

Subject Code: R16CE2201

**II B.Tech II Semester Supple Examinations, September-2023**

**STRUCTURAL ANALYSIS-I**

(CE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

**PART-A**

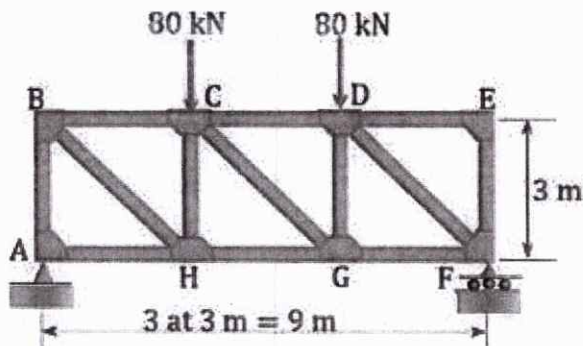
1. (a) Recall the three conditions of equilibrium.
- (b) Quote the expression for moment curvature relation.
- (c) Differentiate real and conjugate beam.
- (d) Elaborate the concept of Dummy unit load method.
- (e) Draw the neat sketch of three hinged arch by mentioning all its component parts.
- (f) State the purpose of ILD.

[2+2+2+2+2+2]

**PART-B**

4 X 12 = 48

2. Analyse the given truss as shown in figure, by method of joints.



3. A simply supported beam of span 6 m, carrying a point load of 5 kN at a distance of 3 m from the left end and also subjected to UDL of intensity 5 kN/m over its entire span. Find

- (i) slope at the left support,
- (ii) deflection under the load and
- (iii) maximum deflection.

Take  $E = 2 \times 10^5 \text{ N/mm}^2$  and  $I = 1 \times 10^8 \text{ mm}^4$ . Use macaulay's method.

4. Find the slope and deflection of cantilever beam of span L, carrying

- i) A point load P at it's free end,
- ii) A U.D.L of w kN/m over the entire span.

Using the moment area method.

5. (a) State and derive Castigliano's theorem.

- (b) Differentiate strain energy and complimentary energy.

6. A three hinged parabolic arch hinged at the crown has a span of 35m and a central rise of 6m. It carries a concentrated load of 40KN at 8.5m from the right support and a uniformly distributed load of 50KN/m over the left half of the portion. Determine the moment, normal thrust and radial shear at a section of 10m from the left support.
7. A u.d.l of 5 KN/m, covering a length of 15 m, crosses a girder of span 50m. Find the values of maximum shear force and bending moment at a section 10 m from the left-hand support.

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Subject Code: R16CE2202

**II B.Tech II Semester Supple Examinations, September-2023**  
**HYDRAULICS AND HYDRAULIC MACHINERY**  
**(CE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B  
All questions carry equal marks of 12.

**PART-A**

1. (a) Differentiate between uniform and non-uniform flow.  
(b) List the methods of dimensional analysis?  
(c) Differentiate between inward and outward radial flow turbines.  
(d) Discuss the solution to avoid the cavitations be avoided in reaction turbines.  
(e) Define the term Hydraulic machines.  
(f) Define the term utilization factor.

[2+2+2+2+2+2]

**PART-B**

**4 X 12 = 48**

2. (a) Obtain an expression for the depth after the hydraulic jump and the head loss due to the jump. Write the assumptions made. [6]  
(b) Determine the economical cross-section for an open channel of a trapezoidal section with side slopes of 1 vertical to 2 horizontal, to carry  $10 \text{ m}^3/\text{s}$ , the bed slope being  $1/2000$ . Assume the Manning coefficient as 0.022. [6]
3. (a) Explain geometric, kinematic, and dynamic similarities. [6]  
(b) What do you mean by dimensional numbers? Name any four-dimensional numbers. Define and explain Reynolds's number, Froude's number, and Mach number. Derive expressions for any above two numbers. [6]
4. (a) A water jet 20 mm in diameter and having a velocity of 90 m/s strikes a series of moving blades in a wheel. The direction of the jet makes  $20^\circ$  with the direction of movement of the blade. The blade angle at the inlet is  $35^\circ$ . If the jet should enter the blade without striking, what should be the blade velocity? If the outlet angle of the blade is  $30^\circ$ , determine the force on the blade. Assume that there is no friction involved in the flow over the blade. [6]  
(b) Differentiate between the force exerted by a jet on a single curved moving plate and a series of curved moving plates. [6]
5. (a) Briefly explain the principles on which a Kaplan turbine works. [6]  
(b) A Francis turbine working under a head of 5 m at a speed of 210 rpm develops 75 KW when the water flow rate is  $1.8 \text{ m}^3/\text{sec}$ . If the head is increased to 16 m, determine the speed, discharge, and power. [6]

6. (a) Draw and discuss the operating characteristics of a centrifugal pump. [6]  
(b) A centrifugal pump works against a head of 30 m and discharges 0.25 m<sup>3</sup>/s while running at 1000 rpm. The velocity of flow at the outlet is 3 m/s and the vane angle at an outlet is 30°. Determine the diameter and width of the impeller at the outlet if the hydraulic efficiency is 80 percent. [6]
7. (a) Calculate the power developed in MW from a power plant with the following data. Available head 50m, catchment area 250sq.Km, Average annual rainfall 120cm, rainfall lost due to evaporation 20%, turbine efficiency 82%, generator efficiency 84%, and head loss in penstock 4%. [6]  
(b) Give the classification of hydropower plants. [6]

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Subject Code: R16CE2204

**II B.Tech II Semester Supple Examinations, September-2023**

**SURVEYING-II**

**(CE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

**PART-A**

1. (a) What is transit Theodolite?
- (b) What kind of error can be eliminated by taking face left and face right observations?
- (c) Define Compound curves?
- (d) Mention the characteristics of transition curve
- (e) Mention the difference between theodolite and tachometer.
- (f) Explain principle of EDM.

[2+2+2+2+2+2]

**PART-B**

**4 X 12 = 48**

2. (a) Explain the procedure of measurement of horizontal angles?
- (b) Mention the operations with theodolite? Explain any two.
3. (a) Explain in detail about the sources of error in theodolite work.
- (b) Compare a conventional theodolite with electronic theodolite.
4. The chainage at the point of intersection of the tangents to a railway curve is 3876 links and the angle between them is  $124^\circ$ . Find the chainage at the beginning and end of the curve if it is 40 chains radius and calculating the angle which are required in order to Setout this curve. a.) with theodolite b.) with chain and tape only.
5. (a) A circular curve of 1000 m radius deflects through an angle of  $40^\circ$ . This curve is to be replaced by one of smaller radius so as to admit transition 200 m long at each end. The deviation of the new curve from the old at their mid-point is 1 m towards the intersection point. Determine the amended radius assuming that the shift can be calculated with sufficient accuracy in the old radius. Calculate the length of the track to be lifted and of new track to be laid.
- (b) Explain the setting of a vertical curve?
6. (a) Determine the gradient from a point A to a point B from the following observations made with a tacheometer fitted with an analytical lens the constant of the instrument was 100m and the staff was held vertically.

Instrument Station	Staff Point	Bearings	Vertical angle	Staff readings
P	A	$134^\circ$	$+10^\circ 32'$	1.360, 1.915, 2.470
	B	$224^\circ$	$5^\circ 6'$	1.065, 1.885, 2.705

- (b) Obtain the Distance and elevation formulae for the staff held normal.
7. (a) Explain the methods of locating soundings in brief?
- (b) Explain the applications of total station?

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**Subject Code: R16ME2205**

**II B.Tech II Semester Supple Examinations, September-2023**

**MANUFACTURING TECHNOLOGY**

**(ME)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

**PART-A**

1. (a) Give the difference between production and manufacturing.
- (b) Why runner and riser are taper in their shape
- (c) Define arc length and arc blow
- (d) State different pattern materials
- (e) Define Angle of bite
- (f) Compare Soldering, Brazing ,and Welding

**[2+2+2+2+2+2]**

**PART-B**

**4 X 12 = 48**

2. (a) Define 'pattern allowance'? Explain various allowances usually considered on patterns and core boxes. 6
- (b) Sketch and explain 'Die casting method' in detail. 6
3. Explain elements of Gating system with a neat sketch. 12
4. (a) Explain Oxy-acetylene welding process along with a sketch 6
- (b) Compare TIG&MIG welding. 6
5. (a) Compare hot working &cold working. State few products made for each of the processes. 6
- (b) Describe the possible causes for 'weld defects'. 6
6. Sketch and explain 'wire drawing' and 'Tube drawing' processes in detail. Give their applications and advantages 12
7. Classify 'extrusion processes'? With a neat sketch explain 'Hydrostatic extrusion' process 12

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Subject Code: R16EC2201

**II B.Tech II Semester Supple Examinations, September-2023**

**SWITCHING THEORY AND LOGIC DESIGN**

**(ECE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

**PART-A**

1. (a) What is the significance of number systems
- (b) Why NAND and NOR gates are called as universal gates?
- (c) Give applications of multiplexers
- (d) what size of ROM required for the design of full adder
- (e) Differences between latch and Flip-flops
- (f) Define state Diagram

[2+2+2+2+2+2]

**PART-B**

4 X 12 = 48

2. (a) Convert BCD code to 5421 and 84-2-1 code
- (b) Do the following conversions
  - i)  $(144)_{10} = ( \quad )_{16}$
  - ii)  $(225.25)_8 = ( \quad )_{10}$
3. (a) Simplify the given Boolean function using K-Map and realize using NAND gates  
 $F(a,b,c,d) = \sum (1,3,5,7,9,11,13)$
- (b) with a suitable example explain Duality theorem
4. (a) Design 3x8 decoder by using basic gates
- (b) Realize full subtractor using half subtractors.
5. Describe the architecture of PAL, PLA and ROM
6. (a) Design MOD-10 synchronous counter using D-FFs
- (b) With a neat logic diagram explain basic operation of JK-FF
7. (a) What are the capabilities and limitations of FSM
- (b) Convert the following Mealy Machine into Moore Machine

PS	NS,Z	
	X=0	X=1
A	C,0	B,0
B	A,1	D,0
C	B,1	A,0
D	D,1	C,1





Subject Code: R16EC2202

**II B.Tech. II Semester Supple Examinations, September-2023**

**ELECTRONIC CIRCUIT ANALYSIS**

**(ECE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

**PART-A**

1. (a) Define Transconductance?
- (b) List out various Hybrid- $\pi$  Parameters of a Transistor.
- (c) What is Darlington Pair? Why it is required.
- (d) Explain about the concept of Feedback?
- (e) Discuss about condition for oscillations.
- (f) Determine the Max. efficiency of direct coupled Class-A power amplifier.

[2+2+2+2+2+2]

**PART-B**

**4 X 12 = 48**

2. (a) Outline about the simplified CE hybrid model with neat sketches. [6]
- (b) Explain about the working principle of FET as Voltage Variable Resistor. [6]
3. (a) Derive the Gain expression of CE short circuit current gain with neat sketches. [6]
- (b) Analyse the CS amplifier at high frequencies. [6]
4. (a) Explain the operation of two Stage RC coupled transistor amplifier. [8]
- (b) Summarize about the Distortion in amplifiers. [4]
5. Discuss about the general characteristics of negative feedback amplifiers. [12]
6. (a) Explain about RC phase shift oscillator by deriving the expression for its frequency of oscillation. [7]
- (b) In a Wein-bridge oscillator, if the value of R is 100K $\Omega$ , and frequency of oscillation is 10 KHz then calculate the value of capacitor C. [5]
7. (a) Discuss about Transformer coupled Class A Power Amplifier and determine its Maximum efficiency. [6]
- (b) Explain the working principle of class B push pull amplifier. [6]

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Subject Code: R16EC2203

**II B.Tech II Semester Supple Examinations, September-2023**

**PULSE AND DIGITAL CIRCUITS**

**(ECE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

**PART-A**

1. (a) How an RC network can be used as a differentiator and integrator?
- (b) Draw the circuit for a two diode clipper.
- (c) Write about piecewise linear diode characteristics.
- (d) What are Commutating capacitors?
- (e) Define a multivibrator, and write the expression for time period of a monostable multivibrator.
- (f) Write about features of a time base signal.

[2+2+2+2+2+2]

**PART-B**

**4 X 12 = 48**

2. (a) Draw the output response of RC low pass circuit for a step input signal and derive the expression for Rise time. [6+6]
- (b) An ideal  $1\mu\text{S}$  pulse is fed to an amplifier. Calculate and plot the output the output waveform under the following conditions. The upper 3-dB frequency is: (i) 10 MHz (ii) 1MHz
3. (a) State and prove the clamping circuit theorem [6+6]
- (b) Explain the operation and transfer characteristics of different types of shunt clippers with circuits.
4. (a) Realize two inputs TTL NAND gate truth table and explain its operation with suitable circuit diagram. [6+6]
- (b) Write short notes on (i) Diode switching times (ii) Switching characteristics of transistor.
5. (a) Explain the working of a Bistable multivibrator circuit with the help of neat waveforms. [7+5]
- (b) Write about triggering of Bistable multivibrator.
6. (a) Derive the expression for UTP and LTP of Schmitt trigger [7+5]
- (b) Draw and explain the operation of collector-coupled monostable multivibrator.
7. (a) Derive the expression for slope error and sweep error for the Bootstrap sweep circuit
- (b) Describe the operation of four diode sampling gate.[6+6]







**Subject Code: R16EC2204**

**II B.Tech II Semester Supple Examinations, September-2023**

**ANALOG COMMUNICATIONS**

**(ECE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

**PART-A**

**[2+2+2+2+2+2]**

1.	(a)	What is the bandwidth required for an amplitude modulated signal?	[2M]
	(b)	A carrier signal $c(t) = 20\cos(2\pi 10^6 t)$ is modulated by a message signal $m(t) = 5\cos(2\pi 10^4 t)$ to generate a DSBSC signal. Calculate bandwidth and power?	[2M]
	(c)	Compare NBFM & WBFM.	[2M]
	(d)	Give the mathematical representation of narrow band noise.	[2M]
	(e)	Define the term fidelity.	[2M]
	(f)	What do you mean by synchronization in PAM systems?	[2M]

**PART-B**

**4 X 12 = 48**

2.	(a)	Show, giving a mathematical proof, how a square-law device can be used to generate an AM signal. Draw the output spectrum.	[6M]
	(b)	What is meant by modulation and explain the benefits of modulation.	[6M]
3.	(a)	What are the different types of DSB-SC modulators? Explain them.	[6M]
	(b)	In DSB-SC, suppression of carrier so as to save transmitter power results in receiver complexity - Justify this statement.	[6M]
4.	(a)	Derive the expression for single tone frequency modulated signal.	[6M]
	(b)	A 100MHz carrier is frequency modulated by a sinusoidal signal of amplitude 20V and frequency 100KHz. The frequency sensitivity of the modulator is 25KHz/volt. Determine i) frequency deviation ii) modulation index ( $\beta$ ) iii) bandwidth	[6M]
5.	(a)	Derive expressions of Signal to Noise Ratio for an DSB system using coherent demodulation.	[6M]
	(b)	Explain about pre-emphasis and de-emphasis in FM systems.	[6M]
6.	(a)	Explain in detail about the classification of transmitters.	[6M]

	(b)	A super Hetero dyne receiver is tuned to receive a 1000KHz carrier amplitude modulated by 1KHz sine wave. Assuming the IF of the receiver to be 455KHz, and the frequency components at the input and output of the IF amplifier. Assume the IF bandwidth to be 10KHz.	[6M]
7.	(a)	Define and distinguish between PTM and PAM schemes. Sketch and explain their waveform for a single tone sinusoidal input signal.	[6M]
	(b)	How a PPM signal can be generated from a PWM signal.	[6M]

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**Subject Code: R16EC2205**

**II B.Tech II Semester Supple Examinations, September-2023**  
**ELECTROMAGNETIC WAVES AND TRANSMISSION LINES**  
**(ECE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

**PART-A**

- (a) Differentiate isotropic and anisotropic media. Give the relation between the electric field ( $E$ ) and the electric displacement density ( $D$ ) of an anisotropic medium.  
(b) Write the Gauss law expressions for electrostatic fields and magnetostatic fields.  
(c) Explain Lenz's law with necessary equations.  
(d) Discuss the significance of Helmholtz equations.  
(e) Calculate the skin depth of a 1MHz wave into copper which has a conductivity of  $5.8 \times 10^7 \text{ } \Omega/\text{m}$  and permeability equal to that of free space.  
(f) Give the relation between VSWR and the reflection coefficient. Also, write the range of VSWR and reflection coefficient.

[2+2+2+2+2+2]

**PART-B**

**4 × 12 = 48**

- (a) Derive the relation between electric displacement density and electric field in an isotropic medium.  
(b) A charge distribution in free space has  $\rho_v = 2r \text{ nC/m}^3$  for  $0 \leq r \leq 10\text{m}$  and zero otherwise. Determine  $E$  at  $r = 2\text{m}$  and  $r = 12\text{m}$ .
- (a) The positive y-axis (semi-infinite line with respect to the origin) carries a filamentary current of 2A in the  $-a_y$  direction. Assume it is part of a large circuit. Evaluate  $H$  at  
(a)  $A(2,3,0)$       (b)  $B(3,12,-4)$   
(b) State and derive Ampere's circuit law.
- (a) Compare Maxwell's equations in differential and integral forms.  
(b) In free space,  $E = 20 \cos(\omega t - 50x)a_y \text{ V/m}$ . Calculate  
i)  $J_d$       ii)  $H$       iii)  $\omega$
- (a) The electric field in free space is given by  $E = 50 \cos(108t + \beta x)a_y \text{ V/m}$ 
  - Find the direction of wave propagation.
  - Calculate  $\beta$  and the time it takes to travel a distance of  $\lambda/2$ .
  - Sketch the wave at  $t = 0, T/4, \text{ and } T/2$ .  
(b) Analyse wave propagation in perfect dielectrics and lossy dielectrics.

6. (a) Define polarization. Classify and compare various polarization phenomena.  
(b) Explain the reflection by a perfect conductor in oblique incidence.
7. (a) A 30 m long lossless transmission line with  $Z_0 = 50\Omega$  operating at 2 MHz is terminated with a load  $Z_L = 60 + j40\Omega$ . If  $u = 0.6c$  on the line, find
- i. The reflection coefficient  $\Gamma$
  - ii. The standing wave ratio  $s$
  - iii. The input impedance
- (b) Discuss in detail about quarter-wave transformers.

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**Subject Code: R16EC2206**

**II B.Tech II Semester Supple Examinations, September-2023**

**DATABASE MANAGEMENT SYSTEMS**

**(ECE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

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**PART-A**

1. (a) Define Database management system.
- (b) Write about Relationship set.
- (c) What are tables and fields in DBMS?
- (d) Write about NULL values.
- (e) Define 1NF.
- (f) Define serializability.

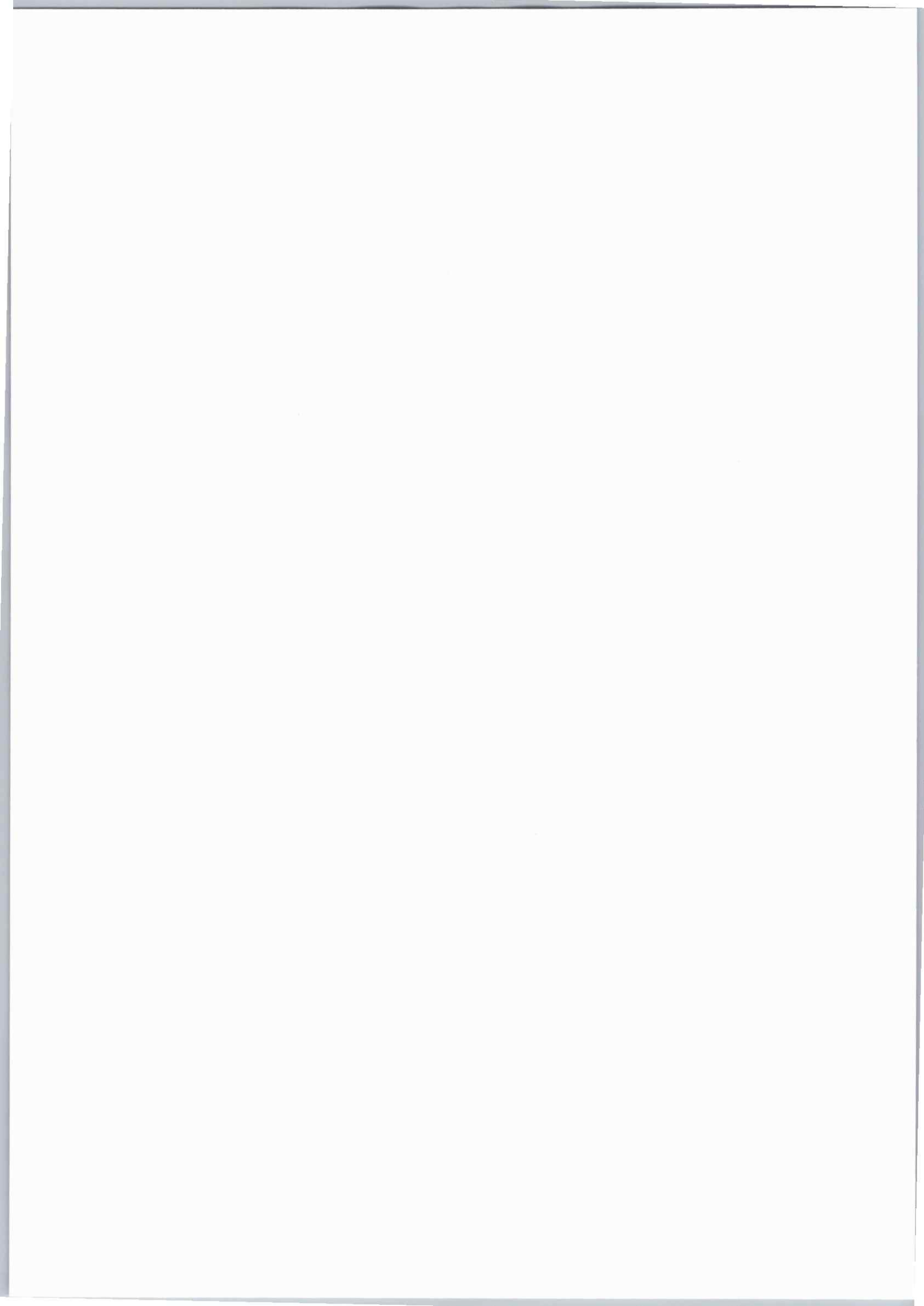
[2+2+2+2+2+2]

**PART-B**

**4 X 12 = 48**

2. (a) What is meant by database and explain the purpose of database systems.
- (b) Explain the architecture of Database management system with neat diagram.
3. (a) Define i) Entity ii) Entity sets iii) Attributes and types of attributes with an example.
- (b) Explain the difference between Primary key and foreign key with an example.
4. (a) Explain about Data manipulation language commands in SQL.
- (b) Write about nested queries and correlated nested queries.
5. (a) Explain about Referential integrity constraints in detail.
- (b) Illustrate about Assertions.
6. (a) Explain the properties of functional dependency.
- (b) Write about 2NF and 3NF.
7. (a) Explain about Serializable schedule with an example.
- (b) Illustrate about secondary indexes.

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# Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16CS2201

## II B.Tech II Semester Supple Examinations, September-2023

### STATISTICAL PROGRAMMING WITH R

(CSE)

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B All questions carry equal marks of 12.

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#### PART-A

1.
  - a) Define Binomial Distribution and its Uses.
  - b) What is Central Limit Theorem?
  - c) What is a Vector in R?
  - d) How to create user defined function in R?
  - e) Mention any two applications of t-distribution.
  - f) Write about linear vector algebra operations.

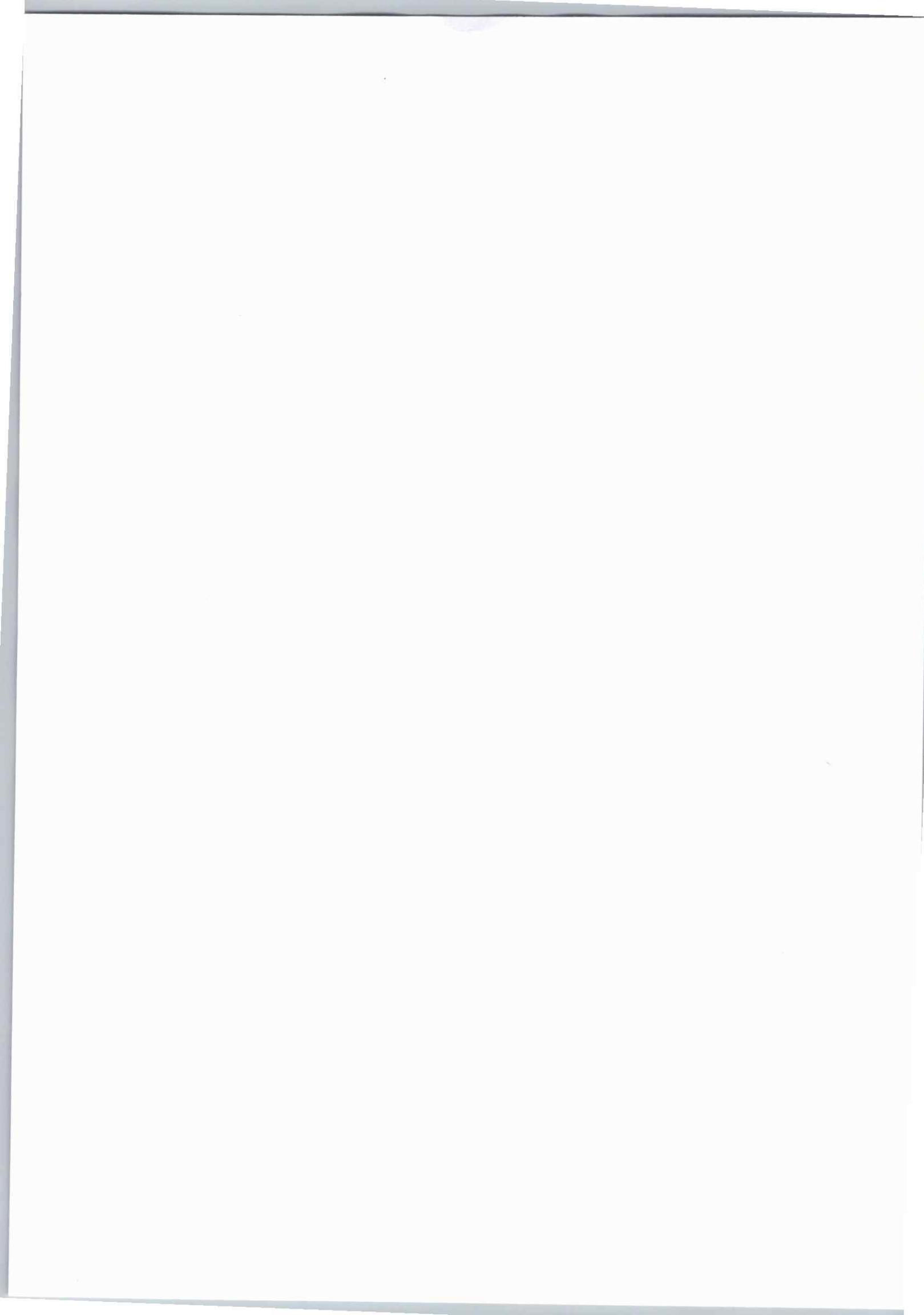
[2+2+2+2+2+2]

#### PART-B

4 X 12 = 48

2. (a) The diameter of an electric cable is assumed to be continuous random variable X with probability density function  $f(x)=6x(1-b)$ ,  $0 \leq x \leq 1$ . Determine b such that  $P(x > b) = p(x < b)$ .  
(b) Explain Exponential Distribution with an Example.
3. (a) Explain in detail about Type I error and Type II error in Hypothesis Testing.  
(b) The price of one kg of rice Rs. 40.75 and one kg of sugar is Rs. 30. Write R program to get the total amount of 3kg rice and 5 kg sugar purchase.
4. (a) How to apply same functions to all rows and columns of a matrix? Give With example.  
(b) Discuss various List operations with examples.
5. (a) Write a R program to implement quick sort.  
(b) Write a R program to design simple calculator.
6. (a) Explain the classification of ANOVA in detail.  
(b) Define Paired t-test with suitable example.
7. (a) Describe about Math function in R with suitable example.  
(b) Explain about Reading a File in R programming with example.

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Subject Code: R16CS2202

**II B.Tech II Semester Supple Examinations, September-2023**

**OPERATING SYSTEMS**

**(CSE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from **Part-B**

All questions carry equal marks of 12.

**PART-A**

1. (a) Give the relationship between Operating System and Computer Hardware?  
(b) Define Process Control Block?  
(c) What are the principles of Concurrency in Operating System?  
(d) How can measure the performance of demand paging?  
(e) List the necessary conditions that lead to Deadlock?  
(f) What are the different accessing methods of a File?

[2+2+2+2+2+2]

**PART-B**

4 X 12 = 48

2. (a) What are the different system calls in the Operating System. Explain the system calls for File Management?  
(b) Write and explain the levels of memory in the Operating System?
3. (a) List out various scheduling CPU Algorithms in Operating System. Explain Round Robin Scheduling algorithm with an example?  
(b) Explain Shared Memory Communication and Message-based Communication?
4. (a) What is Semaphore? Give the solution for Readers-Writers Problem using Semaphore?  
(b) Discuss the solution to Dining-Philosopher problem using Monitors?
5. (a) How can the system distinguish between the pages that are in main memory from the pages that are on the disk?  
(b) What is the principle of FIFO replacement algorithm? Consider the following page reference using three frames that are initially empty. Find the page faults using FIFO algorithm, where the page reference sequence: 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1.
6. (a) Explain the use of Banker's algorithm for Deadlock avoidance with illustration?  
(b) Write and explain algorithm for detecting Deadlock with single resource of each type?
7. (a) Explain different types of file system implementations in brief?  
(b) Why is Disk Scheduling needed? Explain SSTF disk scheduling algorithm with example?

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**Subject Code: R16CS2204**

**II B.Tech II Semester Supple Examinations, September-2023**  
**DATABASE MANAGEMENT SYSTEMS**  
**(CSE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B  
All questions carry equal marks of 12.

**PART-A**

**6 X 2 = 12**

1. (a) What is Data Independence and mention its use ?
- (b) Write the syntax and examples for any two DML commands.
- (c) Write the difference between Implicit cursor and Explicit cursor.
- (d) What is Functional Dependency?
- (e) What is 'Commit point' of a transaction and write its primary use ?
- (f) What is the difference between Primary Indexing and Secondary Indexing?

**PART-B**

**4 X 12 = 48**

2. (a) Distinguish between the characteristics of Database Management System and traditional File System. (6 M)
- (b) Briefly explain Hierarchical, Network and Relational data models. (6 M)
3. (a) What is Aggregation and Generalization? Explain with an example. (6 M)
- (b) What are Key constraints? Briefly explain key constraints for Ternary relationships with an example. (6 M)
4. (a) Discuss the use of Nested queries with an example SQL statement block. (6 M)
- (b) What is the need of joining two tables? Write short note on various types of Join operations. (6 M)
5. (a) Define Normalization. Explain 1<sup>st</sup> and 2<sup>nd</sup> Normal forms. (6 M)
- (b) What are integrity constraints in DBMS and briefly explain different types of Integrity constraints. (6 M)
6. (a) Explain Two-Phase locking techniques for concurrency control. (6 M)
- (b) Write and explain time stamp ordering algorithm for concurrency control. (6 M)
7. (a) Write brief note on various operations that can be performed on Sorted files and Heap files. (6 M)
- (b) Distinguish between Internal and External Hashing techniques in terms of their use and implementation mechanisms. (6 M)

