AR18

CODE: 18CET317   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, September-2022
BASIC DESIGN OF STEEL STRUCTURES
(Civil Engineering)

Time: 3 Hours   **Max Marks: 60**
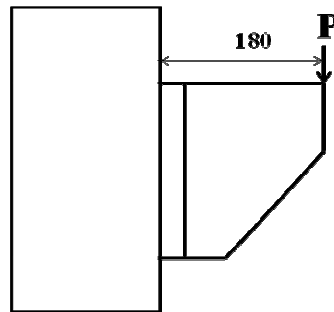
Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Explain Advantages and disadvantages of steel as a structural design material   4M
    b) Design a suitable fillet weld for the bracket, working load 100 KN and eccentricity   8M
        180 m, Thickness of bracket is 10 mm and column ISHB 300 @ 618 N/m.

(OR)

2. a) Explain the types of welded joints and Important specifications for welding   4M
    b) Find the efficiency of the lap joint. Given M20 Bolts of grade 4.6 and Fe410   8M
        (E250) Plates are used. 6 – Number of bolts each side with 60 mm pitch and width
        of the plate is 200 mm.
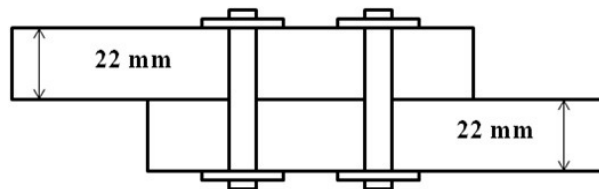
UNIT-II

3. a) What is the difference between laterally supported beams and laterally unsupported   4M
        beams?
    b) Determine the plastic moment capacity and plastic section modulus of   8M
        unsymmetrical section.
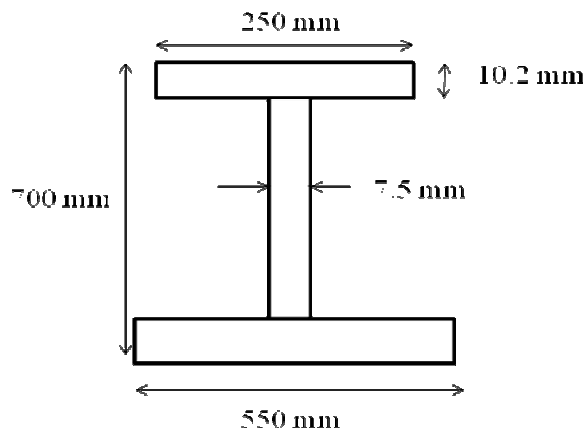
4   Design a simply supported beam of effective span 3.0 m carrying a factored load of   12M
        150 kN at mid span

UNIT-III

5. a) Draw the different shapes used as a tie member?   4M
    b) Determine the load carrying capacity of the column ISHB300@577 N/m of the L =   8M
        3.0 m. If one end may be fixed other hinged. Steel = Fe415. (i.e E = 250).
                                         (OR)
6. a) With neat sketch represent Laced and Batten columns   4M
    b) Determine the design tensile strength of the plate 130 m x 12 mm with the holes   8M
        for 20 mm diameter. Steel used is of Fe410 grade quality.

UNIT-IV

7. a) Explain different types of roof trusses with neat sketches   4M
    b) Design a simply supported gantry girder for the factory, assuming the flange is   8M
        laterally supported for the following data.

        Weight of the manually operated overhead crane = 60 kN
        Centre to centre distance between gantry girders = 18 m,
        Span of the gantry girder = 7 m,
        Weight of the crane = 450 kN,
        Wheel spacing = 3 m,
        Weight of the crab = 10 kN,
        Maximum edge distance = 1 m,
                                         (OR)
8. a) Explain the step by step design procedure for Purlin Design   4M
    b) Symmetric trusses of a span 20m and height 5 m are spaced at 4.5 m centre to   8M
        centre. Design sectional purlins to be placed at suitable distance to resist the
        following loads.
        Weight of the sheeting including bolts = 171 kN/m^2
        Live load = 0.4 kN/m^2
        Wind load = 1.2 kN/m^2, suction
        Spacing of purlins = 1.4 m
        Assume any missing data suitably.

UNIT-V

9   Design a 14m long simply supported welded plate girder carrying a uniformly   12M
        distributed load of 40kN/m excluding self-weight and two concentrated loads of
        320kN each at quarter points of the span. Assume that girder is laterally supported
        throughout.
                                         (OR)
10. a) Draw the typical cross section of plate girder and represent its features.   4M
    b) Design a welded plate girder to carry a superimposed load of 12 tonnes per metre   8M
        on an effective span of 25 metres. Assume necessary data.

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AR18

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, September-2022

PRINCIPLES OF SIGNALS AND SYSTEMS
(Electrical and Electronics Engineering)

Time: 3 Hours   **Max Marks: 60**

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 following classification of systems   6M
         (i) Static versus Dynamic systems.
         (ii) Stable versus Unstable systems.
         (iii) Time variant versus Time-invariant system

    b)   Let $x(t) = e^{j2t}$ and $y(t) = e^{j\pi t}$, and consider their sum   6M
         $z(t) = x(t) + y(t)$, and their product $w(t) = x(t)y(t)$. Determine if
         $z(t)$ and $w(t)$ are periodic, and if so, find their periods

(OR)

2. a)   Consider a DT sequence $x[n] = \{-1, 2, \underset{\uparrow}{3}, 2.5, 5, 6\}$. Sketch neatly   6M
         the following sequences.   (i) $x[n-1]$ (ii) $x[n+2]$ (iii) $x[-n+2]$.

    b)   For the following system, determine whether the system is   6M
         causal, linear and time-invariant $y[n] = nx[n]$

UNIT-II

3. a)   By explicitly evaluating convolution sum, determine the   6M
         convolution output if the input sequence to the system is
         $x[n] = u[n]$ and impulse response $h[n] = u[n]$.

    b)   Apply the sampling theorem to find the Nyquist rate and   6M
         sampling interval corresponding to each of the following
         analog signals:
         $x(t) = 3\cos(50\pi t) + 10\sin(300\pi t)$ (ii) $x(t) = 3\cos(40\pi t)$
         $+10\sin(300\pi t) - \cos(100\pi t)$

(OR)

4. a)   Perform the Graphical convolution between the two   8M
         sequences given as $x[n] = \{\underset{\uparrow}{1}, 2, 3, 1\}$ and $h[n] = \{1, \underset{\uparrow}{2}, 1, -1\}$

    b)   Find the minimum sampling rate for the following analog   4M
         signals $x(t) = \cos(400\pi t) + 2\sin(200\pi t)\cos(220\pi t)$

UNIT-III

5. a) State and derive Linearity and convolution properties of fourier series — 6M

   b) Find the Fourier transform of the signal $x(t) = e^{-at}u(t), a > 0$ — 6M

   (OR)

6. a) Obtain Trigonometric Fourier series from Exponential Fourier series — 5M

   b) Find the Fourier Transform of the signal $x(t) = x_1(t) * x_2(t)$ where, $x_1(t) = e^{-2t}u(t)$ and $x_2(t) = u(t)$ — 7M

UNIT-IV

7. a) Find the Laplace transform and ROC of the signal $x(t) = e^{-3t}u(t) + e^{-2t}u(t)$ — 6M

   b) Find the Inverse Laplace transform of $X(s) = \dfrac{1}{s(s+2)}$ — 6M

   (OR)

8. a) Find the Laplace transform and ROC of the signal $-e^{-at}u(-t)$ — 6M

   b) Find the inverse Laplace transform of $X(s) = \dfrac{2}{(s+4)(s-1)}$ if the ROC is $-4 < Re(s) < 1$ — 6M

UNIT-V

9. a) Determine the Z-transform and corresponding ROC of $x(n) = (1/2)^n u(n) + (-1/3)^n u(n)$. — 6M

   b) Determine the inverse ZT of the sequence $X[z] = \dfrac{1 - 2z^{-1}}{1 + \frac{1}{2}z^{-1}}$ if $x(n)$ is anti causal sequence — 6M

   (OR)

10. a) Using Z-transform find the convolution between the following sequences $x[n] = \{1,2,3,1\}$ $h[n] = \{4,5,6,7\}$. — 7M

    b) Differentiate Laplace Transform and Z-Transform — 5M

AR18

UNIT-I

1.	a)	What is the need for Telecommunication Switching System?	6M
	b)	Explain the operations of a single and multistage cross bar switch.	6M

(OR)

2.	a)	Draw and explain 3X3 crossbar switching principal.	6M
	b)	What is different switching network configurations? Compare their features	6M

UNIT-II

3.	a)	Explain the load sharing operation of Centralized SPC.	6M
	b)	Explain in detail about time space switches.	6M

(OR)

4.	a)	Explain a three stage combination switching.	6M
	b)	Explain Time Multiplexed Space Switching.	6M

UNIT-III

5.	a)	With examples explain the national and international numbering plans.	6M
	b)	Explain the basic scheme for Common channel signaling.	6M

(OR)

6.	a)	Describe the major components of a telephone network.	6M
	b)	Explain subscriber loop systems in brief.	6M

UNIT-IV

7.	a)	Explain connection oriented and connection less services with examples	6M
	b)	Write about modes of operation of Common channel Signaling	6M

(OR)

8.	a)	Discuss the Configurations, Topologies and Transmission modes of a Data communication circuits.	6M
	b)	What is the necessity of data communication standards? Explain	6M

UNIT-V

9.	a)	Explain the Principle of operation of circuit Switching concept with example	6M
	b)	Discuss about ISDN interfaces	6M

(OR)

10.	a)	Write the comparisons of Circuit switching, Packet switching and Virtual circuit switching concepts.	6M
	b)	Explain the protocol architecture of ISDN	6M

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AR18

CODE: 18CST315   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, September-2022

UNIX INTERNALS
(Computer Science and Engineering)

Time: 3 Hours   Max Marks: 60

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) Explain the file permissions in Unix with examples.   6M
    b) Discuss the following commands with syntax   6M
       (i) mv   (ii) cp   (iii) sort   (iv) awk   v) nl   vi) pg
                                  (OR)
2. a) Explain the modes of operation in vi editor with examples   6M
    b)   Discuss about Backup utilities in UNIX with examples.   6M

UNIT-II

3. a) What is a Shell? and give various types of shells with examples?   6M
    b) Write a shell program to find the factorial of given number.   6M
                                  (OR)
4.   Describe about pipes and redirection also give examples of input redirection,   12M
        output redirection, error redirection.

UNIT-III

5. Explain the following system calls   12M
      i) rename ii) lseek iii) close iv) create v) stat vi) dup
                                  (OR)
6. a) Differentiate between System calls and Library functions.   6M
    b) Discuss about file related system calls with examples.   6M

UNIT-IV

7. a) Define a process in UNIX. Explain the hierarchy of Unix processes.   6M
    b) Explain the Mechanism of Process creation in Unix?   6M

                                  (OR)
8. Explain the following functions   12M
    i) kill   ii) raise   iii) alarm   iv) pause   v) abort   vi) sleep .

UNIT-V

9.   Discuss in detail about the semaphores.   12M
                                  (OR)
10. a) What is a message queues? How it is used for interposes communication   6M
    b) Differentiate between named & name less pipes   6M

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AR18

CODE: 18ITT301   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, September-2022

INTERNET OF THINGS
(Information Technology)

Time: 3 Hours   Max Marks: 60

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) Define IoT and its characteristics. Draw the IoT Architecture with a neat diagram.   6M
   b) With neat diagrams explain about Physical Design and Logical Design of IoT   6M
   (OR)
2. a) Explain IoT Communication APIs with a diagram.   6M
   b) Explain IoT applications in different domains: (i) Agriculture (ii) Environment.   6M

UNIT-II

3. a) What is the need for an M2M gateway and how it works? Explain with a diagram   6M
   b) What is the main purpose of SDN? Explain in detail about SDN   6M
   (OR)
4. a) Explain the Simple Network Management Protocol (SNMP) with a neat diagram.   6M
   b) Define NETCONF-YANG. Explain YANG configuration in detail   6M

UNIT-III

5. a) Describe the methodology to design a Home Automation System using IoT   6M
   b) What are the useful Python packages for IoT Applications? Explain with examples.   6M
   (OR)
6. a) With a neat diagram PIN diagram of Raspberry Pi   6M
   b) Demonstrate the working of the LDR Sensor using Raspberry pi   6M

UNIT-IV

7. a) Explain any three Python Data Structures with examples   6M
   b) What is REST? What are the Steps in designing REST Services?   6M
   (OR)
8. a) What are the list of operating systems supported by Raspberry Pi? Discuss   6M
   b) Mention the steps for Installing and Testing GPIO pins in Raspberry Pi   6M

UNIT-V

9. a) Write Short notes on (i) Hadoop Map Reduce (ii) Apache Storm   6M
   b) What are the advantages of distributed batch data analytics frameworks? Explain   6M
   (OR)
10. a) Elaborate about Xively cloud with an example.   6M
    b) Write in detail about Smart Parking and Smart Traffic Control applications   6M

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AR16

**CODE: 16CE3016**   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, September-2022
DESIGN AND DRAWING OF STEEL STRUCTURES
(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) Neatly sketch the following welded connections: (a) Butt weld (groove weld)- single V, double V (b) Fillet weld (c) Slot weld (d) Plug weld. **8M**
   b) Two 12 mm thick plates are joined by 160 mm long (effective) butt weld. Determine the strength of joint if (a) Single U butt weld is used. (b) Double U butt weld is used. **6M**

(OR)

2. a) What are the advantages and disadvantages of welded connections? **4M**
   b) 9. Design a column bracket shown in Fig. to take a load of 160 kN at an eccentricity of 200 mm. The size of the web welds should be half the size of the flange welds. **10M**
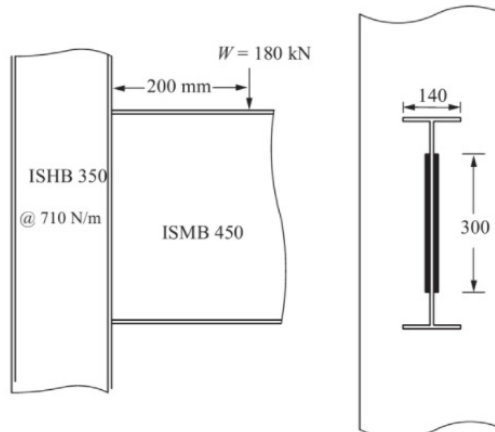
UNIT-II

3. Design the main floor beam shown in figure below. The beam is laterally restrained. Check for shear and deflection. **14M**
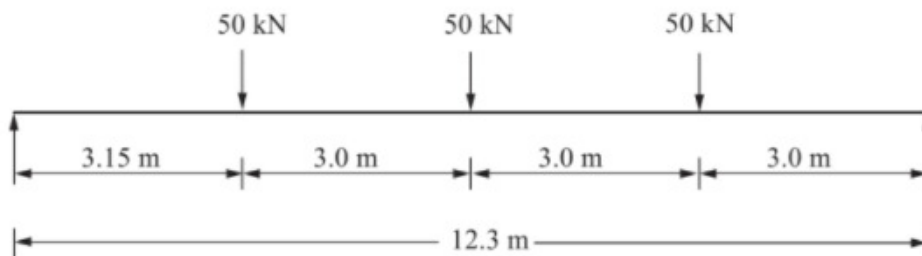
(OR)

4. A hall measuring 15 m x 6 m consists of beams spaced at 3 m c/c. R.C.C. slab of 120 mm is cast over the beam. The imposed load is 4 kN/m2. The beam is supported on 300 mm wall. Design one intermediate beam and check the design for deflection, web buckling and web crippling. **14M**

UNIT-III

5. a) Write short note on block shear failure.   4M

   b) Design a tension member to carry a factored force of 340 kN. Use 20 mm diameter black bolts and a gusset plate of 8 mm thick.   10M

(OR)

6. A column of 9 m effective length has to support an axial factored load of 1500 kN. Design the column which shall consist of two channels placed back to back at suitable spacing. Design also single angle lacing system.   14M

UNIT-IV

7. A hand operated 60 kN overhead crane is provided in a workshop. The details are given below: 14M

      Centre to centre between gantry girders = 20 m,
      Span of the gantry girder = 8 m,
      Weight of the crane = 50 kN,
      Wheel spacing = 2.5 m,
      Weight of the crab = 10 kN,
      Maximum edge distance = 1m,

Design a simply supported gantry girder, assuming the flange is laterally supported

(OR)

8. The following data refers to a gantry girder on which an electrically operated crane of capacity 200 kN moves   14M

      Span of gantry girder = 6.0 m
      Span of crane girder = 18 m
      Crane capacity = 200 m
      Self-weight of crane girder = 180 kN
      Self-weight of trolley = 75 kN
      Minimum hook appear = 1.0 m
      Distance between wheels = 3.5 m
      Self-weight of rails = 0.3 kN/m

Determine

(1) the maximum moment and shear forces due to vertical and horizontal loads

(2) check whether ISMB 600 with ISMC 300 on compression flange is adequate to

      (a) carry moment
      (b) carry shear force
      (c) in buckling resistance
      (d) in limiting deflections.

UNIT-V

9. Design a welded plate girder of span 35 m to carry on super imposed load of 35 kN/m. Using of intermediate stiffeners. Use Fe 415 (E250) steel.   14M

(OR)

10. Design a welded plate girder of span 20 m to carry on super imposed load of 25 kN/m. Avoid use of bearing and intermediate stiffeners. Use Fe 415 (E250) steel.   14M

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AR16

CODE: 16ME3021   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, September-2022
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

UNIT-I

1.	a)	Explain the following: (i.) Internal latent heat, (ii.) Internal energy of steam, (iii.) Entropy of water, (iv.) Entropy of evaporation.	7M
	b)	What is calorific value of fuels? Explain gas calorimeter.	7M

(OR)

2.	Consider a steam power plant that operates on the ideal reheat Rankine cycle. The plant maintains the boiler at 7000 kPa, the reheat section at 800 kPa, and the condenser at 10 kPa. The mixture quality at the exit of both turbines is 93%. Determine the temperature at the inlet of each turbine and the cycle's thermal efficiency.	14M

UNIT-II

3.	a)	Explain the working of Benson boiler with neat sketch.	7M
	b)	What is the function of chimney in a boiler? Explain how natural draught is obtained?	7M

(OR)

4.	a)	Give a brief note on the following boiler accessories: 1. Feed pump, 2. Injector, 3. Economiser and 4. Air pre-heater.	7M
	b)	Calculate the height of chimney required to produce a draught equivalent to 1.7 cm of water if the flue gas temperature is 270^0C and ambient temperature is 22^0C and minimum amount of air per kg of fuel is 17 kg.	7M

UNIT-III

5.	Obtain the below expression for the maximum mass flow rate of the steam in a nozzle. p_1 and v_1 are the initial conditions of the steam.	14M

$$m_{max} = A \sqrt{n\left(\frac{p_1}{v_1}\right)\left(\frac{2}{n+1}\right)^{\frac{n+1}{n-1}}}$$

(OR)

6.	a)	List out the types of nozzles. Where they are used? Differentiate between a nozzle and a diffuser?	7M
	b)	Briefly explain jet and surface condensers with appropriate sketches.	7M

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

   b) An outward flow reaction turbine has internal and external diameter of the runner as 0.5 m and 1.0 m respectively. The guide blade angle is 15^0 and velocity of flow is 4.0 m/s and is constant. If its speed is 200 rpm head 10 m and discharged at outlet is radial find a) runner vane angles at inlet and outlet, b) work done/sec/kg of water, c) Hydraulic efficiency. **7M**

(OR)

8. a) In an impulse turbine (with a single row wheel), the mean diameter of the blade is 1.05 m and speed is 3000 rpm. The nozzle angle is 18°. The ratio of blade speed to steam speed is 0.42 and ratio of relative velocity at outlet from the blades to that at inlet is 0.84. The outlet angle of the blade is to be made 3° less than the inlet angle. The steam-flow rate is 10 kg/s. Draw the velocity diagram for blades and derive the following: (a) Tangential thrust on the blades, (b) Axial thrust on the blades, (c) Power developed in the blades, (d) Blading efficiency. **7M**

   b) With a neat sketch explain the velocity compounding of steam turbines. **7M**

9. a) How intercooling and reheating effects the efficiency of gas turbines? **7M**
   b) Briefly explain the working of Ramjet with schematic diagram. **7M**

(OR)

10. A 4500 kW gas turbine generating set operates with two compressor stages, the overall pressure ratio is 9:1. A high pressure turbine is used to drive the compressors, and a low pressure turbine drives the generator. The temperature of the gases at entry to the high pressure turbine is 625°C and the gases are reheated to 625°C after expansion in the first turbine. The exhaust gases leaving the low-pressure turbine are passed through a heat exchanger to heat the air leaving the high pressure stage compressor. The compressors have equal pressure ratios and inter-cooling is complete between the stages. The air inlet temperature to the unit is 20°C. The isentropic efficiency of each compressor stage is 0.8, and the isentropic efficiency of each turbine stage is 0.85, the heat exchanger thermal ratio is 0.8. A mechanical efficiency of 95% can be assumed for both the power shaft and compressor turbine shaft. Neglecting all pressure losses and changes in kinetic energy calculate: (i) The thermal efficiency (ii) Work ratio of the plant (iii) The mass flow in kg/s. **14M**
    Neglect the mass of the fuel and assume the following :
    For air: c_{pa} = 1.005 kJ / kg K and γ =1.4
    For gases in the combustion chamber and in turbines and heat exchanger, c_{pg} = 1.15 kJ/kg K and γ = 1.333.

AR13

CODE: 13EC3021   SET-1
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, September-2022

VLSI DESIGN
(Electronics & Communication Engineering)

Time: 3 Hours   **Max Marks: 70**
PART-A

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

1.
   a) Define Moore's law.
   b) Advantages of CMOS technology compared to BJT.
   c) Write down the equations for Ids of an n-channel enhancement MOSFET operating in Non-saturated region
   d) Define stick diagram
   e) Give the different scaling models
   f) Mentioning different forms of pull up
   g) Define Fan-in
   h) Write about pass transistor
   i) Define switch logic
   j) Define controllability

PART-B

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

UNIT-I

2.
   a) Explain the MOS transistor operation with the help of neat sketches in the Enhancement mode.   [6 M]
   b) What are the steps involved in the NMOS fabrication? Explain with neat sketches.   [6 M]

   (OR)
3.
   a) Explain Twin tub-CMOS Fabrication Process.   [8 M]
   b) Compare CMOS and bipolar technologies   [4 M]

UNIT-II

4.
   a) Derive the relationship between drain to source current Ids versus drain to source voltage Vds in a non-saturated and a saturated region.   [6 M]
   b) Draw CMOS Inverter circuit and explain different region of operation..   [6 M]

   (OR)
5.
   a) Determine pull-up to pull-down ratio of an NMOS inverter when driven through one or more pass transistors.   [6 M]
   b) What is threshold voltage of a MOS device and explain its significance.   [6 M]

UNIT-III

6.
   a) What is a stick diagram? Draw the stick diagram and layout for a CMOS inverter.   [6 M]
   b) Write about the scaling limitations.   [6 M]

7. a) Draw a stick diagram and layout for two input CMOS NAND gate indicating all the regions and layers [6 M]

   b) What are the λ-based design rules? Give them for each layer. [6 M]

UNIT-IV

8. a) What is meant by sheet resistance(Rs)? Explain the concept of Rs applied to MOS transistors. [6 M]

   b) Explain how to Calculate of Delay unit τ [6 M]

(OR)

9. a) How switch logic can be implemented using Pass Transistors? Explain. [6 M]

   b) Explain about design of ALU subsystems. [6 M]

UNIT-V

10. a) Explain about design verification tools [6 M]

    b) Briefly explain need for CMOS testing [6 M]

(OR)

11. a) Explain about Design-capture tools [6 M]

    b) Explain about design strategies in CMOS Testing [6 M]

AR13

CODE: 13CS3018   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, September-2022

COMPUTER GRAPHICS
(Computer Science Engineering)

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

PART-A

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

1. a) What is Raster Scan system?
    b) Define Pixel and Frame Buffer
    c) Define persistence in terms of CRT Phosphorous
    d) What is Anti-Aliasing and how to eliminate it?
    e) What is the slope at a point which belongs to both regions in ellipse?
    f) Differentiate Shearing and Shifting.
    g) Define Polygon Mesh.
    h) Write the equation for representing a spline.
    i) What do you mean by parallel projection?
    j) Define raster animation.

PART-B

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

UNIT-I

2. a) Discuss any six application areas of Interactive computer graphics.   **(6M)**
    b) Explain about the components of CRT with a neat diagram.   **(6M)**
                                        (OR)
3. a) Differentiate between LED and LCD Displays.   **(6M)**
    b) Write Short notes on Random Scan System .   **(6M)**

UNIT-II

4. a) Demonstrate the Bresenham line Algorithm with end points (1, 1) and (8, 5)   **(6M)**
    b) Demonstrate how the Bresenham's circle generating algorithm works for drawing **(6M)**
        a circle with radius 4 units and centre (2, 3)
                                        (OR)
5. a) Write the DDA algorithm and explain the steps in detail.   **(6M)**
    b) Demonstrate the DDA line Algorithm with end points (2, 5) and (10, 9)   **(6M)**

AR13

UNIT-III

6. a) Explain 2D rotation of an object about an arbitrary axis. **(6M)**
   b) Explain 2 D translation with homogeneous coordinate system. **(6M)**

(OR)

7. a) Explain Sutherland-Hodgeman polygon clipping algorithm in detail. **(6M)**
   b) Use the Cohen Sutherland algorithm to clip line P1 (70,20) and p2(100,10) against **(6M)** a window lower left hand corner (50,10) and upper right hand corner (80,40).

UNIT-IV

8. a) Describe Interpolation and Approximation splines. **(6M)**
   b) Define Bezier Curves. Explain with an example. **(6M)**

(OR)

9. a) Explain about 3-D basic transformations with examples **(6M)**
   b) Differentiate between Parallel projection and Perspective Projection. **(6M)**

UNIT-V

10. a) What are the various visible face detection methods or hidden surface elimination **(6M)** method
    b) State the steps involved in Painter's algorithm in detail. **(6M)**

(OR)

11. a) Explain the various steps in computer generated animation. **(6M)**
    b) What are the animation languages and motion specifications? Explain **(6M)**

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