-20**26163****FUNDAMENTAL OF EM WAVES****Paper-BSIT-103**

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *five* questions in all, selecting *one* question from each unit. Question No. 1 is compulsory. Use of simple calculator is permissible.

Compulsory Question

1. (a) Describe the concept of displacement current. 2
- (b) What is the voltage and current phase relationship across L and C in series and parallel resonant circuits ? 2
- (c) What is skin effect ? 2
- (d) Define reflection coefficient in a transmission line. 1
- (e) What properties of a transmission line determines its dielectric constant ? 1

UNIT-I

2. (a) State and prove Gauss's divergence theorem. 4
- (b) Explain the situation
 - (i) $\text{div } \vec{F} = 0$ but $\text{curl } \vec{F} \neq 0$. 2
 - (ii) $\text{div } \vec{F} \neq 0$ but $\text{curl } \vec{F} = 0$. 2

(c) If the velocity of any object is given by $\vec{V} = 2x\hat{i} + 2y\hat{j}$, then show that the motion is irrotational. 2

3. (a) State and prove Gauss's law in electrostatics. 4

(b) If $\vec{E} = 3\hat{i} + 4\hat{j} + 8\hat{k}$, calculate the electric flow through a surface area 100 units in X-Y plane. 2

(c) Show that the curl of gradient of a scalar function is always zero. 2

UNIT-II

4. (a) Using Maxwell equations derive the wave equations for field vectors \vec{E} and \vec{H} in free space and obtain their velocity of propagation. 5

(b) Write four Maxwell equations and give their physical significance. 3

5. (a) Derive Poynting's theorem for the conservation of Energy in an electromagnetic field and discuss the physical meaning of each term in the resulting equation. 7

(b) In plane em wave the magnitude of H field is 2 Amp/m. calculate the magnitude of E field for plane wave in free space. 1

UNIT-III

6. (a) Calculate the impedance of series LCR circuit. Discuss the condition of resonance and find the resonant frequency. 5
- (b) Define Quality factor of resonant circuits and calculate its value for a series resonant circuit. 3
7. (a) Discuss graphically the current voltage relationship in an a.c. circuit containing L and R. 5
- (b) A 110 V, 20 watt lamp is to run on 50 Hz, 220 V a.c. mains. Find the inductance of a choke coil required in the circuit. 3

UNIT-IV

8. (a) Explain and derive the expression for the characteristic impedance of a transmission line. 5
- (b) What are the various losses in a transmission line ? Explain. 3
9. (a) What is the basic principle of a transmission line ? Discuss various types of transmission lines. 6
- (b) Describe the electrical and physical properties of a transmission line. 2
-

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BSIT/D-20

26164

ELECTRONIC DEVICES AND CIRCUITS

BSIT-104

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) How PN junction acts as a switch ? **1**
- (b) Why Vth group impurity is known as Donor type impurity ? **1**
- (c) What will be the voltage at the output of half wave voltage doubler, if the voltage at the secondary of the transformer is 20 volts ? What will be the PIV of the diodes used ? **2**
- (d) Which configuration of transistor is mostly used and why ? **2**
- (e) What are the advantages of the FET over BJT ? **2**

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Unit I

2. (a) What is semiconductor ? Distinguish between intrinsic and extrinsic semiconductor. 4
- (b) What is voltage regulation ? Explain a Zener diode voltage regulator. 4
3. (a) Explain the formation of a depletion layer in a PN junction diode. 4
- (b) Explain the effect of junction capacitances in the PN junction diode. 4

Unit II

4. (a) Explain the working of half wave rectifier with suitable diagram. Derive the expression of rectifier efficiency and ripple factor for half wave rectifier. 6
- (b) What are the advantages and disadvantages of bridge rectifier ? 2
5. (a) A full wave rectifier has the input signal $E_s = 200 \sin (200\pi.t)$, $R_L = 800\Omega$ and each diode has the forward resistance of 100Ω . Calculate : 4
- (i) Peak value of current through the load resistance

- (ii) DC load current
- (iii) DC output voltage
- (iv) Rectifier efficiency.
- (b) Discuss the positive and negative unbiased shunt clipper with the help of suitable circuit diagrams. **4**

Unit III

- 6. (a) Discuss early effect in a junction transistor. **4**
- (b) Elaborate and discuss various current components of a junction transistor. **4**
- 7. (a) Discuss input and output characteristics of PNP transistor in CB configuration. **6**
- (b) If for a transistor $\alpha = .95$ and $I_E = 1\text{mA}$, find the values of I_c and I_b . **2**

Unit IV

- 8. (a) Discuss the small signal model of field effect transistor. **3**
- (b) Draw and explain the drain and transfer characteristics of P-channel enhancement MOSFET. Also draw its circuit symbol. **5**

9. (a) Draw the drain characteristics of an N-channel JFET.
Explain the shapes of these curves qualitatively. 4
- (b) Draw and explain common drain low frequency
model. 4

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26165

ELECTRONIC COMMUNICATION

BSIT-105

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

(Compulsory Question)

1. (a) Why are high carrier frequencies used for transmission ? 2
- (b) What is guard band ? 2
- (c) What is companding and why is it required ? 2
- (d) What is crosstalk ? 2

Unit I

2. (a) Derive the power relations for single tone amplitude modulated wave. 4
- (b) A certain transmitter radiates 9 kW with the carrier unmodulated and 10.125 kW when the carrier is sinusoidally modulated. Calculate the modulation index. If another sine wave is simultaneously transmitted with modulation index 0.4, determine the total radiated power. 4

(5)L-26165

3. (a) What is demodulation ? What are essentials in demodulation ? Draw the diode linear detector circuit and explain its working. **4**
- (b) In a FM system, when the audio frequency (AF) is 500 Hz, and the AF voltage is 2.4 V, the deviation is 4.8 kHz. If the AF voltage is now increased to 7.2 V, what is the new deviation ? If the AF voltage is further increased to 10 V while the AF is dropped to 200 Hz, what is the deviation ? Find the modulation index in each case. **4**

Unit II

4. (a) For a low pass signal with $f_m = 20$ kHz what should be the minimum sampling frequency ? **3**
- (b) What is pulse modulation ? Discuss the PAM in detail. **5**
5. (a) How is the interlacing of two base band signals done in PAM ? **4**
- (b) Show that effect of noise in long channel communication is modified by quantization of signals. **4**

Unit III

6. (a) Explain the basic principle of differential pulse code modulation with suitable diagram. **4**

- (b) Draw and explain the block diagram of PCM communication system. 4
- 7. (a) What is delta modulation ? Explan. Give comparison of PCM and DM. 4
- (b) Discuss the noise effect in delta modulation. 4

Unit IV

- 8. (a) Discuss the different elements of a digital communication system. 4
- (b) Write a short note on bandwidth requirement in digital communication system. 4
- 9. (a) Explain the basic concept of an echo suppressor. 4
- (b) An analog signal carries eight bits in each signal element. If 5000 signal elements are sent per second, find the baud rate and bit rate. 4

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BSIT/D-20

26166

COMPUTER FUNDAMENTALS-I

BSIT-106

Time : Three Hours]

[Maximum Marks : 40

Note : Question No. 1 is compulsory. Attempt *four* more questions by selecting *one* question from each Unit.

1. (a) What is a file ? How to create a file in MS-Word ? 2
- (b) Explain various types of floppy disks in detail. 2
- (c) What is Middleware ? Explain it with examples. 2
- (d) What is Word Processor ? Name popular word processor package. 2

Unit I

2. Explain computer evolution and its generations in detail. 8
3. What is a computer ? Explain various characteristics of computer in detail. 8

Unit II

4. Explain optical disk in detail along with its advantages and disadvantages. 8

5. Explain various characteristics of storage devices and storage hierarchy. **8**

Unit III

6. What is Software ? Explain its types in detail. **8**
7. What is System Software ? Explain the relationship between Software and Hardware in detail. **8**

Unit IV

8. Explain multimedia and its components and applications. **8**
9. Explain main features of MS-Word in detail. **8**

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OBSIT/D-20

26168

**MATHEMATICAL FOUNDATIONS FOR
INFORMATION TECHNOLOGY
BSIT-102**

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

(Compulsory Question)

1. (a) Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 3 & 2 & 1 \\ 1 & 1 & 1 \end{bmatrix}$. **2**

(b) Solve the differential equation : **2**
 $(D^4 - D^3 - 9D^2 - 11D - 4)y = 0$

(c) Show that $\frac{1}{x^2}$ is integrating factor of the equation

$(x^2 + y^2)dx - 2xydy = 0$. **2**

(d) Write all the partitions of the set $S = \{1, 2, 3\}$. **2**

Unit I

2. (a) Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 1 \\ -3 & -6 & -3 \\ 5 & 10 & 5 \end{bmatrix}$. **3**

(b) Find the characteristic roots and corresponding

characteristic vectors of the matrix $\begin{bmatrix} -2 & 2 & -3 \\ 2 & 1 & -6 \\ -1 & -2 & 0 \end{bmatrix}$. **5**

3. Find the matrix P which transform the matrix

$A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$ to the diagonal form. **8**

Unit II

4. (a) Find the necessary and sufficient conditions that the equation $Mdx + Ndy = 0$ may be exact. **4**

(b) Find the differential equation of the family of curves $y = Ae^{3x} + Be^{5x}$, where A, B are arbitrary constants. **4**

5. (a) Give geometrical meaning of the solution of the differential equation $\frac{dy}{dx} = -\frac{y}{x}$. **4**

- (b) Solve $(1 + y^2)dx + (1 + x^2)dy = 0$ given that $y = 1$
when $x = 0$. 4

Unit III

6. (a) Solve the differential equation : 4

$$\frac{d^3y}{dx^3} + \frac{d^2y}{dx^2} + \frac{dy}{dx} + y = \sin 2x$$

- (b) Solve the differential equation : 4

$$x^2 \frac{d^2y}{dx^2} - x \frac{dy}{dx} - 3y = x^2 \log x$$

7. (a) Show that :

$$1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6} \quad n \geq 1$$

by mathematical induction. 4

- (b) State whether the following sets are finite or infinite : 4

(i) $\{x : x \in \mathbb{N} \text{ and } 2x - 1 = 0\}$

(ii) $\{x : x \in \mathbb{Z} \text{ and } x^2 = 36\}$

(iii) $\{x : x \in \mathbb{Z} \text{ and } x > -10\}$

(iv) $\{x : x \in \mathbb{R} \text{ and } 0 < x < 1\}$.

Unit IV

8. (a) If R is a relation from \mathbb{N} to \mathbb{N} defined by $(a, b) R (c, d)$ if and only if $ad = bc$, then show that R is equivalence relation. 4

(b) Let $A = \{1, 2, 3\}$. Determine which of the relations on A are partial ordering relation :

(i) $\{(1, 1), (2, 3), (3, 1), (2, 1), (2, 2), (3, 3)\}$

(ii) $\{(1, 1), (2, 2)\}$. 4

9. (a) Define partition of a set. Consider the set $S = \{1, 2, 3, \dots, 14, 15\}$ and its subsets $A_1 = \{3, 6, 9, 12, 15\}$, $A_2 = \{2, 5, 8, 11, 14\}$, $A_3 = \{1, 4, 7, 10, 13\}$. Is the set $\{A_1, A_2, A_3\}$ a partition of S . 4

(b) Let the relation $(x, y) \in R$, if $x \geq y$ defined on set of positive integers. Is R a partial order relation ? Prove or disprove it. 4

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OBSIT/D-20

26169

PHYSICS-I (EM THEORY)

BSIT-103

Time : Three Hours]

[Maximum Marks : 40

Note : Question No. **1** is compulsory. Attempt *four* more questions, selecting *one* question from each Unit.

(Compulsory Question)

1. (a) What do you mean by displacement current ? **1½**
- (b) What is the characteristic impedance of free space and its value ? **1½**
- (c) Why there is no electric field within the spherical shell ? **1**
- (d) What is skin effect ? **2**
- (e) Define field strength of an elementary dipole. **2**

Unit I

2. (a) State and explain Gauss's Divergence Theorem. **4**
- (b) Derive Maxwell's equations in differential form. **4**

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3. (a) What are Scalar and Vector Potentials ? 4
- (b) Show that electric field can be expressed as the negative gradient of potential. 4

Unit II

4. (a) State and prove Poynting theorem. Explain the physical significance of each term in the resulting equation. 6
- (b) Calculate the value of Poynting vector at the surface of sun if it radiates 3.8×10^{26} Watt of power. Given radius of sun is 7×10^8 m. 2
5. Discuss the propagation of em waves through a non-conducting isotropic medium and verify the transverse nature of em waves. 8

Unit III

6. (a) Describe the Strata of ionosphere and their effects on sky wave propagation. Why this propagation is generally better at night than during the day ? 6
- (b) Why short wave communication over long distance is not possible via ground waves ? 2

7. Write notes on the following :
- (a) Ground wave propagation 4
 - (b) Space wave propagation 4

Unit IV

8. (a) What are different types of transmission lines ?
Define characteristics impedance of a transmission line. 4
- (b) What is non-resonant antenna ? Also define antenna gain for any antenna. 4
9. Explain the following :
- (a) Directive gain 2
 - (b) Directivity and Power gain 2
 - (c) Antenna resistance with losses and efficiency 2
 - (d) Bandwidth and Beamwidth. 2

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OBSIT/D-20

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DIGITAL ELECTRONICS-I

BSIT-104

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

(Compulsory Question)

1. (a) Write $(-128)_{10}$ and $(-101)_{10}$ in 2^{1s} compliment form.
- (b) Convert $A + B$ to Modern form.
- (a) Define XOR Gate.
- (b) State and prove Demorgan's Law for two variables.

2×4=8

Unit I

2. (a) Convert the following :
- (i) $(110001)_2 = (x)_{10}$
- (ii) $(23.6)_{10} = (x)_2$
- (iii) $(65.535)_{10} = (x)_{16}$
- (iv) $(F8E6.39)_{16} = (x)_{10}$

1½×4=6

(5)L-26170

- (b) Divide $(1101101)_2$ by $(101)_2$. 2
3. (a) Explain in details : 3+3=6
- (i) Cyclic Code
- (ii) Grey Code
- (b) Multiply $(10101)_2$ with $(10011)_2$. 2

Unit II

4. (a) Using the theorem of Boolean algebra, prove the following : 2+2
- (i) $(A+B)(A+\bar{A}\cdot\bar{B})\cdot\bar{C}+\bar{A}(\overline{B+C})+\bar{A}\cdot B+A\cdot B\cdot C=A+B+C$
- (ii) $(A+A\cdot\bar{B})[A\cdot C+A\bar{C}(\bar{A}+B)](B+C)=A\cdot B+A\cdot C$
- (b) Obtain the minimal Boolean functions of the following using k -map : 2+2
- (i) $F_1(A,B,C,D)=\sum(0,1,2,3,4,7,8,9)+\sum_{\phi}(10,11,12,13,14,15)$
- (ii) $F_2(A,B,C,D)=\sum(0,1,5,8,10,14)+\sum_{\phi}(2,11,15)$

5. (a) Explain, how AND, OR, NOT gates can be realized using NAND gates alone ? **2**
- (b) Using k -map, obtain the minimal POS expression of the following and implement it with NOR gates only : **6**

$$F(A,B,C,D) = \prod (2,3,7,10,11,14,15) \cdot \prod_{\phi} (1,5,12).$$

Unit III

6. (a) What is a full adder ? Discuss the design of a full adder using NAND gates. **4**
- (b) What is a Encoder ? Draw and discuss the operation of a octal to Binary Encoder. **4**
7. (a) What is a BCD to decimal decoder ? Draw its logic diagram and explain its working. **4**
- (b) What is a Parity Generator/Checker ? Discuss a 4 bit Parity bit generators cum checker. **4**

Unit IV

8. (a) Draw the circuit diagram of a RS Flip-flop using NOR gates and discuss the operation of this circuit. **4**

(b) Describe the working of a edge trigger T-flip-flop. **4**

9. Discuss standard JK flip-flop with NOR gates and show that for inputs $JK = 11$, the complementation in output will be obtained when the width of the clock pulse is less than the delay in NOR gate. **8**

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ELECTRONICS COMMUNICATION

BSIT-105

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) Why is a high frequency carrier needed in a communication system ?
- (b) Compare AM and FM in terms of noise performance and bandwidth requirement.
- (c) Define Shannon-Hartley Theorem with the help of its formula, giving meaning of each term.
- (d) What is multilevel encoding ? What are its benefits and disadvantages ?

2×4=8

(5)L-26171

Unit I

2. (a) Derive expression which relates the total power in the Amplitude Modulated wave to the unmodulated carrier power. **4**
- (b) A transmitter radiates 9 kW with the carrier unmodulated and 10.125 kW, when the carrier is sinusoidally modulated. Calculate the modulation index. If another sine wave, corresponding to 40% modulation, is transmitted simultaneously, determine the total radiated power. **4**
3. (a) Derive relation between frequency deviation and modulation index of FM wave. Also write the diadvantages of FM. **5**
- (b) What do you understand by the term demodulation ? Explain the working of diode detector for Amplitude Modulated signals. **3**

Unit II

4. Define Pulse Amplitude Modulation (PAM). Explain in brief the various forms of PAM with the help of their waveforms. **8**

5. (a) What do you understand by Aliasing ? What are the steps involved in order to avoid aliasing ? 4
- (b) What is Sampling Theorem in communication ? What sampling rate would be appropriate for : 4
- (i) 4 kHz telephone channel
- (ii) A music channel with a maximum frequency of 20 kHz.

Unit III

6. (a) What is Quantization in PCM ? How quantization error is reduced ? 4
- (b) What is companding ? Why is it used in PCM ? Make the PCM transmitter block diagram showing that where is companding used. 4
7. (a) What is Delta Modulation ? Explain Delta Modulation with the help of its transmitter and waveform. 6
- (b) What is the advantage and disadvantage of Delta Modulation (DM) over PCM ? 2

Unit IV

8. (a) State *three* reasons which make digital communication a popular means of communication. **3**
- (b) What do you mean by Digital communication ?
Make a block diagram of digital communication system and give brief detail of each subsection. **5**
9. (a) What is crosstalk in TDM systems ? How can it be suppressed ? **4**
- (b) Sketch the waveforms for encoding binary data 11011001 in : **4**
- (i) Non-return to zero signalling
 - (ii) Return to zero signalling
 - (iii) Bipolar signalling
 - (iv) Manchester coding.

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OBSIT/D-20 26172
COMPUTER FUNDAMENTALS-I
BSIT-106

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all. Q. No. **1** will be compulsory. In addition to compulsory question, select at least *one* question from each Unit.

(Compulsory Question)

1. (a) What is Primary Memory ?
(b) What for find and replace is used in Word ?
(c) What is Directory ?
(d) Write any **two** services of Internet. **4×2=8**

Unit I

2. What are the components that make up a computer system? Discuss with the help of a block diagram. **8**
3. Explain file system. **8**

Unit II

- 4. (a) What is the difference between primary and secondary memory ? 4
- (b) With example explain direct access devices. 4
- 5. Explain magnetic bubble memory in detail with its advantages and disadvantages. 8

Unit III

- 6. What is application software ? Describe the steps of software development. 8
- 7. Explain system software and its types. 8

Unit IV

- 8. How to modify and format a word document ? 8
- 9. Write short notes on the following : 8
 - (a) Multimedia components
 - (b) Macros.

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BSIT/D-20 26173
CIRCUIT ANALYSIS AND DIGITAL
ELECTRONICS-II
BSIT-301

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

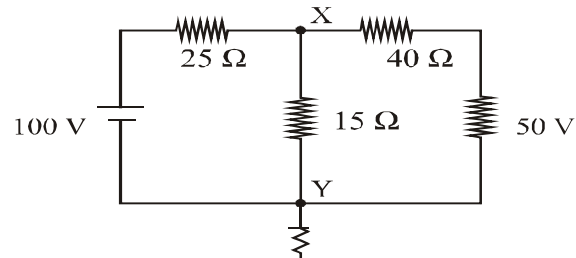
(Compulsory Question)

1. (i) Show that in a JK flip-flop race around occurs only when $J = K = 1$.
- (ii) Differentiate between combinational and sequential circuits.
- (iii) What is the value of resistance of a constant voltage source ?
- (iv) What do you mean by Edge-triggered flip-flop ? **2×4=8**

Unit I

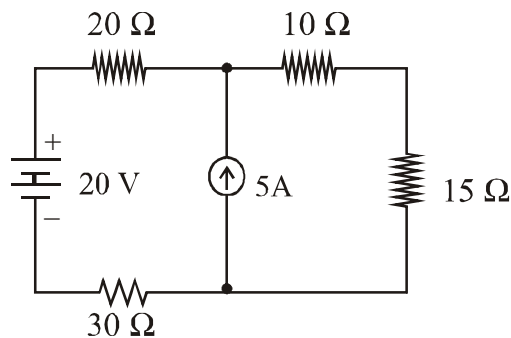
2. (a) Define Thevenin's theorem and find current in the branch 'XY' : **5**

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(b) Explain voltage and current sources. How a voltage source can be converted into a current source ? **3**

3. (a) Apply superposition theorem to find the current flowing through 10 Ω resistor : **5**

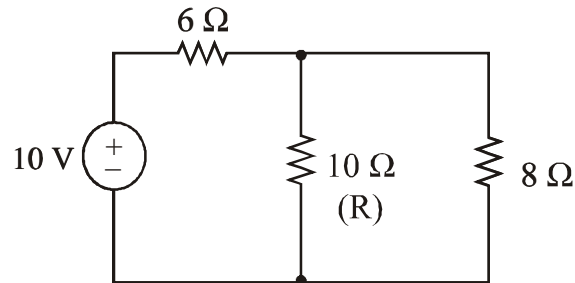


(b) Discuss node method of Network analysis with suitable example. **3**

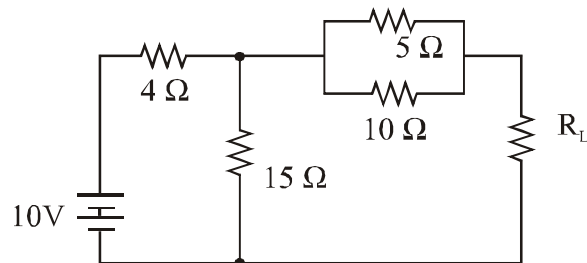
Unit II

4. (a) State and prove Reciprocity Theorem. **4**
 (b) In the following network, if resistance R is changed from 10Ω to 5Ω, verify compensation theorem : **4**

(5)L-26173



5. (a) In the following circuit, what should be the value of load resistance R_L , so that it can draw maximum power : 5



- (b) State and prove Tellegen's Theorem. 3

Unit III

6. (a) What are code converters ? Discuss and design a BCD to seven segment code converter. 4
- (b) What is half adder ? Discuss the design of half adder circuit using : 4
- (i) 5 NAND gates (ii) 5 NOR gates

7. (a) Realize the following function of four variables with 8 : 1 MUX : **4**

$$F(A, B, C, D) = \Sigma(0,1,3,4,6,8,10,11,14,15)$$
- (b) What is Encoder ? Draw the logic diagram of octal to binary encoder. **4**

Unit IV

8. (a) How does a JK flip-flop differ from SR flip-flop in its basic operation ? State its advantages over SR flip-flop. **4**
- (b) What do you mean by edge trigger flip-flop ? Discuss the operation of an edge trigger JK-FF. **4**
9. (a) How a T-flip-flop be used as divided by two devices ? **3**
- (b) The Q and \bar{Q} outputs of a closed RS flip-flop are converted to its R and S inputs respectively. What specific function does this flip-flop perform ? If 2 kHz frequency is applied to its clock input, what is the frequency at the Q-output terminal of the flip-flop ? **5**

Roll No.

Total Pages : 03

BSIT/D-20

26174

**TRANSISTOR AND LINEAR INTEGRATED
CIRCUITS
BSIT-302**

Time : Three Hours]

[Maximum Marks : 40

Note : There are nine questions in this paper. All questions carry equal marks. Attempt *five* questions in all. Q. No. **1** is compulsory. Attempt remaining *four* questions by selecting only *one* question from each Unit.

1. (a) Define common mode gain and common mode rejection ratio in an op-amp. 2
- (b) Explain the need of isolation islands in fabrication of IC. 2
- (c) Which transistor amplifier configuration is most versatile and why ? 2
- (d) What do you mean by SSI, MSI, LSI and VLSI in IC fabrication technology ? 2

Unit I

2. (a) Draw the circuit diagram of Emitter Follower and explain its working. Also write its three most important characteristics. 4
- (b) Define h -parameters of a transistor. Also draw the h -parameter model of a transistor. 4
3. (a) Draw the circuit diagram of a transistor in common emitter configuration and discuss its h -parameter model in brief. 4
- (b) Compare the three different transistor configurations (CB, CE, CC) for R_i , R_o , A_v and A_f . 4

Unit II

4. (a) How are the components interconnected in an IC ? 2
- (b) Discuss epitaxial growth in brief. 3
- (c) How is the surface layer of SiO_2 formed ? What are the reasons for forming the SiO_2 layers ? 3
5. (a) Write the advantages of ICs. 2
- (b) Explain the photolithographic etching in detail and also write different steps for fabrication of monolithic IC. 6

Unit III

6. (a) Explain the JFET fabrication method in Integrated Circuit. 4
- (b) Explain the various steps to fabricate NPN transistor in Integrated Circuit. 4
7. (a) Discuss the various steps to fabricate PNP transistor in Integrated Circuit. 4
- (b) Define and explain sheet resistance. What is the order of magnitude of sheet resistance for the base and emitter regions ? 4

Unit IV

8. (a) Discuss the working of Operational Amplifier as a difference Amplifier. 4
- (b) Derive the expression for the gain of an operational amplifier in Non-Inverting configuration. 4
9. (a) Derive relation between input and output in a double ended differential amplifier. 5
- (b) Discuss operational amplifier as a buffer amplifier. 3

Roll No.

Total Pages : 03

BSIT/D-20

26175

**TELECOMMUNICATION AND
NETWORKING-I
BSIT-303**

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

(Compulsory Question)

1. (a) Define transmission mode with example. 2
- (b) What is ISDN ? What are its services ? 2
- (c) What are the factors that determine whether a Communication System is a LAN, MAN or WAN ? 2
- (d) Give advantages of Frame relay over X.25. 2

Unit I

2. (a) What is Topology ? Explain Mesh and Star topology with their advantages and disadvantages with respect to each other. 5

(3)L-26175

- (b) What is Multiplexing ? Why is it required ? Explain FDM with their advantages. 3
- 3. (a) What do you understand by Impairments in Transmission ? Explain different types of transmissioin impairments. 4
- (b) Explain TDM with their advantages. 4

Unit II

- 4. (a) What is Circuit Switching ? What are their advantages and disadvantages ? 4
- (b) Explain, how Space and Time division switching combination is useful ? 4
- 5. What is ISDN ? Explain ISDN architecture for home and business purpose. 8

Unit III

- 6. Explain the working of different layers present in OSI model. 8
- 7. (a) Explain Peer to Peer network models in networking. 4
- (b) Compare the OSI model with TCP reference model. 4

Unit IV

- | | | | |
|----|-----|--|---|
| 8. | (a) | What is Frame Relay ? Explain its working. | 4 |
| | (b) | What is ATM ? What are its design goals ? | 4 |
| 9. | | Explain different layers present in ATM. | 8 |

Roll No.

Total Pages : 03

BSIT/D-20

26176

**MICROPROCESSOR ARCHITECTURE AND
PROGRAMMING-I
BSIT-304**

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

(Compulsory Question)

1. (a) Define a Fetch Cycle.
- (b) What do you mean by program status word (PSW) ?
- (c) Discuss the functions of the following pins of 8085 microprocessor :
ALE and $\overline{\text{WR}}$.
- (d) Differentiate between hardware and software interrupts of 8085 microprocessor. **2×4=8**

Unit I

2. (a) Explain the function of controller/sequencer in SAP-1. **4**

- (b) Write an assembly program for SAP-1 to solve the arithmetic problem : **4**

$$18 + 28 - 16 + 8$$
3. (a) Write an assembly language program for SAP-2 computer that multiplies the decimal numbers 6 and 9. The final result is to be solved at 3000 H. **5**
- (b) What are different flags in SAP-2 ? How do they work for arithmetic and logical instructions ? **3**

Unit II

4. (a) Discuss various addressing modes of SAP-III computer instructions and give at least two examples of each addressing mode. **6**
- (b) What is the difference between stack and stack pointer ? **2**
5. (a) What is the difference between CMP reg and-8UB reg instructions ? Explain with suitable examples. **4**
- (b) Explain PUSH and POP instructions of SAP-III with the help of memory map. **4**

Unit III

6. Draw a very neat and clean architecture level diagram of 8085 microprocessor of discuss the role of each block in suitable words. **8**

7. (a) Discuss the following instructions of 8085 microprocessor : **4**
- (i) LDAX (ii) rp
 - (iii) STAX rp (iv) DAA
 - (v) CMC
- (b) Explain the concept of Fetch-Execute overlap. What are its advantages ? **4**

Unit IV

8. What is an interrupt in 8085 microprocessor ? How many interrupts are there in 8085 μ p ? Explain as interrupts with the help of schematic diagram of 8085 interrupts. **8**
9. (a) What do you understand by maskable and non-maskable interrupts ? Explain with examples. **4**
- (b) What is a DMA and why is it used with 8085 microprocessor ? **2**
- (c) What are vectored and non-vectored interrupts ? **2**

Roll No.

Total Pages : 02

BSIT/D-20

26177

OPERATING SYSTEM-I

BSIT-305

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all. Q. No. **1** will be compulsory. In addition to compulsory question, select at least *one* question from each Unit.

(Compulsory Question)

1. (a) What are Operating System Services ?
(b) Define multiprogramming and multitasking operating system.
(c) Define virtual memory.
(d) Is it possible to have a deadlock involving only one process ? Explain your answer. **4×2=8**

Unit I

2. Explain the architecture of operating system. **8**
3. Explain the difference between distributed and multiprocessor operating system. **8**

Unit II

4. What is process and process scheduling ? Explain any *two* CPU scheduling algorithm with their merits and demerits. **8**
5. (a) What is the role of scheduler ? Differentiate among short medium and long term scheduler. **5**
(b) Explain Real Time Scheduling. **3**

Unit III

6. Explain the implementation of Semaphores in attaining process synchronization. **8**
7. What are the cooperative processes ? Write a note on Inter process communication. **8**

Unit IV

8. Explain the various strategies to deal with deadlock ? How deadlock is detected and recovered ? **8**
9. (a) Explain different conditions required to occur a deadlock. **4**
(b) How to avoid deadlock ? **4**

Roll No.

Total Pages : 02

BSIT/D-20

26178

COMPUTER PROGRAMMING WITH C-I
BSIT-306

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

1. Attempt the following questions : **4×2**
- (a) State the advantages of function
 - (b) Creating and passing arrays
 - (c) Break and Continue statement
 - (d) Identifier and Keywords.

Unit I

2. Explain different constants and Variable. Also explain its their declaration. **8**
3. Explain the history of C and also explain its importance. Also explain the structure of C program. **8**

Unit II

4. Explain relational and bitwise operators. Also write program for using these. **8**

5. Explain syntax for IF-ELSE and IF statement and also write a program to use these statements. **8**

Unit III

6. Explain, how 'switch' statement is used in the programs instead of 'if-else' statements with a suitable example program. **8**
7. (a) Write a C program to swap contents of two variables using call by reference.
(b) What is a loop ? Explain in detail with example. **4×2**

Unit IV

8. Explain the following with suitable example : **4×2**
(a) getchar(),
(b) getche(),
(c) getch(),
(d) putchar().
9. Define arrays. Explain 1-D and 2-D array using some suitable example. **8**

Roll No.

Total Pages : 04

OBSIT/D-20

26179

**MATHEMATICAL FOUNDATION OF
INFORMATION TECHNOLOGY—III
BSIT-301**

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **9** is compulsory. All questions carry equal marks.

Unit I

1. (a) A problem in mathematics is given to five students whose chance to solve it was $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$ and $\frac{1}{6}$ respectively. What is the probability that the problem will be solved ? **4**
- (b) Find the probability of getting the sum of 9 or 11 in a single throw of two dices. **4**
2. (a) Let A and B events associated with independent random experiments E_1 and E_2 respectively, then prove that $P(AB) = P(A)P(B)$. **4**

- (b) In a test, an examinee either guesses or copies or knows the answer to a multiple choice question with four choices. The probability that he makes a guess is $\frac{1}{3}$ and the probability that he copies the answer is $\frac{1}{6}$. The probability that his answer is correct, given that he copied it, is $\frac{1}{8}$. Find the probability that he knew the answer to the question, given that he correctly answered it. 4

Unit II

3. (a) Show that the set $G = \{-1, 1, i, -i\}$ is a group w.r.t. multiplication. 4
- (b) Show by an example that union of two subgroups is not necessarily a subgroup. 4
4. Prove that the set of integers with respect to the addition and multiplication of integers as composition is a ring. 8

Unit III

5. (a) If $z = x\phi\left(\frac{y}{x}\right) + \psi\left(\frac{x}{y}\right)$, prove that : 4

$$x^2 \frac{\partial^2 z}{\partial x^2} + 2xy \frac{\partial^2 z}{\partial x \partial y} + y^2 \frac{\partial^2 z}{\partial y^2} = 0.$$

- (b) Expand $e^x \sin y$ in power of x and y using Taylor's theorem. 4

6. Discuss the maxima and minima of $x^3 + y^3 - 3y - 12x + 20$. 8

Unit IV

7. (a) Evaluate $\int_0^{\infty} \int_0^x x e^{-\frac{x^2}{y}} dy dx$. 4

- (b) Find by triple integral the volume of the sphere $x^2 + y^2 + z^2 = a^2$. 4

8. (a) Show that : 4

$$B(m, n) = \int_0^{\infty} \frac{x^{m-1}}{(1+x)^{m+n}} dx.$$

- (b) $\lim_{x \rightarrow \infty} \left(\frac{1}{x^2} - \cot^2 x \right)$. 4

Unit V
(Compulsory Question)

9. (a) Evaluate : 2
- $$\int_0^1 \int_0^1 x^2 y \, dx \, dy.$$
- (b) Define Gamma function. 2
- (c) If $u = \frac{xy}{x+y}$ find $\frac{\partial^2 u}{\partial y \partial x}$. 2
- (d) Define semi group. 2

Roll No.

Total Pages : 03

OBSIT/D-20

26180

**ELECTRONIC CIRCUITS AND NETWORK
THEORY
BSIT-302**

Time : Three Hours]

[Maximum Marks : 40

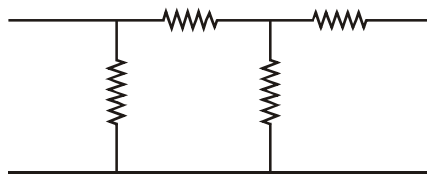
(Compulsory Question)

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

1. (a) What are the advantages and usages of an emitter follower ? **2**
- (b) Why are isolation bands required in IC fabrication ? **2**
- (c) Why are *nnp* devices preferred over *pnnp* in ICs ? **2**
- (d) Justify the need of a DC coupled amplifier.

Unit I

2. (a) Explain *h*-parameters of a two port network. **4**
- (b) Determine *Z*-parameters of the network shown below. All resistances are of 8 ohms. **4**



3. Obtain the expressions for current gain, voltage gain, input impedance and output admittance of a transistor amplifier. Discuss, how source and load impedance affects these amplifier parameters ? **8**

Unit II

4. Discuss step by step process for fabricating a monolithic integrated transistor. Draw cross sectional view after each step. **8**
5. (a) Explain masking and etching technique used in fabrication of a monolithic integrated circuit. **5**
(b) Discuss beam lead isolation method used in IC fabrication. **3**

Unit III

6. (a) Discuss different types of transistor structures used in ICs. **6**
(b) What are buried layers in ICs ? **2**
7. (a) Discuss, how monolithic diodes are obtained in ICs ? Discuss their characteristics. **5**
(b) List the main characteristics of integrated components. **3**

Unit IV

8. (a) Discuss Op-Amp as difference amplifier. **5**
(b) List the characteristic of an ideal Op-amp. **3**
9. (a) Discuss Op-amp in non-inverting configuration and obtain an expression for its gain. How this circuit can be converted into unity gain buffer and what are the advantages ? **5**
(b) Define CMRR. Why high value of CMRR is preferred ? **3**

Roll No.

Total Pages : 03

OBSIT/D-20 26181
TELECOMMUNICATION-I
BSIT-303

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

- | | | |
|--------|--|---|
| 1. (a) | Discuss features of RS-232C interface. | 2 |
| (b) | Explain Soft and Hard Hand off. | 2 |
| (c) | What is Frame Relay ? How does it work ? | 2 |
| (d) | List advantages of cellular system. | 2 |

Unit I

- | | | |
|--------|---|---|
| 2. (a) | Explain briefly three multiplexing technologies. | 4 |
| (b) | Explain, how noise, attenuation and distortion leads to transmission impairment ? | 4 |
| 3. (a) | Discuss the structure of telephone system. | 6 |
| (b) | What are the attributes of RS-449 interface ? | 2 |

Unit II

- 4. (a) What is time division switching ? Explain its method of implementation. 4
- (b) What is Cross-bar switching ? How its limitations are circumvented in multistage switching ? 4
- 5. (a) Explain N-ISDN in brief. What are its advantages and disadvantages ? 4
- (b) Explain Basic Rate Interface and Primary Rate Interface with reference to N-ISDN. 4

Unit III

- 6. (a) Write a short note on channels in AMPS. 4
- (b) Discuss, how cell management is achieved in AMPS. 4
- 7. (a) Explain features of personal communication services. 4
- (b) Discuss structure of cellular system and explain frequency reuse pattern. 4

Unit IV

8. (a) What is congestion ? Discuss the factors leading to congestion. **5**
- (b) Explain in brief requirements of quality of service. **3**
9. (a) Explain three standard ATM layers. **5**
- (b) List design goals of ATM. **3**

Roll No.

Total Pages : 03

OBSIT/D-20 26182
MICROPROCESSOR ARCHITECTURE AND
PROGRAMMING-I
BSIT-304

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

(Compulsory Question)

1. (a) What is the difference between Machine cycle and Instruction cycle ? 2
- (b) What is the requirement of Setup and hold times in microprocessor ? 2
- (c) Discuss the role of HOLD and HLDA pins in 8085. 2
- (d) What do you understand by Fetch Execute overlap ? 2

Unit I

2. (a) Discuss functional architecture of SAP-2 in detail. 5
- (b) Write a program that perform the operation $9 + 4 - 2 + 5$ use address 1H to 4H for data. 3

(3)L-26182

3. (a) Explain Jump and Call instructions of SAP-2 in detail. 4
- (b) Explain Fetch and Execute cycle of OUT routine with timing diagram. 4

Unit II

4. (a) Write a program to add 345 and 753 with the final answer stored in H and L register. 4
- (b) What is Stack Pointer ? Discuss PUSH and POP instruction with example in detail. 4
5. (a) Discuss Rotate instructions with examples. 4
- (b) Write a program to copy 1024 bytes of data from 4000 H to 43FF H and store that data at address 8000 H to 83FF H. 4

Unit III

6. (a) Explain logic pin out diagram of 8085 in detail. 4
- (b) Explain DAA and DAD instructions with example. 4
7. (a) Discuss various types of flags available in 8085 microprocessor and how are they changed during execution of instructions ? 4

- (b) Explain the following instructions of 8085 : 4
- (i) SHLD
 - (ii) SPHL
 - (iii) STAX
 - (iv) XCHG.

Unit IV

8. (a) Discuss various types of interrupt present in 8085 and their priorities. Explain the difference between maskable and non-maskable interrupts. 4
- (b) Explain with diagram how data is transferred using DMA controller ? 4
9. (a) Write a program that enables all the interrupts of 8085. What will be the accumulator contents ? 4
- (b) What is multiplexing in microprocessor ? Why is it required ? Explain demultiplexing the bus. 4

Roll No.

Total Pages : 02

OBSIT/D-20

26183

OPERATING SYSTEM-I

BSIT-305

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

1. (a) Write characteristics of single user operating system and *two* examples of it.
(b) What is process of booting ?
(c) What is concept of Virtual machine ?
(d) What is real time scheduling ?

Unit I

2. Define Operating System and show how does it act as Resource Manager ?
3. Write notes on the following :
 - (a) Multiprogramming *versus* Multiprocessing operating system
 - (b) Serial *versus* Batch Processing.

Unit II

4. Define concept of Process and explain process scheduling.
5. Take an example and explain the following scheduling algorithms :
 - (a) SJF
 - (b) Priority.

Unit III

6. Explain Interprocess communication, emphasize producer consumer problem.
7. What is critical section ? Show its relevance in process synchronization.

Unit IV

8. What is Deadlock ? Explain methods for deadlock avoidance.
9. Write notes on the following :
 - (a) Graphical representation of Deadlock
 - (b) Deadlock prerequisites.

Roll No.

Total Pages : 03

OBSIT/D-20

26184

**COMPUTER PROGRAMMING WITH C-I
BSIT-306**

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

1. Explain the following :

- | | |
|---------------------------------------|---|
| (a) Escape Sequences | 2 |
| (b) Type Conversion and Cast Operator | 2 |
| (c) goto-statement | 2 |
| (d) Initialization of 1-D arrays. | 2 |

Unit I

- | | |
|--|---|
| 2. (a) What are the features of C language ? | 4 |
| (b) Describe the various basic data types in C. | 4 |
| 3. (a) Explain the structure of C program. | 4 |
| (b) Describe the scanf() and print() functions for I/O in C. | 4 |

Unit II

- 4. (a) Explain the Increment and Decrement operators. 2
(b) Discuss the various if statements available in C. 6
- 5. (a) Explain Operator Hierarchy and associativity in C. 4
(b) Write a program in C to calculate area and perimeter of Rectangle and Circle. 4

Unit III

- 6. (a) What is the difference between while and do-while loop ? 4
(b) Write a program in C to find the largest among n numbers. 4
- 7. (a) Explain the following : 4
(i) Break and continue statement
(ii) Switch statement.
(b) Explain the working of for loop. 4

Unit IV

- 8. (a) What are 1-D arrays ? How 1-D arrays are declared in C ? Describe Input/Output of 1-D arrays in C with programming example. 4

- (b) Describe the Binary Search method to find a specific element in a sorted list. Write the program in C to implement binary search. 4
- 9.
 - (a) Explain the various Character I/O functions in C. 4
 - (b) Write a program in C to add two matrices. 4

Roll No.

Total Pages : 03

BSIT/D-20

26185

COMPUTER SYSTEM ARCHITECTURE-I

BSIT-501

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit including compulsory question. All questions carry equal marks.

(Compulsory Question)

1. (a) Define a circular shift micro operation.
- (b) What are memory reference instructions ?
- (c) Explain a zero address instruction format.
- (d) What is a stored program concept ? 2×4

Unit I

2. Explain instruction format and function of :
 - (a) A Data Register (DR) 3
 - (b) An Address Register (AR) 3
 - (c) An Instruction Register (IR). 2

(3)L-26185

3. (a) Differentiate an I/O reference instruction and a memory reference instruction. 4
- (b) Explain timing and control of a computer. 4

Unit II

4. Design a typical stage and implement the following logical micro operations : 8
 - P6: $A \leftarrow A \vee \bar{B}$
 - P7: $\bar{A} \leftarrow A \boxed{\wedge} B$
 - P8: $A \leftarrow \overline{A \vee B}$
 - P9: $A \leftarrow \overline{A \wedge B}$
5. Write notes on the following :
 - (a) Selective clear operation 4
 - (b) Shift micro operation and its types. 4

Unit III

6. Elaborate with example of each :
 - (a) Micro program control 4
 - (b) Branch logic. 4
7. What is a microprogram sequencer and explain ? Its working with a block diagram. 8

Unit IV

- 8.** Explain the following addressing modes :
- (a) Register mode
 - (b) Index mode
 - (c) Auto increment mode
 - (d) Immediate mode. **2×4**
- 9.** (a) Explain stack memory organisation of a central processing unit. **4**
- (b) What is a program intercept and types of program interrupts ? **4**

Roll No.

Total Pages : 02

BSIT/D-20

26186

PROGRAMMING IN C++-I

BSIT-502

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

1. Explain the following :

- (a) Pointers
- (b) Destructors
- (c) Inline Function
- (d) Template.

4×2

Unit I

2. Explain the concepts of OOPs in detail. **8**

3. What are Operators ? Explain their hierarchy with suitable example. **8**

Unit II

4. Differentiate between Structure and Union. Explain with an example. **8**

5. Write a program to concatenate two strings and find the length of the resulted string without using library function. **8**

Unit III

6. What is function overloading ? Explain with an example. **8**
7. Write a program to find factorial of a number k , using recursion and use it to compute $n!/(r!*(n-r)!)$. **8**

Unit IV

8. What are class members ? Explain static members in detail. **8**
9. What is 'this' pointer ? Explain with an example. **8**

Roll No.

Total Pages : 03

BSIT/D-20

26187

**WEB SITE DESIGN IMPLEMENTING
BASIC DESIGN TOOLS-I
BSIT-503**

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. Explain the following HTML tags by using examples :

- | | |
|--------------|-------------|
| (a) | (b) |
| (c) <Center> | (d) . |

Unit I

- 2.** (a) What is HTML ? Explain various features of HTML.
(b) Write a brief history of HTML.

3. (a) Explain steps to create and view pages in a web browser by using example.
(b) Define tag. Explain various types of HTML tags.

Unit II

4. Write HTML code to create a home page of ABC college. Explain all tags and their attributes used in it.
5. Explain the following tags and their attributes by using examples :
 - (a) <SUP> (b) <P>
 - (c) <BIG> (d) <ADDRESS>.

Unit III

6. Define Internal Linking. Describe various steps of internal linking by using example.
7. (a) Distinguish between absolute and relative URLs.
(b) Describe verifying and maintaining tools.

Unit IV

8. Explain all attributes of <TABLE> tag by using example.

9. Write HTML code to generate the following table :

Payroll statement			
Deptl	Name	Age	Salary
A	Amit	40	10,000
	Mohan	48	18,000
	Sohan	37	15,000
B	Rakesh	35	12,000
	Ritu	28	11,000

Roll No.

Total Pages : 02

BSIT/D-20

26188

INTERNET CONCEPTS AND
APPLICATIONS-I
BSIT-504

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

- | | | |
|--------|--|---|
| 1. (a) | Explain Controlling e-Mail span. | 2 |
| (b) | Explain Remote login. | 2 |
| (c) | Explain Search engine. | 2 |
| (d) | Explain types of internet connections. | 2 |

Unit I

- | | | |
|----|--|---|
| 2. | What is e-Mail ? Explain structure of e-Mail. | 8 |
| 3. | Discuss working of e-Mail also explain advantages and disadvantages of e-Mail. | 8 |

Unit II

- | | | |
|----|---|--|
| 4. | What do you mean by Protocol ? Explain types of | |
|----|---|--|

protocols used in e-Mail. **8**

5. (a) Write a short note on Anonymous protocol FTP. **4**

(b) Explain TCP/IP protocols. **4**

Unit III

6. Write short notes on the following : **8**

(a) Web Browser (b) Webpage

(c) Web server (d) Hypermedia

7. What is Search Engines ? How a web search engine works ? **8**

Unit IV

8. What is Dial-up Connection ? Discuss its advantages and disadvantages. **8**

9. Write short notes on the following : **8**

(a) ISDN

(b) Wireless Internet Connection.

Roll No.

Total Pages : 03

BSIT/D-20

26189

MICROPROCESSOR ARCHITECTURE AND
PROGRAMMING-III
BSIT-505

Time : Three Hours]

[Maximum Marks : 40

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

Compulsory Question

1. (a) What is the difference between Macro and Procedure ?
- (b) Explain, why memory mapped I/O Interfacing is not preferred ?
- (c) Explain term multiport memory.
- (d) Write down the advantages of RISC processor.

4×2=8

Unit I

2. (a) What is interrupt ? Discuss interrupt structure of 8086.

5

- (b) What is Procedure ? How parameters passed in procedure ? **3**
- 3. (a) Discuss maskable and non-maskable interrupt in 8086. **4**
- (b) Write an assembly level program to generate looms delays of microprocessor operate on 10 MHz frequency. **4**

Unit II

- 4. (a) What are the methods used to interface input and output devices with microprocessor ? **4**
- (b) Discuss the procedure to interface DRAM with 8086. **4**
- 5. (a) What is the difference between memory mapping I/O and I/O mapped I/O technique ? **4**
- (b) Interface 4×4 keyboard with 8086 using 8255 with suitable diagram. **4**

Unit III

- 6. (a) Explain the interfacing of 8 bit DAC 0800 with 8086 using 8255 with suitable diagram. **6**
- (b) What is the function of SOC and EOC in ADC interfacing ? **2**

7. (a) What is Coprocessor ? Discuss architecture of 8087 coprocessor. **6**
- (b) What is Interconnection topologies ? **2**

Unit IV

8. Explain the different features of 80386 microprocessor. What are the differences between features of 80286 and 80386 ? **8**
9. (a) What are the basic features of RISC processor and discuss design issue of RISC processor ? **5**
- (b) Write down the disadvantages of RISC processor. **3**