AR18

CODE: 18CET310   SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular Examinations, March,2021
ENVIRONMENTAL ENGINEERING-I
(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)	Define infiltration. What are the factors effecting infiltration rate?	7M
	b)	List out shortly different types of water demand.	5M

(OR)

2.	a)	What do you understand by precipitation? Explain various types of precipitation.	7M
	b)	Mention various methods of determining flood discharge in a stream.	5M

UNIT-II

3.	a)	Explain various physical and chemical testing for drinking water	7M
	b)	Explain the different methods of removing of permanent hardness.	5M

(OR)

4.	a)	Explain various tests conducted in the event of installing a new water pipeline	7M
	b)	Explain the importance of Turbidity and Conductivity as water quality parameters. What kind of impurities they generally indicate?	5M

UNIT-III

5.	a)	Explain what is meant by flocculation. Explain the mechanism of floc formation. Sketch any one type of flocculator with mechanical agitator.	7M
	b)	Propose some use and disposal options for water treatment sludges collected in the settling tanks following flocculation basins.	5M

(OR)

6.	a)	Explain shortly different types of sedimentation with examples.	6M
	b)	With a neat sketch explain different types of sedimentation basin zones.	6M

UNIT-IV

7.	a)	Explain the (i) Double Chlorination (ii) Break point chlorination (iii) Super Chlorination (iv) De-chlorination.	7M
	b)	Explain the types of chlorination.	5M

(OR)

8.	a)	Explain the various methods of disinfection?	5M
	b)	Differentiate between rapid sand filters and slow sand filter.	7M

UNIT-V

9.	a)	Explain the problems in the maintenance of water distribution network.	7M
	b)	Explain the types of reservoirs in the water distribution.	5M

(OR)

10.	a)	Explain the different types of water distributory systems.	8M
	b)	What are the ideal requirements of good water distribution network?	4M

AR18

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular Examinations, March,2021

POWER ELECTRONICS
(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) Draw and explain the operation of cross-sectional structure of power MOSFET.   8M
   b) Calculate the number of SCRs, each with rating of 500V, 75A required in each branch of a series and parallel combination for a circuit with the total voltage and current rating of 7.5kV and 1000A .Assume derating factor of 14%.   4M

(OR)

2. a) Describe the different modes of operation of a thyristor with the help of its static V-I characteristics.   6M
   b) Explain different voltage and current ratings of Thyrisor.   6M

UNIT-II

3. a) Explain three phase half wave convertor with R-load   6M
   b) Describe the working of single phase fully controlled bridge converter in the following two modes:
   (i)Rectifying mode (ii)Inversion mode   6M

(OR)

4. a) Discuss the effect of source inductance on the performance of a single phase fully controlled converter, indicating clearly the conduction of various thyristors during one cycle.   6M
   b) Explain single phase semi convertor with R-load.   6M

UNIT-III

5. a) A three phase half wave converter is operated from a three phase star connected 220V,50Hz supply and load resistance is R=10Ω.If the average output voltage is 25% of the maximum possible average voltage, determine:
   (i)Delay angle (ii)Rectification efficiency (iii)Transformer utilization factor   6M
   b) Explain with a neat circuit diagram the operation principle of dual converter with circulating current.   6M

(OR)

6. a) Draw the circuit diagram of a three phase full wave bridge 6M
converter with RL load. Explain its working principle at α=30°.
   b) Write any five advantages of three phase bridge controlled 6M
rectifiers over three phase midpoint controlled rectifiers.

UNIT-IV

7. a) Describe the operation of single phase half wave a.c.voltage 6M
regulator with the help of voltage and current waveforms. Also
derive the expression for average value of output voltage.
   b) A single phase full wave ac voltage controller is connected with a 6M
load of R=5Ω with an input voltage of 230V,50Hz .When the
firing angle of thyristors is 60^0.Determine the RMS output
voltage, power output at load and input power factor.

(OR)

8. a) Discuss the operating principle of single phase to single phase 9M
step down cyclo converter using bridge converter. Mention the
conduction of various thyristors in the waveforms.
   b) Explain the advantages of cyclo convertor.   3M

UNIT-V

9. a) Define Chopper. With the help of circuit diagram, explain the 6M
working of step up chopper.
   b) Explain single phase bridge type inverter with R-load   6M
(OR)
10. a) Compare between voltage source and current source inverters.   6M
    b) With the help of neat circuit diagram and waveforms, explain 6M
briefly the operation of three phase bridge inverter with resistive
load in 180^0 conduction mode.

AR18

CODE: 18MET308   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular Examinations, March,2021
HEAT AND MASS TRANSFER
(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
NOTE: Heat and Mass Transfer Data Book by C.P. Kothandaraman must be supplied in the examination hall

UNIT-I

1. a) Briefly discuss different modes of heat transfer and their governing laws.   6m
   b) A composite wall is formed of a 2.5 cm copper plate (k = 355 W/m-K), a 3.2 mm   6m
   layer of asbestos (k = 0.110 W/m-K) and a 5 cm layer of fiber plate (k = 0.049 W/m-K). The wall is subjected to an overall temperature difference of 560°C (560°C on the Cu plate side and 0°C on the fiber plate side). Estimate the heat flux through this composite wall and the interface temperature between asbestos and fiber plate.

(OR)

2. a) Derive an expression for heat flow through a composite cylinder with two layers of   6m
   insulation and taking into account the film heat transfer coefficients on the inside and outside surface of the composite cylinder.
   b) A composite slab consists of 250mm fire clay brick (k = 1.09 W/mk) inside, 100   6m
   mm fired earth brick (k = 0.26 W/mK) and the outer layer of common brick (k = 0.6 W/mK) of thickness 50 mm. If the inside surface is at 1200 ^{0}C and outside surface is at 100 ^{0}C find (i) heat flux (ii) the temperature of the interfaces and (iii) the temperature at 200 mm from the outer surface of the wall.

UNIT-II

3. a) Derive expression for temperature and heat dissipation in a straight fin of   6m
   rectangular profile for the fin insulated at the tip.
   b) A 6 cm long copper rod (k = 300 W/m-K) 6mm in diameter is exposed to an   6m
   environment at 20°C. The base temperature of the rod is maintained at 160°C. The heat transfer co-efficient is 20 W/m^2-K. Calculate the heat loss from the rod, efficiency and effectiveness of the rod.

(OR)

4. a) For a transient heat conduction with negligible internal resistance, Prove that   6m
   $(\theta/\theta_i) = \exp(-B_i F_0)$ where $\theta = (T-T_\infty)$ and $\theta_i = (T_i-T_\infty)$

   b) A stainless steel rod of outer diameter 1cm and length 1m originally at a   6m
   temperature of 320 ^{0}C is suddenly immersed in a liquid at 120 ^{0}C for which the convective heat transfer coefficient is 100 W/m^{2}K. Determine the time required for the rod to reach a temperature of 200 ^{0}C?

UNIT-III

5. a) Briefly explain the growth of Hydrodynamic and Thermal boundary layers over a flat plate.   4m

   b) A 6-m-long section of an 8-cm-diameter horizontal hot water pipe passes through a large room whose temperature is 20°C. If the outer surface temperature of the pipe is 70°C, determine the rate of heat loss from the pipe by natural convection.   8m

$T_\infty = 20°C$

$70°C$

$D = 8\ cm$

$6\ m$
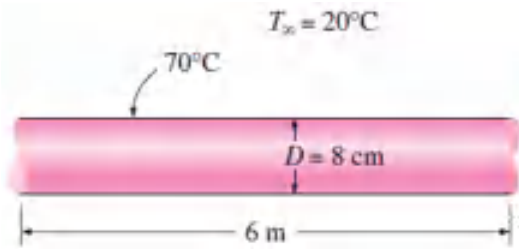
(OR)

6. a) Briefly explain the Natural convection phenomena on a Vertical hot plate with the help of velocity and temperature profiles.   4m

   b) A 40cm long glass plate is hung vertically in the air at 30^0C while its temperature is maintained at 80^0C. 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 4m/s, estimate the boundary layer thickness at its trailing edge   8m

UNIT-IV

7. a) Stating the assumptions made derive the expression for effectiveness of a parallel flow heat exchangers   6m

   b) In a shell and tube heat exchanger with 8 tubes passes through the shell, hot engine oil available at 160^0C flow through the shell and water through the tubes. Water at the rate of 2.5 kg/s is heated from 150^0C to 80^0C and there are ten tubes per pass. The diameter of each tube is 2.5cm and the average convection coefficient h_o = 400 W/m^2 K. Determine the flow rate of oil if its exit temperature is to be 100^0C. Also compute the length of the tubes.   6m

(OR)

8. a) Draw the temperature variations across the heat exchanger for counter flow arrangement and also derive an expression for its LMTD.   6m

   b) In a counter flow double pipe heat exchanger ,water is heated from 25°C to 65°C by oil with specific heat of 1.45 kJ/kg K and mass flow rate of 0.9 kg/s. The oil is cooled from 230°C to 160°C. If overall Heat transfer coefficient is 420 W/m2 °C. calculate following: a) The rate of heat transfer b) The mass flow rate of water , and c) The surface area of heat exchanger.   6m

UNIT-V

9. a) State and Prove Kirchoff's law of radiation.   4m

   b) Two very large parallel plates are maintained at uniform temperatures $T_1 = 800K$ and $T_2 = 500K$ and have emissivities $\varepsilon_1 = 0.2$ and $\varepsilon_2 = 0.7$, respectively, as shown in Figure. Determine the net rate of radiation heat transfer between the two surfaces per unit surface area of the plates.   8m

$\varepsilon_1 = 0.2$
$T_1 = 800\ K$

$\dot{Q}_{12}$

$\varepsilon_2 = 0.7$
$T_2 = 500\ K$
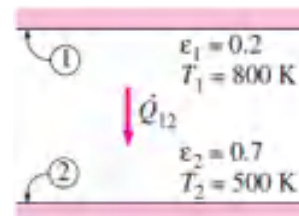
(OR)

10. a) Briefly explain the following Non dimensional numbers used Mass transfer (i) Sherwood number (ii) Schmidt number   4m

    b) A vessel contains a binary mixture of O_2 and N_2 with partial pressures in the ratio of 0.21 and 0.79 at 15 ^0C. The total pressure of the mixture is 1.1 bar. Calculate the following (i) Molar concentrations (ii) Mass densities (iii) Mass fractions and (iv) Molar fractions of each species.   8m

AR18

CODE: 18ECT311   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular Examinations, March-2021

ANTENNAS AND WAVE PROPAGATION
(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.		Utilize the necessary conditions to derive the field equations, power radiated and radiation resistance for a half wave dipole.	12M

(OR)

2.	a)	Explain about the terms i) Radiation Intensity ii) Directivity iii) Effective aperture area	6M
	b)	Identify the current element and solve the power radiated and radiation resistance for an antenna which has an effective length of $\lambda/75$ and the current that flows through it is 450 Amps at a frequency 40 KHz.	6M

UNIT-II

3.	a)	State and explain Principle of pattern multiplication for 4 isotropic elements with neat diagrams?	6M
	b)	Derive the normalized field equation of two point sources with equal amplitude and opposite phase.	6M

(OR)

4.	a)	Compare the binomial linear array with uniform linear array	6M
	b)	Describe a 4-element broadside array of $\lambda/2$ spacing and find its radiation pattern and Beam width?	6M

UNIT-III

5.	a)	Explain the working and radiation mechanism of rhombic antenna with necessary figures, also explain the effect of ground.	6M
	b)	Compare the requirements and radiation characteristics of resonant and non-resonant radiators.	6M

(OR)

6.	a)	Sketch and explain the constructional features of a helical antenna. Distinguish between axial and normal mode.	6M
	b)	Illustrate the effect on the radiation pattern when a long wire which is cascaded in the form of V Antenna with relevant diagrams	6M

UNIT-IV

7.	a)	Define Horn antenna? Explain the different types of horn antennas with neat figures. Briefly explain the operation of horn antenna?	6M
	b)	Describe the radiation pattern method for antenna mesurement.	6M

(OR)

8.	a)	Calculate the half power and null to null beam widths of a parabolic reflector whose aperture diameter is 6λ. Also find its power gain.	6M
	b)	Draw the measurement set-up for 2-antenna and 3-antenna Gain methods and explain in detail ?	6M

UNIT-V

9.	a)	Derive an Expression for the refractive index(n) of Ionosphere in terms of 'N' and frequency'f'?	6M
	b)	Discuss the following terms: i)Skip Distance ii)Critical frequency iii)MUF	6M

(OR)

10.	a)	Explain about Ionospheric characterization and Ionospheric layers.	9M
	b)	Explain about Duct propagation.	3M

AR18

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 different topologies of the network.	(6M)
	b)	Explain the TCP/IP model.	(6M)

(OR)

2.	a)	Discuss Port Address.	(6M)
	b)	Explain Logical Address.	(6M)

UNIT-II

3.	a)	Discuss sliding window protocols.	(6M)
	b)	Explain data link protocols.	(6M)

(OR)

4.	a)	Explain about ALOHA.	(6M)
	b)	Explain the working of CSMA protocol.	(6M)

UNIT-III

5.	a)	With an example explain the distance vector routing algorithms used in computer networks.	(6M)
	b)	Classify the static and dynamic routing algorithms. Explain the basic concept of flooding.	(6M)

(OR)

6.	a)	What are the general principles of congestion control ? Explain.	(6M)
	b)	Explain the Services of Transport layer.	(6M)

UNIT-IV

7.	a)	Explain UDP operation and its uses.	(6M)
	b)	Discuss multiplexing.	(6M)

(OR)

8.	a)	Explain the phases of TCP Connection.	(6M)
	b)	Draw and explain each field in the TCP Segment header.	(6M)

UNIT-V

9.	a)	Write about Electronic mail in detail.	(6M)
	b)	Explain the working of DNS.	(6M)

(OR)

10.	a)	Explain static web document.	(6M)
	b)	Discuss about HTTP.	(6M)

AR16

CODE: 16CE3013   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular & Supplementary Examinations, March-2021
DESIGN OF CONCRETE 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) Explain the concept of limit state design in reinforced concrete members   9M

   b) Draw the stress block parameters of rectangular RCC beam.   5M

(OR)

2. Design a simply supported R.C beam of rectangular cross section supported by column 300x300mm. Assume the service loads (DL + LL) 5kN/m and effective span of beam 2m.Use M20 concrete and Fe415 steel. Apply necessary design checks for strength and serviceability conditions. Detail the reinforcement of beam with neat sketch   14M

UNIT-II

3. Design a R.C beam of 350x800mm depth subjected to factored bending moment 215kN-m. Use M_{20} grade concrete and Fe415 grade steel. Assume the reinforcement bars with clear cover 50mm on all sides. Design and Detail the reinforcement of beam with neat sketch and necessary design checks   14M

(OR)

4. Design for shear, a rectangular beam of cross section 250mmx500mm with an effective span of 6m Width of the support on each side shall be 350mm.The superimposed load on the beam is 75KN/m. use M20 concrete and Fe415steel. Draw the reinforcement details accordingly.   14M

UNIT-III

5. Design a R/C slab of class room dimension 4x6m supported on four walls 300mm width and carry live load 3kN/m^2. Assume the corners of slab held down, Apply necessary design checks and Neatly sketch detail the slab reinforcement.(Concrete grade M25 and Steel grade Fe415).   14M

(OR)

6. Design a waist slab of stair case for clear span 3m between the landings (each of size 1mx1m). Assume the size of stairs riser 150mm and thread 250mm and monolithic casted with waist slab to carry live load 3kN/m^2. Design the slab and reinforcement include checks Neatly sketch detail the slab reinforcement.(use Concrete grade M25 and Steel grade Fe415). **14M**

UNIT-IV

7. a) Design a R/C column hinged at top and bottom to carry axial load 200kN.. Assume the clear height of column 3.6m. Use steel grade Fe500, M30 grade concrete and clear cover of steel 40mm.Apply necessary design checks for strength and serviceability conditions. Detail the reinforcement of column with neat sketch **10M**

    b) Explain the I.S code provisions for slender columns **4M**

(OR)

8. a) Find the maximum moment carry capacity of square column of 300x300mm size fixed at bottom and free at top to carry axial load 250kN at 100mm eccentricity in both X and Z directions. Assume the column provided with reinforcement 4nos 20mm dia bars each in tension and compression side. Use clear cover 50mm and steel Fe415, M20 grade concrete **8M**

    b) Explain the types of failures in short columns. What are the I.S code limitations for short column effect **6M**

UNIT-V

9. a) Neatly explain with sketch about pressure distribution of footing in clay soils and sandy soils **6M**

    b) Design an isolated rectangular footing of uniform thickness to receive axial load 600kN and moment 15kN-m from column size 300x300. Assume safe bearing capacity of soil 160kN/m^2 .Use concrete grade M25, steel Fe415. Do the necessary design checks and sketch the detailing of reinforcement **8M**

(OR)

10. Design an isolated rectangular footing (pedestal type) to carry axial load 400kN from column size 300x300. Assume safe bearing capacity of soil 180kN/m^2 .Use concrete grade M20, steel Fe415. Do the necessary design checks and sketch the detailing of reinforcement **14M**

AR16

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. Compare the features of BJT, MOSFET & IGBT.   14M

(OR)

2. a) List & explain various turn on methods of SCR.   7M
   b) Explain two transistor analogy of SCR.   7M

UNIT-II

3. a) Compare the performance of single phase fully controlled bridge converter feeding RL load without freewheeling diode and single phase semi converter.   7M
   b) Analyze the operation of single phase fully controlled converter feeding RL load under continuous conduction.   7M

(OR)

4. a) Explain the operation of single phase half controlled converter with RL load.   7M
   b) Describe the operation of single phase fully controlled bridge converter with R-load.   7M

UNIT-III

5. A three phase full converter bridge is connected to supply voltage of 230 V per phase and a frequency of 50Hz. The source inductance is 4mH. The load current on dc side is constant at 20A. If the load consists of a dc voltage source of 400V having an internal resistance of 1Ω, Calculate firing angle delay and overlap angle.   14M

(OR)

6. a) Describe the operation of three phase three pulse converter with neat circuit diagram & waveforms.   10M
   b) Mention few applications of four quadrant converters.   4M

UNIT-IV

7. a) Explain AC voltage controller with R-load.   7M
   b) Explain the operation of step down chopper.   7M

(OR)

8. Explain the operation of single phase step down bridge type cyclo-converter assuming R load. Draw relevant waveforms.   14M

UNIT-V

9. Explain various control strategies of choppers.   14M

(OR)

10. a) List various PWM techniques employed in inverters.   7M
    b) Explain sinusoidal pulse width modulation in detail.   7M

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AR16

CODE: 16ME3015   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, March-2021
METAL CUTTING AND MACHINE TOOLS
(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 cutting tool geometry of single point cutting tool with neat diagram.   10M
    b) Explain terms in Taylor's tool life equation. In the Taylor's tool life equation, $VT^n=C$, the value of n=0.5. The tool has a life of 180 minutes at a cutting speed of 18m/min. If the tool life is reduced to 45 minute then what will be the cutting speed?   4M

(OR)

2. a) Give in summary form the factors influencing formation of various types of chips   7M
    b) What are the adverse effects are of built up edge? How can we avoid them?   7M

UNIT-II

3. a) What are the difference between a face plate and a drive plate? Explain when you use them.   7M
    b) Differentiate between Capstan and turret lathes   7M

(OR)

4. a) What are machining operations that can be performed on a centre lathe? Explain them with sketches   10M
    b) With a neat sketch explain thread cutting operation on lathe.   4M

UNIT-III

5. a) Sketch a few work holding devices used in drilling machine   7M
    b) A shaper is operated at 130 cutting strokes per minute and is used to machine a work piece of 300mm in length and 122mm in width. Use a feed of 0.7mm per stroke and a depth of cut of 5mm. Calculate the total machining time for machining the component. The forward stroke is completed in 220^0. Calculate the percentage of time when the tool is not contacting the work piece   7M

(OR)

6. a) Discuss the mechanisms involved in a shaper and a planning machine   7M
    b) Sketch and explain the slotting machine working principle and its parts.   7M

UNIT-IV

7. Explain the abrasive jet machining process with neat diagram and discuss about its process parameters, advantages, disadvantages and applications   14M

(OR)

8. a) Discuss in detail about internal cylinder grinding   4M
    b) Explain how to specify the grinding wheel and discuss in detail about each parameter   10M

UNIT-V

9. a) Explain the different types of tolerances used in engineering practice with neat sketches   9M
    b) Explain the following terms   5M
        i)   Tolerance (ii) hole basis and shaft basis system
        (iii) Upper deviation, Lower deviation and Fundamental deviation

(OR)

10. a) Explain the terms used Go-gauge and No Go gauge   7M
    b) Discuss in detail about profile and position gauges   7M

AR16

CODE: 16HS3005   SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular & Supplementary Examinations, March-2021

MANAGERIAL ECONOMICS AND MANAGEMENT SCIENCE
(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) Define Managerial Economics. Explain the nature of Managerial Economics.　7M
   b) What is Elasticity of Demand? Explain the significance of elasticity of demand.　7M
   (OR)
2. a) Define Demand? Explain the various determinants of demand.　7M
   b) What is demand forecasting? Explain the various survey methods of forecasting.　7M

UNIT-II

3. a) What are Laws of Variable Proportions? Explain with an illustration.　7M
   b) What is Break Even Analysis? Explain its significance and limitations.　7M
   (OR)
4. a) Define production function? Explain the Cobb-Douglas production function.　7M
   b) What are economies of scale? Explain the internal economies of scale.　7M

UNIT-III

5. a) What are the features of Monopolistic competition?　7M
   b) How would you determine the price and output in a monopolistic competition?　7M
   (OR)
6. a) Define Market? Explain the features of market structure.　7M
   b) Explain the different strategy based pricing methods.　7M

UNIT-IV

7. a) Discuss in detail the significant contribution made by F.W. Taylor towards management.　7M
   b) Briefly explain Maslow's Hierarchy of Human Needs theory of motivation.　7M
   (OR)
8. a) Define Management? Explain the importance of Management in an organisation.　7M
   b) Why does social responsibility become an important facet of management in the present times? How is it discharged?　7M

UNIT-V

9. a) Define Human Resource Management? Explain the various functions of a HR Manager.　7M
   b) Discuss the various Channels of distribution used in marketing with appropriate examples.　7M
   (OR)
10. a) Describe different stages of product life cycle and marketing strategies required at each stage.　7M
    b) What do you understand by job evaluation? Explain in detail different methods of job evaluation.　7M

1 of 1

AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Regular & Supplementary Examinations, March-2021
COMPUTER NETWORKS
(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) Explain the process of exchanging data Using OSI model with proper schematic diagram.   7

   b) Define the usage of following addresses:
   (i) Physical Address (ii) Logical Address (iii) Port Address.   7
   Explain which layers meant to allow these addresses in TCP/IP model.

(OR)

2. a) Explain several physical structures and their characteristics. defined in any computer   7
   network.
   b) Explain the detailed Layered architecture model for peer to peer OSI based data model.   7

UNIT-II

3. a) Explain various flow control mechanisms and their processes in detail with neat sketch.   7
   b) Differentiate ALOHA protocol from CSMA protocols in terms of their operation? Which   7
   protocol can perform better results? Evaluate it.

(OR)

4. a) Explain the HDLC protocol and Elaborate what are parameters were used to characterize it.   7
   b) Explain various techniques for detecting errors during passage of data in computer networks.   7
   Elaborate it.

UNIT-III

5. a) Explain the clear processes of Virtual-Circuit and Datagram Subnets concepts in detail.   7
   Which process is better than other? Give justification?
   b) Discuss about Distance Vector Routing and Flooding techniques with operation. Decide   7
   which routing algorithm shows better performance. Explain it.

(OR)

6. a) Discuss General Principles of Congestion Control and its Prevention Policies.   7
   b) Why IP is needed in Network model? Explain the all fields of IPv4 packet header format   7
   with neat sketch.

UNIT-IV

7. a) List out the various functions defined and developed in Transport layer. Explain each   7
   functions in detail.
   b) Explain that how will you show that the UDP protocol contains connectionless services then   7
   prove it with the help of datagram header.

(OR)

8. a) Why TCP is most familiarly used protocol in Transport layer? Explain TCP services and   7
   features in detail.
   b) Explain TCP connection Establishment process in detail with neat sketch.   7

UNIT-V

9. a) Write short notes on DNS mechanism and SNMP mechanism.   7
   b) Explain E-mail architecture with detailed procedure for handling message travelling from X   7
   Gmail user to Y Gmail user.

(OR)

10. a) Distinguish between Static Web Document and Dynamic Web Document in terms of their   7
    features, merits, demerits.
    b) Describe the Hyper Text Transfer protocol mechanism.   7