AR16

CODE: 16CE3019 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, February-2021

PRE-STRESSED CONCRETE

(Civil Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	What are advantages of prestressed concrete structures than R.C.C	7M
	b)	Deffentiate pre tensioning and post tensioning.	7M
		(OR)	
2.	a)	What is the need for high strength concrete and high tensile steel	
	b)	Explain the method of Hoyer's long line system of pre tensioned.	7M

UNIT-II

3. A prestressed concrete beam 250mm wide 350mm deep has a span of 10m.The beam is prestressed by steel wires of area 350mm^2 provide at uniform eccentricity of 50mm with an initial prestress of 1200N/mm^2.Determine the percentage loss of stress in the wires. 14M
   a) If the beam is Pre tensioned beam
   b) If the beam is post tensioned beam
   Shrinkage of concrete =300x10^{-6} for Pre tensioned beam
   Shrinkage of concrete =215x10^{-6}for Post tensioned beam
   Creep coefficient=1.6
   Relaxation of steel stress=5% of the initial stress
   Anchorage slip=1.10mm; Friction coefficient of wave effect =K=.0015/m

(OR)

4. a) Explain the concept of pressure line. 5M

   b) A PSC beam of section 120 mm wide by 300 mm deep is used over an effective span of 6 m to support a udl of 4 kN/m which includes the self weight of beam. The beam is prestressed by straight cable carrying a force of 180 KN and located at an eccentricity of 50 mm. Determine location of thrust line in the beam and plot the position at quarter and central span sections. 9M

UNIT-III

5. A prestressed beam has symmetrical I-section in which the depth of each flange is one-fifth of the overall depth and the web is thin enough to be neglected in bending calculations. At the point of maximum bending moment ,the prestressing force is located at the center of the bottom flange and the total loss of prestress is 20%.If there is to be no tensile stress in the concrete at any time, show that the dead load must be at least one-seventh of the live load 14M

(OR)

6. a) Explain what is meant by bursting tension .also sketch the variation of stresses in the end block. 7M

b) A prestressing force of 300 KN is transmitted through a distribution plate 120mm wide and 120 mm deep, the center of which is located at 80mm bottom of an end block having a section 120 mm wide &300 mm deep. Design the end block as per IS 1343 -1980.show reinforcement details 7M

UNIT-IV

7. A precast pre-tensioned beam of rectangular section has a breadth of 100 mm and a depth of 200 mm. the beam with an effective span of 6 m, is prestressed by tendons with their centroids coinciding with the bottom kern. The initial force in the tendons is 150 KN. The loss of prestress may be assumed to be 20 percent. The beam is incorporated in composite T- beam by casting a top flange of breadth 400 mm and thickness 40mm. if the composite beam supports a live load of 8 KN/m^2, calculate the resultant stresses developed in the precast and in situ cast concrete assuming the pre-tensioned beam as: (a) unpropped, and (b) propped during casting of the slab. Assume the same modulus of elasticity of concrete in precast beam and in situ cast slab 14M

(OR)

8. A composite T- beam is made up of a pre-tensioned rib of 100 mm wide and 200 mm deep, and a cast in situ slab 400 mm wide and 40 mm thick having a modulus of elasticity of 32 KN/mm^2. If the differential shrinkage is 100×10^{-6} units, determine the shrinkage stresses developed in the shrinkage stresses developed in the precast and cast in situ units. 14M

UNIT-V

9. a) List the various factors that influence on deflection of a prestressed concrete member 7M

b) A PSC beam with a cross sectional area of $32000mm^2$ and radius of gyration of 70mm is prestressed by a parabolic cable carrying an effective prestress of 900Mpa, the span of the beam is 8m.The cable consists of 6 wires of 7mm diameter wires, has an eccentricity of 50mm at center and zero at support, Estimate the central deflection of the beam 7M

(OR)

10. A prestressed concrete beam of rectangular section 300mm wide and 500mm deep is prestressed by 2 post-tensioned cables of area $600mm^2$ each .Initially stressed to$1600N/MM^2$.The cables are located at a constant eccentricity of 100mm throughout the length of the beam having a span of 10m.The modulus of elasticity of steel and concrete is 210 and 38 KN/mm^2 . 14M

a) Neglecting all losses, find the deflection at the centre of span when it is supporting its own weight.

b) Allowing for 20% loss in prestress, find the final deflection at the centre of span when it carries an imposed load of 18KN/m

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CODE: 16ME3021 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, February-2021

THERMAL ENGINEERING - II

(Mechanical Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

NOTE:- Use of steam tables book is allowed.

UNIT-I

1. a) Find the specific volume, enthalpy and internal energy of wet steam at 18 bar with dryness fraction (x) = 0.85, by using Steam Tables and Mollier chart. 7 M
   b) In a steam power cycle, the steam supply is at 15 bar and dry and saturated. The condenser pressure is 0.4 bar. Calculate the Carnot and Rankine efficiencies of the cycle. Neglect pump work. 7 M

(OR)

2. a) In a single heater regenerator cycle, the steam enters the turbine at 30 bar, 400 ^{0}C and the exhaust pressure is 0.1 bar. The feed water heater is a direct contact type which operates at 5 bar. Find the efficiency and the steam rate of the cycle with and without regeneration. Neglect pump work. 9 M
   b) With the help of T – S diagram describe Binary Vapour power cycle. 5 M

UNIT-II

3. a) Differentiate water tube and fire tube boilers. 7 M
   b) Explain the working principle of any one high pressure boiler with a neat sketch. 7 M

(OR)

4. a) Describe Economizer with a neat sketch. 5 M
   b) Derive the condition for maximum discharge through a chimney in natural draught. 9 M

UNIT-III

5. a) Show the process of expansion of steam in nozzle in T-S diagram: (a) When expansion is isentropic (b) when expansion is irreversible. 4 M
   b) Dry saturated steam at 5 bar enters a convergent divergent nozzle at a velocity of 160 m/s. The exit pressure is 1.5 bar. The throat and exit area are 1280 mm^2 and 1600 mm^2 respectively. Assuming isentropic flow up to the throat, critical pressure ratio as 0.58 and frictional heating as 10 % of the heat loss in the divergent portion, estimate the mass flow rate and the nozzle efficiency. 10 M

(OR)

6. a) Explain the principle of operation of different types of jet condensers. Describe with a sketch a low level jet condenser of the counter flow type. 7 M

   b) A steam condenser is supplied with 1000 kg/min steam in 0.9 dry state. The pressure at suction of air extraction pump on condenser is 70 cm of Hg and barometer reads 77 cm of Hg. Temperature in suction pipe is 30°C and air leaks at the rate of $5x10^{-4}$ kg per kg of steam. Cooling water temperature gets increased by 15°C. Determine the mass handled by dry air extractor and cooling water circulation rate in kg/min. 7 M

UNIT-IV

7. a) Derive the expression for maximum blade efficiency in a single stage impulse turbine. 7 M

   b) In a simple impulse turbine, the nozzles are inclined at 20^0 to the direction of motion of moving blades. The steam leaves the nozzles at 375 m/sec. The blade speed is 165 m/sec. Find suitable inlet and outlet angles for the blades in order that the axial thrust is zero. The relative velocity of steam as it flows over the blades is reduced by 15% by friction. Determine the power developed if the flow rate is 10 kg/sec. 7 M

(OR)

8. a) Draw the combined velocity triangle for parson's reaction turbine and explain the salient feature. 7 M

   b) In a single stage reaction turbine, both the fixed and moving blades have the same tip angles of 35^0 and 20^0 for inlet and outlet respectively. Determine the power required if the isentropic heat drop in both fixed and moving rows is 23.5 kJ/kg. The mean blade speed is 80 m/s and the steam consumption is 22,500 kg/hr. 7 M

UNIT-V

9. a) List out the differences between open cycle gas turbines and closed cycle gas turbines. 7 M

   b) In a gas turbine power cycle, the pressure ratio is 6 and the maximum cycle temperature is 650^0 C. The air enters in to the cylinder at 15^0 C and the flow rate of air is 12 kg/sec. determine the power developed and thermal efficiency of cycle. 7 M

(OR)

10. a) How does turbo prop engine differ from turbo fan engine? 7 M

    b) Explain the Turbo-Jet showing the basic cycle on T-S diagram. 7 M

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CODE: 16EC3022 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, February-2021

COMPUTER ORGANIZATION AND ARCHITECTURE

(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Illustrate the operation of 4-bit Adder Subtractor with the help of neat sketch.	7M
	b)	Explain the operation of Basic Functional block diagram of a Computer.	7M

(OR)

2.	a)	Exemplify the operation of Bus system for four Registers with suitable diagram.	7M
	b)	Illustrate the Shift Micro Operations and Sketch the diagram of 4bit Combinational shifter.	7M

UNIT-II

3.	a)	Articulate the concept of floating-point numbers and Represent IEEE 754 Single precision floating point format.	7M
	b)	Explain operation of BCD adder with the help of neat sketch and perform addition between 1001 and 1001.	7M

(OR)

4.	a)	Illustrate the operation of Addition and Subtraction with Sign Magnitude data with the help of Hardware Algorithm.	7M
	b)	Explain the Step by Step Procedure of Booth Multiplication Algorithm for Sign Magnitude operations.	7M

UNIT-III

5.	a)	Sketch the Block diagrams of 128x8 RAM and 512x8 ROM and Correlate the functionalities between RAM and ROM.	7M
	b)	Explain in detail about Auxiliary Memory in the point of Magnetic discs and Magnetic Tape.	7M

(OR)

6.	a)	Explain in detail about Virtual Memory and Mapping procedure of Logical address to the Physical Address.	7M
	b)	Illustrate the Concept of Memory Management Hardware and Memory Protection.	7M

UNIT-IV

7.	a)	Explain about Input-output processor system with the help of Block diagram.	7M
	b)	Articulate the concept of Isolated I/O and Memory Mapped I/O to CPU.	7M

(OR)

8.	a)	Illustrate the concept of I/O subsystem operation of Programmed I/O and Interrupt Driven I/O.	10M
	b)	Explain about Daisy Chain Interrupt priority help of diagram.	4M

UNIT-V

9.	a)	Articulate the concept of Arithmetic Pipeline with the help of neat sketch.	7M
	b)	Exemplify the characteristics of Vector Processing and Array Processors.	7M

(OR)

10.	a)	Explain the concept Control Unit for decoding of Microoperation Fields.	7M
	b)	Illustrate the concept of Microprogrammed control organization using Address Sequencing and Conditional Branching.	7M

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CODE: 16CS3019 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, February-2021

ARTIFICIAL INTELLIGENCE

(Common to CSE & IT)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	How would you formulate Constraint Satisfaction Problem? Explain with an example	8M
	b)	Explain the basic elements of a problem definition.	6M
		(OR)	
2.	a)	Describe depth first search algorithm?	7M
	b)	Show the performance measure and analysis of various search algorithms	7M

UNIT-II

3.		Consider the following sentences: i. John likes all kinds of food. ii. Apples are food iii. Chicken is food iv. Anything anyone eat and isn't killed by is food. v. Bill eats peanuts and is still alive. vi. Sue eats everything Bill eats. a) Translate these sentences into formulas in predicate logic b) Convert the formulas into clause form. c) Prove that John likes peanuts using Resolution.	14 M
		(OR)	
4.	a)	Explain in brief about the issues in representation of knowledge?	7M
	b)	Explain Resolution in predicate logic with suitable example.	7M

UNIT-III

5.	a)	Explain the forward chaining process and efficient forward chaining with example. State its range.	7M
	b)	Describe a method for constructing Bayesian networks.	7M
		(OR)	
6.	a)	Explain fuzzy logic learning using a suitable example.	7M
	b)	Explain the Forward and Backward chaining with examples	7M

UNIT-IV

7.	a)	Explain various forms of adaptive learning.	7M
	b)	Describe about Machine Learning.	7M
		(OR)	
8.	a)	"Learning is the most important characteristic of Intelligence" Justify.	7M
	b)	Discuss in detail about advanced plan generation systems.	7M

UNIT-V

9.	a)	Define Expert system? Explain in brief about applications of Expert systems?	7M
	b)	Explain in detail about MYCIN expert system.	7M
		(OR)	
10.	a)	Describe the architecture of an expert system and describe the roles of the various people involved in it.	7M
	b)	Explain about expert System shells.	7M

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AR13

CODE: 13CE3015 **SET-I**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-2021

DESIGN OF CONCRETE STRUCTURES –II
(Civil Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What are the main requirements of a foundation system for a structure.
   b) What are the situations in which combined footings are preferred to isolated footings?
   c) Differentiate Flat plate and Flat slab
   d) Write any two assumptions of Direct design method used for design of flat slabs.
   e) What are the different types of bridges used for long spans?
   f) What are the different types of loads considered in the design of bridges?
   g) Differentiate friction pile and end bearing pile.
   h) What is under reamed pile?
   i) Mention various components of Intz water tank.
   j) What is the use of elevated water tank?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. Design an isolated footing for a column, 300 mm x 500 mm, reinforced with 6-25 Φ bars with Fe415 steel and M25 concrete, subject to a factored axial load P_u = 1000 kN and a factored uniaxial moment M_{ux} = 120 kNm (with respect to major axis) at the column base. Assume that the moment is reversible. The safe bearing capacity may be taken as 200 kN/mm^2 at a depth of 1.25 m. Assume M_{20} concrete and Fe 415 steel for the footing. 12M

(OR)

3. Design a combined footing for two columns C1 (400 mm x 400 mm with 4-25Φ bars) and C2 (500 mm x 500 mm with 4-28Φbars) supporting axial loads P1 = 900 kN and P2=1600 kN respectively (under service dead and live loads). The column C1 is an exterior column whose exterior face is flush with property line. The centre-to-centre distance between C1 and C2 is 4.5m. The allowable soil pressure at the base of the footing, 1.5 m below ground level, is 240 kN/mm^2. Assume steel of grade Fe415 in columns as well as footing, and concrete of M30 grade in columns and M20 grade in footing. 12M

UNIT-II

4. Design the interior panel of a flat slab 5.6 m x 6.6 m in size, for a super-imposed load of 7.75 kN/m2. Provide two-way reinforcement. Use M20 concrete and Fe415 steel. 12M

(OR)

5. Design the roof slab for a circular room 6 metre in diameter from inside and carrying a super imposed load of 5 kN/m^2. Assume that the slab is simply supported at the edges. Use M20 grade concrete and Fe415 steel. The thickness of wall is 400 mm. 12M

UNIT-III

6. a Briefly explain about different types of bridges with neat sketches. 6M
   b Determine the Live load moment (Class AA tracked vehicle) of interior panel of size 2.3 x 3.87 m in a T-beam bridge. 6M

(OR)

7. Design a solid slab bridge for class A loading for the following data: 12M
   Clear span = 4.5 m
   Clear width of roadways = 7 m
   Average thickness of wearing coat = 80 mm
   Use M20 mix. Take unit weight of concrete as 24000 N/m^3.

UNIT-IV

8. Design a pile under a column transmitting an axial load of 800 kN. The pile is to be driven to a hard stratum available at a depth of 8 metres. Use M20 concrete and Fe 415 steel 12M

(OR)

9. An RC column, 400 mm x 400 mm carrying a load of 600 kN is supported on three piles 400 mm x 400 mm in section. The centre to centre distance between the piles is 1.5 m. Design a suitable pile cap. Use M20 concrete and Fe 415 steel. 12M

UNIT-V

10. Design a circular tank with flexible base for capacity of 400000 litres. The depth of water is to be 4 m, including a free board of 200 mm. Use M20 concrete. 12M

(OR)

11. Fix the preliminary dimension of an Intz tank of capacity 900,000 litres. Design the top dome and top ring beam of The height of the staging is 16m upto the bottom of tank. 12M

AR13

CODE: 13ME3020 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-2021

HEAT TRANSFER
(Mechanical Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) State Fourier law of heat conduction
   b) What are the types of heat exchangers?
   c) Define thermal conductivity
   d) Write down the equation for conduction of heat through a slab or plane wall
   e) State Newton's law of cooling or convection law
   f) Define overall heat transfer coefficient
   g) What is meant by Lumped heat analysis?
   h) What is hydrodynamic boundary layer?
   i) What is meant by free or natural convection?
   j) Give the merits of dropwise condensation

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Define thermal diffusivity and write the physical significance. **3**
   b) Derive the general heat conduction equation in Cartesian coordinates and deduce it in one-dimensional steady state conduction with no internal heat generation. **9**

(OR)

3. a) How do thermal conductivity of gases and liquids vary with temperature? **3**
   b) A steel pipe of 100mm bore and 7mm wall thickness, carrying steam at 260^{v}C, is insulated with 40mm of glass wool, this covering in turn insulated with 60mm of asbestos felt. the atmospheric temperature is 30 ^{0}C .The heat transfer coefficient for the inside and outside surface are 550 and15W/M^{2} ^{0}C respectively, and the thermal conductivity of steel, glass wool ,asbestos felt are 50,0.09 and 0.07W/m ^{0}C respectively .Calculate the following. (i)Rate of heat loss per unit length of pipe. (ii)Temperature at each cross section of the pipe. **9**

UNIT-II

4. a) What is the importance of Heisler's charts in heat transfer? **3**
   b) A slab of 15cm thick is originally at a temperature of 500^{0}C.It is suddenly immersed in a liquid at 100^{0}C resulting in a heat transfer coefficient of 1200 W/m^{2}k.Determine the temperature at the center line and the surface 1min after the immersion. Also calculate the total thermal energy removed per unit area of the slab during this period .the prosperities of aluminium for given condition $\alpha=8.4x10^{-5}m^2/s$ k=215W/mK, ρ=2700 kg/m^{3} ,c=0.9 Kj/kg/K **9**

(OR)

5. a) Derive an expression for the temperature distribution and heat transfer rate for an infinitely long rectangular fin **4**
   b) A cylinder 1m long and 5cm in diameter is placed in an atmosphere at 45^{0}C. It is provided with 5 longitudinal straight fin of material having k=130W/m K. The height of 0.76mm thick fins is 1.27cm from the cylinder and h_o of atmospheric air is 17W/m^{2}K.Claculate the rate of heat transfer from the fin if the surface temperature of cylinder is 150^{0}C **8**

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CODE: 13ME3020 **SET-1**

UNIT-III

6.	a)	Explain the physical significance of Nusselt number	**3**
	b)	A 300 mm long glass plate is hung vertically in the air at 27^0C while its temperature is maintained at 77^0C . Calculate the boundary layer thickness at the trailing edge of the plate. If a similar plate is placed in a wind tunnel and air is blown over it at a velocity of 4 m/s. find the boundary layer thickness at its trailing edge. Also determine heat transfer coefficient for natural convection for the above mentioned data.	**9**

(OR)

7.	a)	Write in detail step by step procedure for calculation of heat transfer in Forced convection	**4**
	b)	Water at 20^0C flows normal to the axis of a circular tube with a velocity of 1.5 m/s. The diameter of the tube is 25 mm. Calculate the average heat transfer coefficient if the tube surface is maintained at a uniform temperature of 80^0C. Also estimate heat transfer rate per unit length of the tube.	**8**

UNIT-IV

8.	a)	Define Prandtl number and state its significance	**3**
	b)	An electrically heated sphere of 1.5 cm diameter is cooled in a quiescent medium of air at 315 K. In order to maintain the surface temperature of the sphere at 385 K. estimate the amount of heat to be supplied by the electrical heater. Ambient temperature of air is 20^0C.	**9**

(OR)

9.	a)	Explain the importance of LMTD in heat exchanger analysis	**4**
	b)	Water at the rate of 4080kg/h is heated from 35^oC to 75^oC by an oil having a specific heat of 1900 J/kg K. The exchanger is of a counter flow double pipe design. The oil enters at 110^oC and leaves at 75^oC. Determine the area of heat exchanger necessary to handle this load if the overall heat transfer coefficient is 320 W/m^{2}K	**8**

UNIT-V

10.	a)	State and explain important properties of view factor	**4**
	b)	Determine the radiant heat exchanger in W/m^2 between two large parallel steel plate of emissivities 0.8 and 0.5 held at a temperature of 1000K and 500K respectively ,if a thin copper plate of emissivity 0.1 is introduced as a radiation shield between two plates. Use $\sigma = 5.67 \times 10^{-8}$ W/m^2 K^4	**8**

(OR)

11.	a)	Define Shape factor and explain its importance	**4**
	b)	Two circular discs of diameter 50 cm are placed opposite to each other at a distance of 1 m apart. The discs are maintained at 500°C and 200°C respectively. Calculate the heat transfer between them if (a) both are perfectly black (b) they are emissivity 0.8.	**8**

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AR13

SUB CODE:13EC3021 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-2021
VLSI DESIGN
(Electronics & Communication Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Define Moores Law
   b) Analyse the merits of BiCMOS technology compared to CMOS technology?
   c) Support Why PMOS is used as pull-up in a CMOS circuit?
   d) Indicate the deficiency of MOS Technology?
   e) Express the condition of Latch-up in CMOS circuits?
   f) Sketch the regions of CMOS inverter versus V_{in} ?
   g) Sketch the circuit outline of NMOS inverter with Enhancement NMOS Load?
   h) What does testing mean with respect to VLSI technology?
   i) Can you clarify the reason for a demarcation line in CMOS stick encoding?
   j) List the components of power dissipation in CMOS Circuits?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Analyse the fabrications steps involved in a CMOS n-well process ? **6M**
   b) Analyse the different structures of BiCMOS Fabrications ? **6M**

(OR)

3. a) Explain the Enhancement Mode MOSFET characteristics **6M**
   b) Can you illustrate the importance of diffusion process during fabrication process? **6M**

UNIT-II

4. a) Explain the four circuits in BiCMOS Inverters **8M**
   b) Derive the Transconductance **4M**

(OR)

5. a) Develop Zpu to Zpd ratio for nMOS inverter driven by another nMOS inverter?(**8M**
   b) Explain Breifly NMOS Inverter **4M**

UNIT-III

6. a) Draw Layout for NMOS Inverter **6M**
   b) Draw Stick Diagram for XOR Gate **6M**

(OR)

7. a) Draw Stick diagram for XNOR gate **6M**
   b) Define and give expressions for any four scaling factors of CMOS device parameters **6M**

UNIT-IV

8. a) Explain the sheet Resistance and draw the table of typical sheet resistance for 5um,2um and 1.2um **6M**
   b) Calculate the sheet resistance for n transistor and P transistor **6M**

(OR)

9. a) Explain about driving large capacitive loads. **6M**
   b) Explain Standard unit of capacitance for 5um,2um and 1.2um **6M**

UNIT-V

10. a) Explain the Logical Verification in Testing **6M**
    b) What is need for Testing **6M**

(OR)

11. Explain design capture tools. **12M**

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CODE: 13CS3018 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, February-2021

COMPUTER GRAPHICS

(Computer Science & Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What are the drawbacks in CRT displays?
   b) What is the role of the frame buffer in displays?
   c) What are the advantages of Bresenham line generation algorithm
   d) What are the different methods to fill a polygon?
   e) What is the need of homogeneous co-ordinate system?
   f) What are the steps in viewing transformation?
   g) What are the different approaches to generate curves ?
   h) Why to use cubic polynomials in curves and surfaces?
   i) Define morphing and its applications
   j) How curve fitting technique is implemented?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Write a short note on working of raster scan display system and random scan display system. 6m
   b) List some applications for large-screen and small screen displays. 6m

(OR)

3. Explain flat-panel display in detail 12 m

UNIT-II

4. Draw a polygon using DDA and Bresenham's line generation algorithms. 12 m

(OR)

5. Explain Mid-point Ellipse Algorithm with an example. 12m

UNIT-III

6. a) Explain the transformation that is rotation about an arbitrary point 6m
   b) Explain Homogeneous coordinates system 6m

(OR)

7. a) Explain Cyrus-Beck line clipping algorithm 6m
   b) Explain Sutherland-Hodgeman polygon clipping algorithm 6m

UNIT-IV

8. a) Explain parallel and perspective projections and differentiate between them. 6m
   b) Explain in detail about uniform periodic B-spline curves. 6m

(OR)

9. Write transformation matrices for 3D scaling, rotation and transformation. 12m

UNIT-V

10. a) What is back-face detection? Explain the process of eliminating invisible surface 6m
    b) Explain Waarnock's area sub division algorithm 6m

(OR)

11. a) Explain design of animation sequence. 6m
    b) Explain key-frame specification 6m

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