AR18

CODE: 18CET317   **SET-2**
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular/Supplementary Examinations, July, 2022
BASIC DESIGN OF STEEL STRUCTURES
(Civil Engineering)
Time: 3 Hours   **Max Marks: 60**
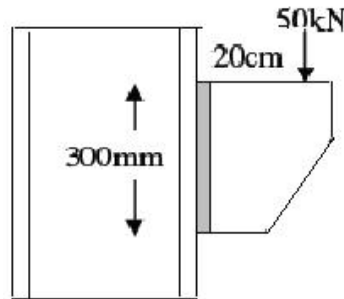Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

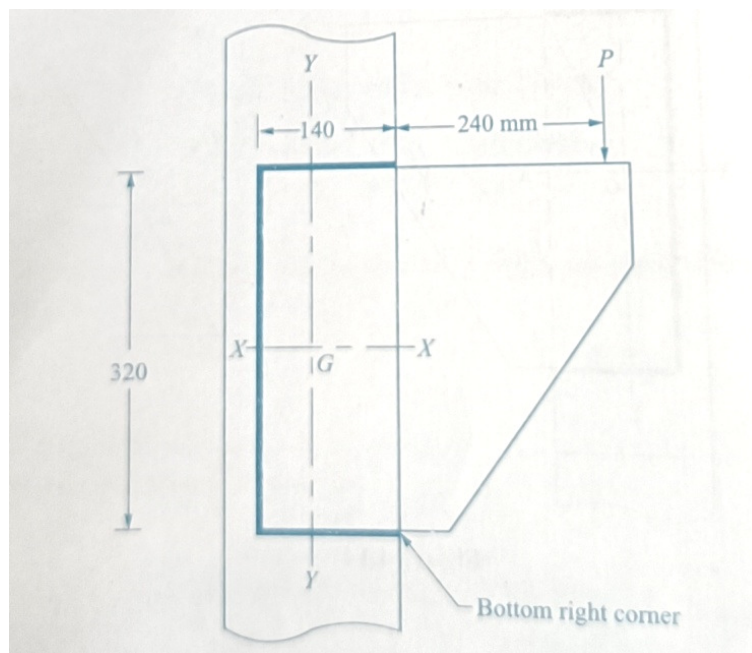## UNIT-I

1. Determine the depth of the fillet weld required to join a plate bracket with flange of a stanchion as shown in figure (Load = 50 kN)   (12M)

(OR)

2. Determine the maximum load that can be resisted by the bracket shown in the figure , by fillet welding size 6mm, if it is shop welding   (12M)

UNIT-II

3. Design a simply supported beam of span 6 m and it has to carries a factored UDL of 30kN/m (excluding the self-weight). The beam is laterally supported. Use f_y =250 MPa.   (12M)

(OR)

4. An ISMB 500 section is used as a beam over a span of 6m, with simply supported ends. Determine the Maximum factored uniformly distributed load that beam can carry if the ends are restrained against torsion but compression flange is laterally unsupported   (12M)

UNIT-III

5. Design a compression member of two channels placed toe-to-toe. The length of the compression member is 12m and carries a load of 1500kN The width over the backs of channels is 450mm. The channels are connected by double lacing. Sketch the cross-section of the column.   (12M)

(OR)

6. a) Write about different types of tension members.   (4M)

   b) Design a tension member to carry a load of 280 kN. The two angles placed back   to back with long legs out standing are desirable. The length of the member is 2.9m.8M   (8M)

UNIT-IV

7. Design an I-section purlin for an industrial building to support a galvanized corrugated iron sheet given spacing of the trusses=6 m, Inclination of the main rafter= 30°,Spacing of purlins=1.5 m, Weight of corrugated sheeting = 130 N/m^2,Live load = 0.6 kN/m^2,Wind load = 1.8kN/m^2, suction, Yield stress in steel = 250 MPa.   (12M)

(OR)

8. A hand operated 50 kN overhead crane is provided in a workshop. The details are given below: Centre to centre between gantry girders = 16 m,Span of the gantry girder = 6 m, Weight of the crane = 40 kN, Wheel spacing = 3 m, Weight of the crab = 10kN, Maximum edge distance=1 m, Design a simply supported gantry girder, assuming the flange is laterally supported   (12M)

UNIT-V

9. Design a welded plate girder to carry a superimposed load of 10 tonnes per metre on an effective span of 24 metres. Assume necessary data.   (12M)

(OR)

10. A mild steel plate girder simply supported at two ends has an effective span of 20m. It carries a dead load of 50kn/m and uniformly distributed live load of same intensity , longer than the span.Design the maximum section of the plate girder. Assume the data if any missing.   (12M)

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AR18

CODE: 18EEE321   SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular/ Supplementary Examinations, July-2022
PRINCIPLES OF SIGNALS AND SYSTEMS
(Electrical and Electronics Engineering)
Time: 3 Hours   Max Marks: 60

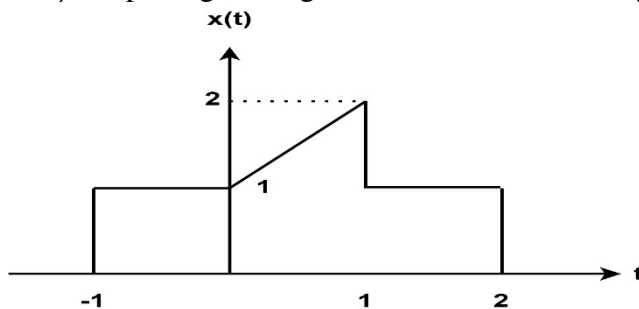Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. For the signal X(t) shown in figure. find the following signals   12M
   a) $x(t-3)$ and $x(t+3)$
   b) $x(2t+2)$ and $x(\frac{1}{2}t-2)$
   c) $x\left(\frac{5}{3}t\right)$ and $x(\frac{3}{5}t)$
   d) $x(-t+2)$ and $x(-t-2)$
   e) Express given signal in terms of elementary signals

(OR)

2. a) Explain how the time-shifting, time scaling, time reversal operations performed on signals with one example   6M
   b) Define even and odd signals?Determine the even and odd component of the signal $x(t) = \cos t + \sin t$ 6M

UNIT-II

3. a) Determine convolution 0f following two sequences by   1) Graphical method 2) Matrix second method   12M

   $x(n) = \{1,-1,2,3\}$ $h(n) = \{1,-2,3,-1\}$
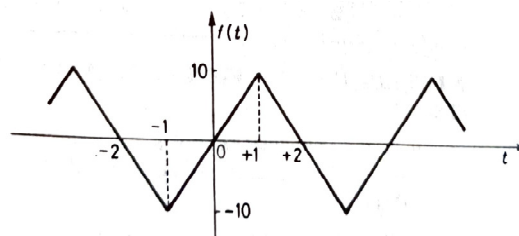
   $\uparrow$

(OR)

4. a) Derive the condition for stability in LTI systems?   6M
   b) Define convolution integral and state the properties of convolution?   6M

UNIT-III

5. Find the trigonometric Fourier series and exponential Fourier series for the waveform shown in figure below and draw their line spectrum   12M
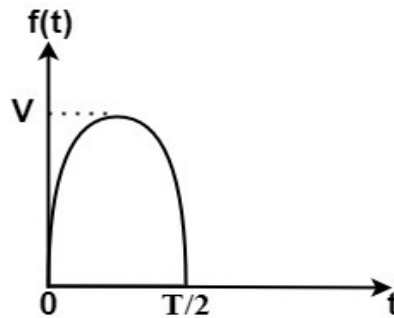
6. a) State and prove the following properties of continuous time Fourier series   6M
       i.   Linearity
       ii.   Time shifting

   b) Findthe Fourier transform of the signals   6M

   $x_1(t) = e^{-5t}u(t)$ and $x_2(t) = u(t)$

UNIT-IV

7. a) Obtain Laplace transform of following halfwave rectified sine wave shown in figure below   6M

   b) Determine the inverse Laplace of the following function.   6M

$$X(S) = \frac{1}{S(S+1)(S+3)}$$

(OR)

8. a) State and prove time convolution, differentiation in S domain properties of Laplace Transform?   6M
   b) Determine the Laplace transform of $x(t) = e^{-at}\cos(w_0 t)\,u(-t)$ and Indicate its ROC?   6M

UNIT-V

9. a) Find Z transform of following signals and ROC.   6M
       (i) $\sin\omega t$ (ii)e^{at}
   b) Find the Z - transform of the signal   6M
       i.   x(n)= a^n u(n)   ii)x(n)= a^ncos(ω0 n) u(n)?

(OR)

10. a) Determine z-transform of following sequences   6M
        i. $(0.2)^n\{u(n) - u(n-4)\}$
        ii. $\frac{a^n}{n!}$ for $n > 0$
    b) Determine inverse z-transform of   6M
    $X(z) = \frac{1}{(1+z^{-1})(1-z^{-1})^2}$, ROC:$|Z| > 1$

AR18

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular/Suppl Examinations, July, 2022

ROBOTICS
(Professional Elective-I)
(Mechanical 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. Classify the Robot based on the configuration and explain anyone with a neat sketch   12M
   (OR)
2. Explain working principle of Magnetic gripper with neat sketch   12M

UNIT-II

3. Assign the necessary frames to the robot of Figure and derive the forward kinematic equation of the robot   12M
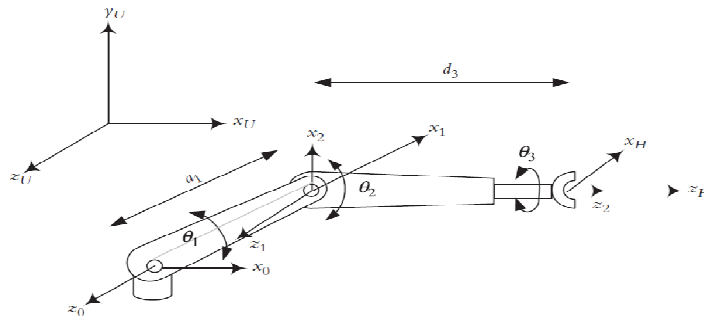
(OR)

4. What is homogenous transformation matrix? Perform the following operations for the point [6 4 2]:   12M
   i)   Rotate 60^0 about X-axis   ii) Translate 4 units along y-axis
   iii) Rotate 60^0 about x then translate 7 units along Y- axis.
   iv) Rotate 30^0 about z-axis.

UNIT-III

5. a) The first joint of a 6-axis robot go from initial angle of 30^0 to a final angle of 75^0 in 5 seconds. Using a third-order polynomial, calculate the joint angle at 1, 2, 3, and 4 seconds.   6M

   b) A single cubic trajectory is given by $\theta(t) = 6+8t+22t^2+32t^3$ and is used over the time interval from t =0.5 to t = 2.5. What are the initial and final velocities and accelerations?   6M

(OR)

6. Derive Lagrange- Euler equation for a Two link Robot manipulator   12M

UNIT-IV

7. a) Explain working principle of LVDT with a neat sketch   6M
   b) Explain working principle of Potentiometer   6M

(OR)

8. Write down the differences between online and offline programming methods.   12M

UNIT-V

9. Write short notes on a) visibility graph b) Cell decomposition approach   12M

(OR)

10. Explain about assembling and inspection applications in the manufacturing industries   12M

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AR18

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, July, 2022
INTERNET OF THINGS
(Electronics and Communication 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 in detail about the significance of IOT conceptual frame work.	6M
	b)	Discuss in detail about the role of technology behind IOT.	6M

(OR)

2.	a)	Illustrate in detail about M2M communication.	6M
	b)	Summarize in detail about the examples of IOT systems.	6M

UNIT-II

3.	a)	Elaborate in detail about the role of IOT/M2M systems layers.	6M
	b)	Discuss in detail about the importance of design standardisation in M2M systems.	6M

(OR)

4.	a)	Illustrate in detail about advantages & disadvantages of communication technologies.	6M
	b)	Explain in detail about the significance of wired and wireless technologies.	6M

UNIT-III

5.	a)	Elaborate in detail about the industrial IOT with example.	6M
	b)	Summarize in detail about actuators in IOT systems.	6M

(OR)

6.	a)	Explain in detail about the role of sensor data communication protocols in IOT.	6M
	b)	Discuss in detail about RFID technology.	6M

UNIT-IV

7.	a)	Illustrate in detail about the components of wireless sensor networks.	6M
	b)	Discuss in detail about the significance of WSN infrastructure establishment.	6M

(OR)

8.	a)	Elaborate in detail about the importance of WSN protocols.	6M
	b)	Illustrate in detail about the architecture of WSN .	6M

UNIT-V

9.	a)	Elaborate in detail about the significance of embedded hardware unit.	6M
	b)	Discuss in detail about the advantages & disadvantages of embedded software and IDE.	6M

(OR)

10.	a)	Explain about the basics of embedded computing in IOT.	6M
	b)	Summarize in detail about major advantages & disadvantages of embedded platforms for prototyping.	6M

AR18

CODE: 18ECE323   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, July, 2022
INTERNET OF THINGS
(Electronics and Communication 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 in detail about the significance of IOT conceptual frame work.	6M
	b)	Discuss in detail about the role of technology behind IOT.	6M

(OR)

2.	a)	Illustrate in detail about M2M communication.	6M
	b)	Summarize in detail about the examples of IOT systems.	6M

UNIT-II

3.	a)	Elaborate in detail about the role of IOT/M2M systems layers.	6M
	b)	Discuss in detail about the importance of design standardisation in M2M systems.	6M

(OR)

4.	a)	Illustrate in detail about advantages & disadvantages of communication technologies.	6M
	b)	Explain in detail about the significance of wired and wireless technologies.	6M

UNIT-III

5.	a)	Elaborate in detail about the industrial IOT with example.	6M
	b)	Summarize in detail about actuators in IOT systems.	6M

(OR)

6.	a)	Explain in detail about the role of sensor data communication protocols in IOT.	6M
	b)	Discuss in detail about RFID technology.	6M

UNIT-IV

7.	a)	Illustrate in detail about the components of wireless sensor networks.	6M
	b)	Discuss in detail about the significance of WSN infrastructure establishment.	6M

(OR)

8.	a)	Elaborate in detail about the importance of WSN protocols.	6M
	b)	Illustrate in detail about the architecture of WSN .	6M

UNIT-V

9.	a)	Elaborate in detail about the significance of embedded hardware unit.	6M
	b)	Discuss in detail about the advantages & disadvantages of embedded software and IDE.	6M

(OR)

10.	a)	Explain about the basics of embedded computing in IOT.	6M
	b)	Summarize in detail about major advantages & disadvantages of embedded platforms for prototyping.	6M

AR18

CODE: 18CST315   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular/Supplementary Examinations, July-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) Discuss file handling utilities   (6M)
   b) Explain disk utilities with syntax and examples.   (6M)

(OR)

2. Explain about following commands with syntax and examples.   (12M)
   (i) cp   (ii) mv   (iii) grep (iv) fgrep   (v) pg   (vi) tr

UNIT-II

3. a) Discuss system variables with examples.   (6M)
   b) Explain shell meta characters   (6M)

(OR)

4. a) Explain loop control structures in shell programming.   (6M)
   b) Discuss command line arguments and show how it supplied to program as in puts. (6M)

UNIT-III

5. a) Explain system call and how to invoke it.   (6M)
   b) Explain usage of open(), write(), close(), read()   (6M)

(OR)

6. a) Implement dup ( ) system call in unix.   (6M)
   b) Differentiate fgetc, fputc, putc.   (6M)

UNIT-IV

7. a) Elaborate hierarchy of unix processes   (6M)
   b) Distinguish zombie and orphan process   (6M)

(OR)

8. a) Explain the following kill, alaram   (6M)
   b) Discuss exec family functions   (6M)

UNIT-V

9. a) Distinguish unnamed pipe vs named pipe.   (6M)
   b) What is inter process communication in pipes.   (6M)

(OR)

10. a) Explain semaphores with suitable example.   (6M)
    b) What is shared memory and explain what are the attributes, explain it. (6M)

CODE: 18ITT301   SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular/Supplementary Examinations, July, 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)	Discuss the physical and logical design of IoT in detail.	6 M
	b)	Demonstrate the IOT Components with neat diagram.	6 M

(OR)

2.	a)	Describe the characteristics and physical design of IoT.	4 M
	b)	Summarize the various IoT enabled technologies in detail.	8 M

UNIT-II

3.	a)	List the differences between Machines in M2M and Things in IOT?	4 M
	b)	With the help of neat diagrams, explain the M2M system architecture.	8 M

(OR)

4.	a)	List the various Network Operator Requirements.	4 M
	b)	With necessary block diagram explain NETCONF.	8 M

UNIT-III

5.	a)	Explain the IoT Design Methodology.	6 M
	b)	Describe in detail the Characteristics of Python.	6 M

(OR)

6.	a)	Discuss in detail the Python Packages for IoT.	6 M
	b)	Describe in detail how IoT System can be effectively utilized for Weather Monitoring application.	6 M

UNIT-IV

7.	a)	Describe various features of a Raspberry Pi device.	6 M
	b)	Compare AutoBahn and Xively Cloud for IoT.	6 M

(OR)

8.	a)	With block diagram explain the Xively cloud for IoT.	6 M
	b)	Justify how web application can be developed by Django.	6 M

UNIT-V

9.	a)	Define Apache Spark and Apache Storm.	4 M
	b)	Illustrate IoT based smart cites with necessary block diagram.	8 M

(OR)

10.	a)	Discuss MapReduce for Batch Data Analysis.	4 M
	b)	Illustrate IoT based smart environment with necessary block diagram.	8 M

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AR16

CODE: 16CE3016   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July-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)	Design a connection for a bracket, which is connected in the plane of the flange of a column by a fillet weld to carry a factored vertical load of 200 kN acting at 300 mm. The width of the flange of the column is 200 mm. Consider f_y = 250 MPa and f_u = 410 MPa.	10 M
	b)	What are the advantages and disadvantages of welding?	4 M

(OR)

2.	a)	Design a web angle connection for a beam MB 350 @ 52.4 kg/m which transfers a factored end shear of 180 kN to the flange of the column HB 300 @ 63 kg/m. Consider f_y = 250 MPa and f_u = 410 MPa.	10 M
	b)	Explain different types of welded connections.	4 M

UNIT-II

3.	Design a simply supported I section to support the slab of a hall 9m x 24 m with beams spaced at 3m centre to centre. The thickness of the slab is 100 mm. Consider a floor finish of 0.5 kN/m^2 and a live load of 3 kN/m^2. The grade of the steel is E250. Assume that an adequate lateral support is provided to the compression flange.	14 M

(OR)

4.	Design a laterally unsupported I beam with simply supported ends of effective span of 6 m subjected to a working load of 30 kN/m. Assume that full torsional and warping restraints are provided at the supports and the load acts on the upper flange which will have destabilizing effect.	14 M

UNIT-III

5.	Design a double angle section to carry a tension of 300 kN. The end connection is to be made using M20 bolts of product Grade C and property Class 5.6. Assume that the angles are provided on both sides of the gusset. The yield and ultimate strengths of the steel are 250 MPa and 410 MPa, respectively.	14 M

(OR)

6.	Design a built-up column of the effective length of 5 m to carry an axial load of 900 kN using lacing. Design the connections using fillet welds. The grade of the steel is E250.	14 M

UNIT-IV

7. Design a suitable section for a simply supported gantry girder for the following data: 14 M
    Spacing of columns = 4 m, Crane capacity = 160 kN,
    Weight of the crane excluding the crab = 250 kN, Weight of the crab = 60 kN,
    Minimum clearance of cross travel = 0.8 m, Wheel base = 4.2 m,
    Centre to centre distance between gantry girders = 20 m,
    Height of the rail = 105 mm. Grade of the steel = E250.

    (OR)

8. Design a simply supported gantry girder of effective span 6 m to carry a crane of 14 M
    capacity 100 kN. The weight of the crane excluding the crab is 150 kN and the
    weight of the crab is 20 kN. The weight of the rail is 300 N/m. The minimum
    approach of the crane hook is 1.0 m. The wheel base is 3 m. The centre to centre
    distance between the gantry girders is 18 m. The height of the rail is 75 m. Assume
    that the gantry girder is laterally unsupported. Grade of the steel = E250.

UNIT-V

9. Design a welded plate girder 24 m in span and laterally restrained throughout. It 14 M
    has to support a uniform load of 100 kN/m throughout the span exclusive of self-
    weight. Design the girder using intermediate transverse stiffeners. Connections
    need not be designed. Use Post-Critical method for the design.

    (OR)

10. Design a welded plate girder of 18 m span using the tension field action for the 14 M
    following factored forces. Maximum moment, M_z = 3500 kNm, Maximum shear
    force = 750 kN. The girder is laterally restrained. Connections need not be
    designed.

AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech. II Semester Supplementary Examinations, July, 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) Describe with a neat sketch the working of Simple Rankine cycle. 7M
   b) The following analysis relate to coal gas: 7 M
      H_2 = 50.4%, CO = 17%, CH_4 = 20%, C_4H_8 = 2%, O_2 = 0.4%, N_2 = 6.2%, CO_2 = 4%.
      Calculate the stoichiometric air-fuel ratio. Also find the wet and dry analyses of the products of combustion if the actual mixture is 30% weak.

(OR)

2. a) What do you mean by stoichiometric air-fuel ratio? 4 M
   b) Steam is supplied to a turbine at 30 bar and 350 ^{o}C. The turbine 10 M exhaust pressure is 0.08 bar. The main condensate is heated regeneratively in two stages by steam bled from the turbine at 5 bar and 1.0 bar respectively. Calculate masses of steam bled off at each pressure per kg of steam entering the turbine and the theoretical thermal efficiency of the cycle.

UNIT-II

3. a) Describe with a neat sketch the construction and working of Stirling boiler. 7 M
   b) With a chimney of height 45 meters, the temperature of flue gases with 7 M natural draught was 370 ^{o}C. The same draught was developed by induced draught fan and the temperature of the flue gases was 150 ^{o}C. Mass of the flue gases formed is 25 kg per kg of coal fired. The boiler house temperature is 35 ^{o}C. Assuming specific heat of flue gases is 1.004 kJ/kgK, determine the efficiency of the chimney.

(OR)

4. a) Describe with a neat sketch the construction and working of Locomotive boiler. 6 M
   b) Explain with neat sketches any two boiler mountings. 8 M

UNIT-III

5. a) What do you mean by a supersaturated flow? Explain with the help of h-s diagram. 7 M

   b) A closed vessel of 0.7 m^3 capacity contains saturated water vapour and 7 M air at a temperature of 42.7 ^{o}C and a pressure of 0.13 bar abs. Due to further air leakage into the vessel, the pressure rises to 0.28 bar abs. and temperature falls to 37.6 ^{o}C. Calculate the mass of air which has leaked in. Take R = 287 J/kgK for air.

6. a) Dry saturated steam at a pressure of 11 bar enters a convergent-divergent nozzle and leaves at a pressure of 2 bar. If the flow is adiabatic and frictionless, determine the velocity at the throat and exit.   6 M

    b) Explain with neat sketches any two surface condensers.   8 M

UNIT-IV

7. a) In a stage of impulse reaction turbine provided with single row wheel, the mean diameter of the blades is 1m. It runs at 3000 rpm. The steam issues from the nozzle at a velocity of 350 m/s and the nozzle angle is 20°. The rotor blades are equiangular. The blade friction factor is 0.86. determine the power developed if the axial thrust on the end bearing of a rotor is 118 N.   7 M

    b) A single stage steam turbine is supplied with steam at 5 bar, 200 ^{o}C at the rate of 50 kg/min. it expands into a condenser at a pressure of 0.2 bar. The blade speed is 400 m/s. the nozzles are inclined at an angle of 20° to the plane of the wheel and the outlet blade angle is 30°. Neglecting friction losses, determine the power developed, blade efficiency, and stage efficiency.   7 M

(OR)

8. a) What do you mean by compounding of steam turbines? Discuss various methods of compounding steam turbines.   10 M

    b) Write a short note on bleeding of steam turbines.   4 M

UNIT-V

9. a) In an air-standard regenerative gas turbine cycle the pressure ratio is 5. Air enters the compressor at 1 bar, 300 K and leaves at 490 K. The maximum temperature in the cycle is 1000 K. Calculate the cycle efficiency, given that the efficiency of the regenerator and the adiabatic efficiency of the turbine are each 80%. Assume for air, the ratio of specific heats is 1.4. Also, show the cycle on a T-s diagram.   7 M

    b) Explain the working difference between propeller-jet, turbo-jet and turbo-prop.   7 M

(OR)

10. In a gas turbine the compressor takes in air at a temperature of 15 ^{o}C and compresses it to four times the initial pressure with an isentropic efficiency of 82%. The air is then passed through a heat exchanger heated by the turbine exhaust before reaching the combustion chamber. In the heat exchanger 78% of the available heat is given to the air. The maximum temperature after constant pressure combustion is 600 ^{o}C, and the efficiency of the turbine is 70%. Neglecting all losses expect those mentioned, and assuming the working fluid throughout the cycle to have the characteristic of air find the efficiency of the cycle.   14 M

Assume R = 0.287 kJ/kgK and γ = 1.4 and constant specific heats throughout.

AR16

CODE: 16EC3024   **SET-2**

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

TELECOMMUNICATION SWITCHING SYSTEMS
(Elective –I)
(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)	Explain in detail about simple telephone communication with neat diagrams?	7M
	b)	Discuss in brief about Switching network configurations?	7M
		(OR)	
2.	a)	Discuss in detail about various elements of switching system?	7M
	b)	Explain about cross bar switch configurations?	7M

UNIT-II

3.	a)	Write about SPC in detail?	7M
	b)	Discuss in brief about the two stage networks?	7M
		(OR)	
4.	a)	Explain the operation of Time division space switching?	7M
	b)	Distinguish between time division time switching and time multiplexed time switching?	7M

UNIT-III

5.	a)	Explain in detail about DTMF dialling?	7M
	b)	Explain about charging plan for telecommunication Service?	7M
		(OR)	
6.	a)	Explain about In channel signalling techniques?	7M
	b)	Discuss briefly about various Network traffic load parameters?	7M

UNIT-IV

7.	a)	Explain in detail about layered architecture?	7M
	b)	Discuss about various data communication circuit arrangements?	7M
		(OR)	
8.	a)	Tabulate the differences between connection oriented and connectionless protocols?	7M
	b)	Explain various topologies and transmission modes of a data communication network?	7M

UNIT-V

9.		Explain about public switched data networks?	14M
		(OR)	
10.	a)	Explain broadband ISDN configuration with neat diagrams?	7M
	b)	Write about connections and interfacing units of ISDN?	7M

AR13

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July-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 pixel?
   b) What are the types of display devices?
   c) What are the properties of ellipses?
   d) Define Boundary fill algorithm?
   e) Define Scaling transformation?
   f) Define clipping algorithm and types of clipping?
   g) Define interpolation and approximation splines?
   h) Write viewing parameters in 3D graphics
   i) What is a key frame in animation?
   j) What is morphing?

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

UNIT-I
2. a) Explain refresh cathode ray tube.   6m
   b) Explain color CRT monitors   6m

(OR)

3. a) Explain direct view storage tubes and liquid crystal displays.   6m

   b) Compare two technologies available with CRT displays (Raster scan and Random scan)   6m

UNIT-II
4. Scan convert a line from (1,2) and (8,4) using simple DDA algorithm.   12m

(OR)

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

UNIT-III
6. a) write rotation transformation matrices and rotate a polygon A(0,0), B(1,1), C (5,3) about the origin 45° in clockwise direction.   6m

   b) Prove two successive translation matrices multiplication operation is commutative   6m

(OR)

7. a) What is an out code? Explain with neat diagram.   6m
   b) Explain Cohen-Sutherland line clipping algorithm.   6m

UNIT-IV
8. a) What is view volume? Explain 3D clipping.   6m
   b) What are the various techniques in parallel projections?   6m

(OR)

9. a) Explain in detail about uniform periodic B-spline curves.   6m
   b) Discuss about 3-D transformations translation. and scaling   6m

UNIT-V
10. Discuss about octree method & BSP-tree method   12m

(OR)

11. a) Explain the Animation design sequence & computer programming languages used in animation.   6m
    b) Explain about computer animation functions & key frame systems   6m