Q.P. Code: 257612 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: GEO-TECHNICAL ENGINEERING -1 (CE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Obtain relationship between bulk unit weight, dry density and water content. 7M
   (b) The undisturbed soil at a pit has a water content of 15%, void ratio 0.60 and specific gravity of 2.70. The soil from the pit is to be used to construct a rolled fill having a finished volume of 35000m^3. The soil is to be transported from the pit to the construction site by trucks having a net carrying capacity of 6tons. After completion, the fill soil has a water content of 18% and dry density of 1.70 g/cm^3. Calculate the total number of trips the truck will have to make to construct the rolled fill 7M

(OR)

2. (a) Discuss the characteristics and construction of Kaolinite, Montmorillonite and Illite mineral groups. 7M
   (b) The values of liquid limit, plastic limit and shrinkage limit of a soil were reported as follows: wL = 65%, wp = 35%, ws = 18%. If a sample of this soil at liquid limit has a volume of 50 cc and its volume measured at shrinkage limit was 20 cc, determine the specific gravity of the solids. What is its shrinkage ratio? 7M

UNIT – II

3. (a) A falling head permeability test was carried out on a silty clay using a standard permeameter having sample of 12.7cm long. Diameter of the sample and the stand pipe were 10cm and 1.0cm respectively. The water level in the stand pipe was observed to fall from 80cm to 50cm in 15 minutes. Determine the co-efficient of permeability of the soil and height of water level in the stand pipe after another 15 minutes. 7M
   (b) How would you determine (derive expressions) the average permeability (k_H & k_V) of a soil deposit consisting of 3 different layers of thickness H_1, H_2, H_3 having coefficient of permeability values k_1, k_2, k_3, respectively? 7M

(OR)

4. (a) What is quick sand condition and derive the relationship for critical hydraulic gradient of sandy soil. 7M
   (b) Derive the expression to determine the capillary rise in a soil deposit 7M

UNIT – III

5. (a) Compare and contrast Boussinesq's and Westergaard's theories? 7M
   (b) A strip load of considerable length and 1.50 m width transmits a pressure of 150 kN/m^2 to the underlying soil. Determine the maximum principal stress at 0.75 m depth below the footing, if the point lies (i) directly below the centre of the footing, and (ii) directly below the edge of the footing. 7M

(OR)

6. (a) Derive an expression of vertical stress for normal load over a circular area. 7M
   (b) Explain how the vertical pressure determined due to strip load? 7M

UNIT – IV

7. (a) Explain the Casgrandes method for the determination of pre-consolidation pressure. 7M

   (b) Two clay specimens A and B, of thickness of 2cm and 3cm, have equilibrium voids ratios 0.68 and 0.72 respectively under a pressure of 200kN/m^2. If the equilibrium void ratios of two soils reduced to 0.5 and 0.62 respectively. When the pressure was increased to 400 kN/m^2, find the ratio of the coefficient of permeability of the two specimens. The time required by the specimen A to reach 40 percent degree of consolidation is 1/4 of that required by specimen B for reaching 40 percent degree of consolidation? 7M

(OR)

8. (a) Differentiate between standard and modified proctor test? 7M

   (b) Explain briefly the laboratory consolidation test? 7M

UNIT-V

9. (a) Define Slow, Quick and Consolidation Quick Triaxial test with their application to field conditions. 7M

   (b) A direct shear test, when conducted on a remolded sample of sand, gave the following observations at the time of failure: Normal load = 288 N; shear load = 173 N. The cross sectional area of the sample = 36 cm^2. Determine: (i) the angle of internal friction, (ii) the magnitude and direction of the principal stresses in the zone of failure. 7M

(OR)

10. (a) When do you use the following shear tests and give reasons: 7M
    (i) shear box; (ii) vane shear test; (iii) unconfined compression test .

    (b) In an unconfined compressive test, the sample was failed for a load of 26 kg with a strain of 12%. The size of the specimen are 38 mm diameter and 75 mm height. The failure angle will be 45^o. Determine shear parameters. 7M

Q.P. Code: 257812 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: HYDRAULIC MACHINERY (CE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1.	(a)	What is dimensional analysis? Also explain the different methods	7M
	(b)	The discharge Q through an orifice depends on diameters d of the orifice, head H above the orifice, s is the density and viscosity μ of liquid and acceleration g due to gravity. Show by dimensional analysis that $Q = cda\sqrt{2gH}$, where Cd is the non-dimensional coefficient of discharge.	7M
		(OR)	
2.	(a)	Explain the different types of similarity in brief	7M
	(b)	Find the expression for the power P developed by a pump when P depends upon the head H, the discharge Q and specific weight W of the fluid.	7M

UNIT – II

3.	(a)	Find the expression for the force exerted by the jet on a flat vertical plate moving in the direction of the jet.	7M
	(b)	A jet of diameter 150mm strikes a flat plate normally with a velocity of 20m/sec. The plate is moving with a velocity of 5m/sec in the direction of the jet and away from the jet. Find i) The force exerted by the jet on the plate, ii) Wok done by the jet on the plate per second	7M
		(OR)	
4.	(a)	Derive the expression for force exerted by a jet on stationary inclined flat plate.	7M
	(b)	A jet of water of diameter 75mm moving with a velocity of 25m/s strikes a fixed plate in such a way that the angle between the jet and the plate is 600. Find the force exerted by the jet on the plate and in the direction normal to the plate and in the direction of the jet	7M

UNIT – III

5.		Obtain an expression to the work done per second by water on the runner of a Pelton wheel. Hence derive an expression for maximum efficiency of the Pelton wheel giving the relationship between the jet speed and the bucket speed	14M
		(OR)	
6.		An inward flow reaction turbine has an exit diameter of 1metre and its breadth at inlet is 250*mm*. If the velocity of flow at inlet is 2*m/s*, find the mass of water passing through the turbine per second. Assume 10% of the area of flow is blocked by blade thickness. If the speed of the runner is 210 r.p.m and guide blades make an angle of 10^0 to the wheel tangent, draw the inlet velocity triangle and find the runner vane angle at inlet, the velocity of wheel at inlet, the absolute velocity of water leaving the guide vanes and the relative velocity of water entering the runner blade.	14M

UNIT – IV

7.		A centrifugal pump is running at 1000 r.p.m The outlet vane angle of the impeller is450 and velocity of flow at outlet is 2.5m/s. The discharge through the pump is 200lps when the pump is working against a total head of 20m. If the monometric efficiency of the pump is 80%. Find the diameter of the impeller and the width of the impeller at outlet	14M
		(OR)	
8.	(a)	Explain the principle behind a centrifugal pump and also explain its working with a neat sketch.	7M
	(b)	The water is to be pumped out of a deep well under a total head of 90m. A number of identical pumps of design speed 1000 rpm and specific speed 900 rpm with a rated capacity of 150 lps are available. How many pumps will be required and how should they be connected?	7M

UNIT-V

9.		Explain the working of reciprocating pump? Draw reciprocating pump with components	14M
		(OR)	
10.	(a)	Explain the types of reciprocating pump with work done?	7M
	(b)	Write the difference between reciprocating pump and centrifugal pump	7M

Q.P. Code: 258012 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: BUILDING CONSTRUCTION (CE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1.	(a)	Describe about various principles of planning of Buildings?	7M
	(b)	Explain about building bye laws?	7M
		(OR)	
2.		Explain in detail about plan, section, and elevation in drawing of a residential building.	14M

UNIT – II

3.		Explain about different types of Bonds related to brick masonry with neat sketches.	14M
		(OR)	
4.	(a)	Discuss in detail about reinforced masonry and concrete masonry.	7M
	(b)	List out various types of walls and detail about the importance of partition wall.	7M

UNIT – III

5.		Explain about different types of floors and mention various materials used for flooring.	14M
		(OR)	
6.	(a)	Explain about the importance of roofs and explain its types.	7M
	(b)	Explain about different types of staircases.	7M

UNIT – IV

7.		What is damp proofing? Explain the methods of damp proofing for foundations, floors and roofs?	14M
		(OR)	
8.	(a)	Explain various materials used in doors and windows of buildings?	7M
	(b)	Explain about various principles of acoustical design of buildings?	7M

UNIT-V

9.	(a)	Define Green Building and explain various objectives of green building?	7M
	(b)	Explain sustainable site design for green buildings.	7M
		(OR)	
10.		What is an intelligent building? What are the benefits of intelligent buildings?	14M

Q.P. Code: 258212 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: SURVEYING - II (CE)

Time : 3 Hours | Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Explain curvature and refraction corrections are applied in linear measure. 7M

   (b) Find the R.L. of top of a chimney from the following data 7M

Inst. station	Reading on BM	Vertical angle	R.L. of B.M	Dist. AB in	Remarks
A	1.575	$10^o\ 12'$	543.075	30 m	A and B are in line with the top of chimney
B	1.260	$8^o\ 20'$			

   Also find the distance between chimney and station A. Draw a neat sketch.

(OR)

2. (a) Explain different methods for base line measurement. 7M

   (b) Two stations A and B are 72 km apart. The elevations of the stations A and B are 372m and 458m respectively. The intervening ground has a uniform elevation of 328m. Find the height of the signal required at B if the line of sight has to pass at least 3m above the ground, at all points. 7M

UNIT – II

3. (a) Explain briefly the linear methods of setting out circular curves. 7M

   (b) Two straight roads meet at an angle of 130^o. Calculate the necessary data for setting out a circular curve of 15 chains radius between the roads by the Radial offsets method. The length of one chain is 20m. 7M

(OR)

4. (a) Explain the requirements of a transition curve and how the length of transition curve is decided. 7M

   (b) A parabolic vertical curve is to be set out connecting two uniform grades of +0.5% and -0.5%. The chainage and reduced level of point of intersection are 1500 m and 235.550m respectively. The rate of change of grade is 0.1% per chain of 20 m. Calculate the reduced levels of the various station pegs. 7M

UNIT – III

5. (a) Explain the objectives of hydrographic surveying. 4M

   (b) Define the term sounding. Explain the different methods of locating sounding positions. 10M

(OR)

6. (a) Explain the working principle of Global Positioning System. 7M

   (b) Explain types of GPS receivers with their applications. 7M

UNIT – IV

7. (a) Define the terms: Tilted photograph, Principal point, Exposure station, Picture plane. 6M

   (b) On an aerial photograph taken with a camera having a focal length of 150mm,an 1800m long line PQ had a length of 125 mm. The average elevation of the line, PQ was 290m. Find the scale of another area in the same photograph with an average elevation of 950m. 8M

(OR)

8. (a) Describe the equipment required for aerial photogrammetry and explain the procedure followed to take aerial photographs. 7M

   (b) Explain, how the different features and objects are identified in aerial photographs, while applying photo-interpretation. 7M

UNIT-V

9. (a) Explain the steps involved in setting up Total station for taking observations. 7M

   (b) Explain the features and capabilities of Total station 7M

(OR)

10. (a) Explain the procedure and applications of built-in programmes REM & MLM in Total station. 7M

    (b) Explain how you would mark the layout of the given project using Total Station. 7M

Q.P. Code: 258412 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: MECHANICS OF MATERIALS - I (CE)

Time : 3 Hours | Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Define, i) Hooke's law, ii) True stress, iii) Modulus of elasticity, iv) Bulk modulus, v) Resilience, vi) Ductility, vii) Toughness — 7M

   (b) Derive an expression for the extension of the tapering bar whose diameter d_1 at one end tapers linearly to a diameter d_2 in a length L, under an axial pull P & young's modulus E. — 7M

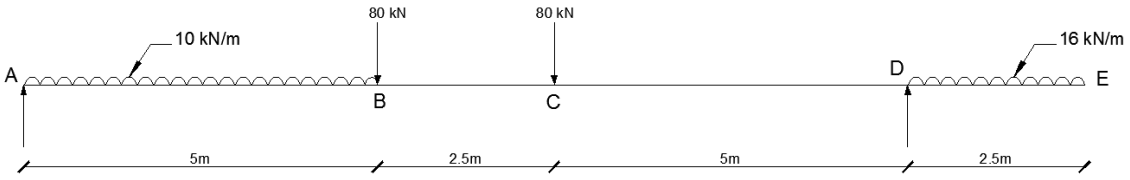
(OR)

2. (a) Derive the expression for the strain energy stored in a body when the load is suddenly applied. — 7M

   (b) The tensile test was conducted on mild steel bar. The following data was obtained from the test. Diameter of the steel bar = 16mm, Gauge length of the bar = 80mm, Load at proportionality limit = 72 kN, Extension at the load of 60 kN = 0.115mm, Load at failure = 80kN, Final gauge length of bar = 104mm, Diameter of rod at failure = 12mm, Determine i) Young's modulus, ii) Percentage elongation. — 7M

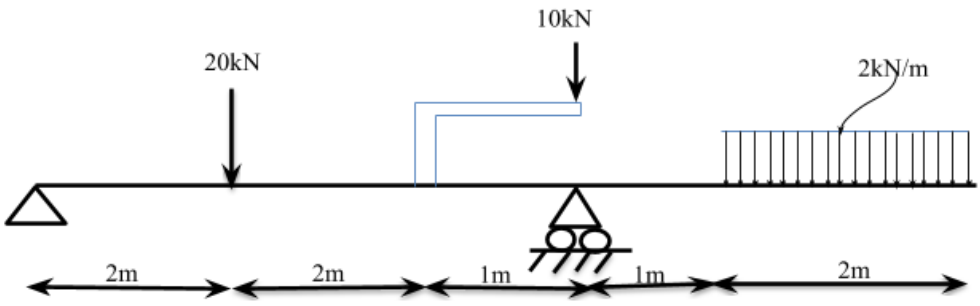
UNIT – II

3. Draw the SFD and BM diagrams for the beam shown in figure. Locate the salient point. — 14M

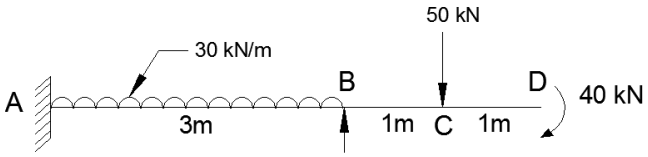


(OR)

4. (a) A simply supported beam with overhang on the right is loaded as shown in fig below. Draw shear force and bending moment diagram indicate maximum bending moment and point of contra flexure. — 7M



   (b) For the cantilever beam shown in figure plot the SFD and BMD. — 7M



UNIT – III

5. (a) Derive the bending equation of simple beams MI=fy=ER Writing all the assumptions made. 7M

   (b) A rectangular beam 200 mm deep and 300 mm wide is simply supported over a Span of 8 m. What uniformly distributed load per meter the beam may carry, if the bending stress is not to exceed 120 N/mm^2. 7M

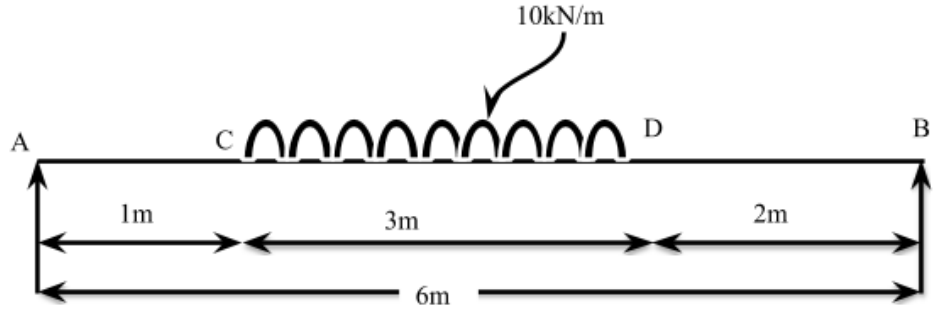
(OR)

6. A T-Beam with a flange of 100 mm x 20 mm with a web of 20mm x 100mm is used as a simply supported beam over a span of 8 m. it carries a UDL of 1.5 kN/m throughout, Determine the maximum tensile stresses and maximum compressive stresses and plot the variation across the depth of the beam. 14M

UNIT – IV

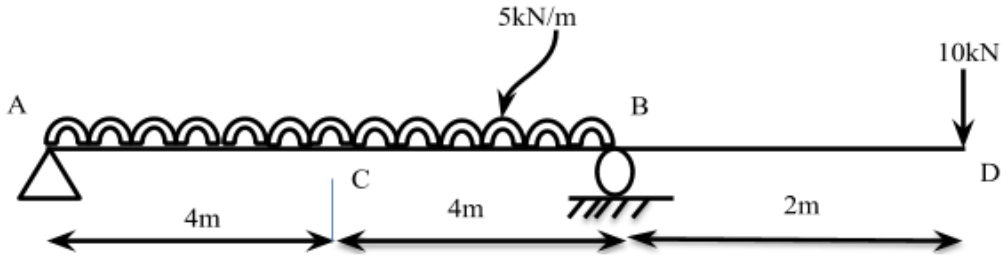
7. A beam AB, 6 m long has a moment of inertia of $450x10^6$ mm^4 and loaded as shown in fig. Determine the following using double integration method. 14M

   i) Slope at A, ii) Deflection at mid span, iii) Maximum deflection



(OR)

8. Find the deflection at points C and D of the beam loaded as shown in fig below, by moment area method. Given E=200 GPa, $I=66.67x10^6$ mm^4 14M



UNIT-V

9. (a) Derive the torsion equation with the usual notations. 7M

   (b) A solid shaft transmits 20kW of power, rotating at 2rps, determine the required diameter of the shaft if the shearing stress is not to exceed 40 MN/m^2 and angle of twist is limited to 6^0 in a length of 3 m. Take $G=83x10^3$ N/m^2. 7M

(OR)

10. (a) Derive the expression for closely-coiled helical springs subjected to an axial twist. 7M

    (b) A close-coiled helical spring of 100 mm mean diameter is made of 10 mm diameter rod and has 20 turns. The spring carries an axial load of 200 N. Determine the shearing stress. Taking the value of modulus of rigidity= $84GN/m^2$, determine the deflection when carrying this load. Also calculate the stiffness of the spring and frequency of free vibrations for a mass hanging from it. 7M

Q.P. Code: 258612 | **SET - 2**

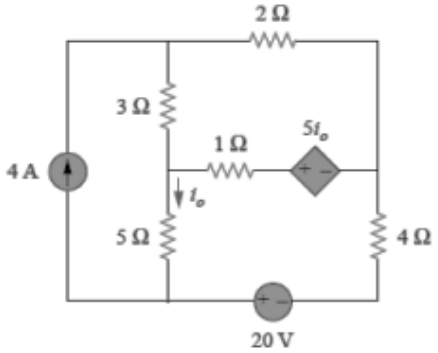
K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: BASIC ELECTRICAL AND ELECTRONICS ENGINEERING (CE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Find the current i_o in the circuit shown by applying mesh analysis. 7M



(b) Explain the star to delta and delta to star transformation with an example. 7M

(OR)

2. (a) When a sinusoidal voltage of 120 V(rms) is applied to a series RL circuit, it is found that there occurs a power dissipation of 1200W and a current flow given by i(t) = 28.3 sin(314t-300). Find the circuit resistance and inductance? 7M

(b) A resistor of 50Ω, inductor of 0.1H and a capacitor of 50μF are connected in series. A supply voltage of 230V, 50Hz is connected across the series combination. Calculate the following: i) impedance ii) current drawn by the circuit iii) power factor iv) active and reactive powers consumed by the circuit. 7M

UNIT – II

3. (a) Name the essential parts of a D.C. Generator and explain them. (5M) 7M

(b) A 6 pole D.C. generator has 250 armature conductors and useful flux per pole of 0.065Wb. What will be the emf generated if it is lap connected and runs at 1500 rpm. What must be the speed at which it is driven to produce the same emf if it is wave wound? 7M

(OR)

4. (a) Explain the working principle of a single phase transformer. 7M

(b) Obtain the equivalent circuit of a transformer from the basic principles. 7M

UNIT – III

5. (a) Give the construction of alternator and explain the working principle of alternator. 7M

(b) What is rotor frequency of induction motor? A 4 pole, 3Ø induction motor operates from a supply whose frequency is 50Hz. Calculate the speed of the rotor when the slip is 0.04. 7M

(OR)

6. (a) Solve for X. i) $(32)_{16} + (47)_8 + (14)_4 = (X)_6$ ii) $(7456.492)_{10} = (X)_{15}$ 7M

(b) Solve for b. i) $(100)_{10} = (244)_b$ ii) $(470)_{10} = (726)_b$ 7M

UNIT – IV

7.	(a)	Explain the operation of center-tapped full-wave rectifier with input and output waveforms.	7M
	(b)	A Full-Wave rectifier circuit is fed from a transformer having a center-tapped secondary winding. The rms voltage from with either end of secondary to center tap is 30V. If the diode forward resistance is 5Ω and that of the secondary is 10Ω for a load of 900Ω. Calculate: i) Ripple factor ii) Power delivered to load iii) Efficiency	7M

(OR)

8.	(a)	Explain the operation of PN junction diode under forward bias and reverse bias condition along with its characteristics.	7M
	(b)	Write down the applications of diode.	7M

UNIT-V

9.	(a)	Explain the static input and output characteristics of Common Emitter transistor configuration with necessary diagrams	7M
	(b)	With the help of a neat diagram explain different current components in an PNP bipolar junction transistor.	7M

(OR)

10.		What are the necessary conditions under which oscillators work.	14M

Q.P. Code: 357612 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: POWER SYSTEMS - I (EEE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Explain how load curves helps in the selection of size and number of generating units 7M
   (b) The monthly readings of a consumers meter are as follows maximum demand 50KW, energy consumed is 36,000KWh and reactive energy is 23,400KVAR. If the tariff is Rs. 80 per KW of maximum demand plus 8 Paise per unit plus 0.5 paise per unit for each 1% of power factor below 86%. Calculate the monthly bill of the consumer. 7M

(OR)

2. (a) Explain about two-part and three-part tariff methods. 7M
   (b) An electric supply company having a maximum load of 50 MW generates 18×10^7 units per annum and the supply consumers have an aggregate demand of 75 MW. The annual expenses including capital charges are
   For fuel = Rs 90 lakhs
   Fixed charges concerning generation = Rs 28 lakhs
   Fixed charges concerning transmission and distribution = Rs 32 lakhs
   Assuming 90% of the fuel cost is essential to running charges and the loss in transmission and distribution is 15% of KWh generated, deduce a two part tariff to find the actual cost of the supply to the consumers. 7M

UNIT – II

3. (a) In a 33 kV overhead line, there are three units in the string of insulators. If the capacitance between each insulator pin and earth is 11% of self capacitance of each insulator, find the distribution of voltage over 3 insulators and string efficiency. 7M
   (b) Derive an expression for the calculation of sag when the supports are at equal levels. Also give the modifications in the above when wind and ice loading effects are available on the conductor. 7M

(OR)

4. (a) What is string efficiency? Explain why the potential distribution is not in general uniform over the string in suspension type of insulator. 7M
   (b) What is Sag template? Explain the various curve marked on a sag template. 7M

UNIT – III

5. (a) Define GMR and GMD 4M
   (b) Derive an expression for the capacitance of a single phase overhead transmission line. 10M

(OR)

6. (a) Define string efficiency. What is meant by stringing chart? 7M
   (b) Derive an expression for inductance of a three phase transmission line with unsymmetrical spacing. 7M

UNIT – IV

7. (a) Compare ring main and radial distribution systems. 7M
   (b) Explain briefly the classification of loads and modeling of a load in distribution networks. 7M

(OR)

8. (a) Explain the purpose of interconnector in a DC ring main distributor? 7M
   (b) Discuss the characteristics of different loads. 7M

UNIT-V

9. (a) The insulation resistance of a single core cable is 495 MΩ per km. If the core diameter is 2.5 cm and resistivity of insulation is 4.5×10^{14} Ω-cm, find the insulation thickness. 7M
   (b) Explain Capacitance grading of cables. 7M

(OR)

10. (a) Describe the theory of corona formation and explain the factors affecting corona. 7M
    (b) An insulation resistance of single core cable is 500 MΩ/km. Diameter of core is 3mm and resistivity of insulation is 5×10^{12} Ω-m. Determine insulation thickness. 7M

Q.P. Code: 357812 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: ELECTRICAL MACHINES-II (EEE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Derive condition for zero voltage regulation? Draw the phasor diagram also?	7M
	(b)	Define Voltage regulation of a transformer and derive the equation for regulation from the phasor diagram?	7M
		(OR)	
2.		Define All-day efficiency? Determine the all-day efficiency of a 100kVA, 11000/400V transformer having iron losses of 2250W and full load copper losses of 4500W is operating as follows 4hrs at 20% of full load at 0.7 pf, 8 hrs at 75% of full load at 0.95 pf, 6 hrs at full load and remaining time at 60% of full load 0.8pf?	14M

UNIT – II

3.	(a)	Draw the equivalent circuit of 1 phase transformer referring to primary?	7M
	(b)	In a transformer, the core loss is found to be 65W at 40Hz and 105W at 60Hz measured at same peak flux density. Compute the hysteresis and eddy current losses at 50Hz.	7M
		(OR)	
4.	(a)	What are conditions for parallel operation of transformers? Derive load sharing for unbalanced loads.	7M
	(b)	Explain about back to back test of two identical transformers?	7M

UNIT – III

5.	(a)	Explain how to convert 3 phase supply to 2 phase supply?	6M
	(b)	A 500 KVA, 3-phase, 50Hz transformer has a voltage ratio (line voltages) of 33/11-KV and is delta/star connected. The resistances per phase are: high voltage 35 Ohms, low voltage 0.876 Ohms and iron loss is 3050W. calculate the value of efficiency at full load and one half of full load respectively i) at unity power factor ii) 0.8 power factor.	8M
		(OR)	
6.	(a)	Determine the rotor parameters and Draw the equivalent circuit of 3 phase Induction Motor?	8M
	(b)	Define the Slip? Prove that rotor input : rotor copper losses : rotor output = 1:s:(1-s)	6M

UNIT – IV

7.	(a)	Derive condition for maximum torque in 3 phase Induction motor? What if maximum torque in that?	7M
	(b)	A 2000V, 50Hz delta connected induction motor has a star-connected slip ring rotor with a phase transformation ratio of 3.5. The rotor resistance and standstill leakage reactance are 0.015 Ohm and 0.3 Ohm per phase respectively. Neglecting stator impedance and magnetizing current determine. i) The rotor current and power factor at start with slip-rings shorted. ii) The rotor current and power factor at 4% slip with slip-rings shorted. iii) The external rotor resistance per phase required to obtain a starting current of 120A in the stator supply lines.	7M
		(OR)	
8.		Draw the circle diagram from no-load and short-circuit test of a 3-phase. 14.92KW, 400V, 6 pole induction motor from the following test results (line values). No-load : 400 V, 11A, 0.2 p.f Blocked rotor : 100V, 25A, 0.4 p.f. Rotor copper loss at standstill is half the total copper loss. From the diagram, find (i) Line current, slip, efficiency and power factor at full load. (ii) The maximum torque.	14M

UNIT-V

9.	(a)	Explain the how to reduce the starting current by rotor resistance method?	7M
	(b)	Calculate the steps in a 5 steps rotor resistance starter for a 3-phase induction motor. The slip at the maximum starting current is 2% with slip- ring short-circuited and the Resistance per rotor phase is 0.02 Ohms.	7M
		(OR)	
10.	(a)	What is the necessity of speed control? Explain how to control speed of Induction motor by changing the poles?	9M
	(b)	Explain about Double cage Induction Motor?	5M

Q.P. Code: 358012 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: ELECTRICAL & ELECTRONICS MEASUREMENTS (EEE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1.	(a)	List out the types of errors in measurement	7M
	(b)	Explain the construction and working of permanent magnet moving coil instrument	7M
		(OR)	
2.	(a)	What are the different types of torques developed in measuring instruments	7M
	(b)	With neat sketch explain the dynamo meter type of instrument	7M

UNIT – II

3.	(a)	Name the errors caused by the braking system in an energy meter	7M
	(b)	What are the main components of energy meter	7M
		(OR)	
4.	(a)	What are the causes of creeping in energy meter	7M
	(b)	Explain the construction and theory of operation of dynamometer wattmeter	7M

UNIT – III

5.	(a)	Why the wheatstone bridge is not used to measurement of low resistance	7M
	(b)	How to measure the frequency by wien's bridge	7M
		(OR)	
6.	(a)	How is the effect of thermo electric EMFs eliminated when taking the reading with kelvin's double bridge	7M
	(b)	What type of bridge can be used for the measurement of insulating coil used in transformers justify	7M

UNIT – IV

7.	(a)	Explain the principle and working of DC crompton's potentio meter	7M
	(b)	Define phase angle errors in potentio meter	7M
		(OR)	
8.		What is the transformation ratio of a current transformer? What are the causes of errors in current transformers? Explain design consideration that is to be taken to minimize those errors.	14M

UNIT-V

9.	(a)	Describe the following measurements can be made with the use of CRO i) Phase angle, ii) Frequency	7M
	(b)	Define the sensitivity and deflection factor of CRO	7M
		(OR)	
10.		With a neat sketch explain the time base generator vertical and horizontal amplifiers	14M

Q.P. Code: 358212 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: GENERATION OF ELECTRICAL POWER (EEE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. Draw the complete schematic diagram of coal fired thermal power plant, briefly describe about each component 14M

(OR)

2. (a) List out the advantages and disadvantages of thermal power station 4M
   (b) Explain briefly about the Ash Handling Mechanism in thermal Power Plants. 10M

UNIT – II

3. (a) Enumerate and explain essential **components of nuclear reactor** 8M
   (b) Calculate the power generation capacity for a hydro power station with the following details: Catchment area = 80 sq-m , Run off = 85% , available head=350m, average rainfall =120cm/annum and overall efficiency = 83% 6M

(OR)

4. (a) State the classifications of hydroelectric plants 8M
   (b) Write short notes on 6M
   (i) Draft-tube (ii) Water Hammer

UNIT – III

5. a Explain about: 9M
   (i) Solar distillation, (ii) Solar cooling, (iii) Solar drying
   b What are the advantages and disadvantages of PV solar energy conservation system 5M

(OR)

6. (a) What are the reasons for variation in solar radiation reaching the earth than received at the outside of the atmosphere 8M
   (b) What are the advantages and disadvantages of concentrated plate collector 6M

UNIT – IV

7. (a) Express and Explain about the wind power equation 8M
   (b) What are the advantages of wind power? 6M

(OR)

8. Explain the principle and application of wind electric system. State the basic Components and their working in wind electric system. 14M

UNIT-V

9. (a) Explain about dry and wet fermentation process 7M
   (b) What are the factors affecting biogas generation. 7M

(OR)

10. (a) Describe the ‘closed cycle’ OTEC System; with its advantages over ‘open cycle’ system. 8M
    (b) Write short notes on wave energy conversion machines 6M

Q.P. Code: 358412 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: SWITCHING THEORY AND LOGIC DESIGN (common to EEE & ECE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.

All questions carry Equal Marks.

UNIT - I

1. Convert the following to the required form. 14M
   (i) $(A6)_{16} = (\ )_8$
   (ii) $(1FFF)_{16} = (\ )_8$
   (iii) $(101001.001)_2 = (\ )_{10}$
   (iv) $(1264)_8 = (\ )_{10}$
   (v) $(12EF)_{16} = (\ )_2$

(OR)

2. Explain the encoding procedure to generate Hamming code for the given 11-bit information: 10010010011 14M

UNIT – II

3. (a) Simplify the following Boolean function using k-map $F(w, x, y, z) = \sum m(1,3,7,11,15) + d(0, 2, 5)$ 7M
   (b) Show that the dual of the EX-OR is equal to its complement 7M

(OR)

4. Minimize the Boolean equation $F(A, B, C, D) = \sum m(7,9,10,11,12,13,14,15)$ using k- map and also realize the simplified expression using NAND-NAND 14M

UNIT – III

5. (a) Design a half adder using decoder and logic circuit 7M
   (b) Implement a Boolean function $F(x, y, z) = \sum (2,4,6)$ with a multiplexer 7M

(OR)

6. Design a combinational circuit that compares two four bit numbers to check if they are equal. The circuit output is equal to 1 if the two numbers are equal and 0 otherwise. 14M

UNIT – IV

7. Design a BCD to excess-3 code converter using PLA 14M

(OR)

8. Tabulate the truth-table for an 8 ROM to implement the following Boolean expression 14M
   $F_1(A,B,C) = \sum (3,6,7)$, $F_2(A,B,C) = \sum (0,1,4)$
   $F_3(A,B,C) = \sum (0,2,5,6)$, $F_4(A,B,C) = \sum (2,6)$

UNIT-V

9. (a) Show that the characteristic equation for the complement output of a JK flip-flop is $Q'(t+1) = J'Q'(t)+KQ$ 7M
   (b) Convert SR flip flop to a JK flip flop 7M

(OR)

10. Design a counter which counts 0, 3, 1, 5, 7, 0 sequence. Use T flip-flop in the design 14M

Q.P. Code: 358612 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: ANALOG ELECTRONIC CIRCUITS (EEE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Justify the conditions for which the approximate h parameter model is valid for CE configuration and derive the h parameters for CB configuration from those of approximate model of CE configuration. 7M

   (b) A CC amplifier has a voltage source of internal resistance R_S = 800 ohms and load impedance is a resistance R_L = 1000 ohms. The h-parameters are h_{ic} = 1.1 K ohms, h_{rc} = 1, h_{fc} = -51 and h_{oc} = 25 μ A/V. compute A_I, R_I, A_V, R_o using exact analysis. 7M

(OR)

2. (a) Using small signal model for JFET, derive the expression for voltage gain, input impedance and output impedance of a common source amplifier with drain resistance R_D. 7M

   (b) i) Explain the significance of generalized FET amplifier. 7M
   ii) A common source FET amplifier has a load resistance of 500KΩ. If a.c. drain resistance and amplification factor of FET are 100KΩ and 30 respectively, calculate the voltage gain of amplifier.

UNIT – II

3. (a) Explain the effect of stray capacitance and coupling capacitance on the frequency response of CE amplifier 7M

   (b) The upper cutoff frequency for single stage amplifier is $f_{H.}$ Derive the expression for upper cutoff frequency for n identical stages and calculate the its value for f_H =40K Hz when 4 stages are cascaded. 7M

(OR)

4. (a) Derive the expression for current gain and threshold frequency of CE amplifier for load resistance R_L = 0. 5M

   (b) Draw the small signal high frequency model of a BJT in CE configuration and derive the expressions for the conductance $g_{b'e}$, g_{ce}, g_c and $g_{b'c.}$ 9M

UNIT – III

5. (a) Draw the schematic diagram and derive the expressions for gain, input impedance, output impedance with feedback for current series feedback topology. 7M

   (b) Compare the all the four negative feedback topologies with respect to 7M
   (i) Sampling and mixing parameters, (ii) gain of the basic amplifier and feedback gain, (iii) gain with feedback, (iv) input impedance, (v) output impedance

(OR)

6. (a) Explain the principle of LC oscillators and derive the expression for frequency of oscillations for Hartley oscillator. 7M

   (b) Explain in detail, the mechanism involved in crystal oscillators. Define parallel and series resonant frequencies. 7M

UNIT – IV

7. (a) Draw the circuit diagram of a series fed class A power amplifier and prove that it has maximum power efficiency of 25% 10M

   (b) A series fed class A amplifier has Vcc=20V, VCEQ =10V, ICQ =600mA, RL=16 Ω. The ac output current varies by 300mA, with the ac input signal. Calculate the power efficiency at the load, and power dissipated at the collector. 4M

(OR)

8. (a) Draw the circuit diagram of complementary symmetry class B power amplifier, explain its operation and prove that it eliminates even harmonics. 10M

   (b) Write a note on the advantages of complementary symmetry type amplifiers over push pull amplifiers. 4M

UNIT-V

9. (a) Explain the operation of positive and negative peak clamper circuits with relevant circuit diagrams for a sinusoidal input voltage of 10Vp-p with 7M
   i) zero reference voltage, ii) positive reference voltage of 3V
   iii) negative reference voltage of 3V.

   (b) Draw the response of RC integrator circuit for step input and ramp input and square wave input. 7M

(OR)

10. (a) With a neat circuit diagram explain the operation of Astable Multivibrator and derive the expression for frequency of oscillations. 10M

    (b) Explain the cause for hysteresis and how it is eliminated in a Schmitt trigger circuit. 4M

Q.P. Code: 457612 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: PROBABILITY THEORY & STOCHASTIC PROCESSES (ECE)

Time : 3 Hours | Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. Explain the following 14M
(i) Probability as a relative frequency, (ii) Conditional probability, (iii) Total probability, (iv) Bayes

(OR)

2. In a factory there are four machines. The machines produce 10%, 20%, 30%, and 40% of an item respectively. The defective items produced by each machine are 5%, 4%, 3% and 2% respectively. Now an item is selected which is to be defective, what is the probability of it being from the second machine? 14M

UNIT – II

3. (a) State and prove the properties of the characteristic function of a random variable X. 7M
(b) Find the expected value of a uniform distributed random variable. 7M

(OR)

4. Find the mean and variance of a binomial distribution function. 14M

UNIT – III

5. (a) Define conditional distribution and density function of two random variables x and y. 7M
(b) The joint distribution function of x and y is given by F(x)=$4xy\,e^{-(x^2+y^2)}$ $x \geq 0, y \geq 0$ Show that x and y are independent random variables. 7M

(OR)

6. (a) State and Explain the correlation of two random variables x and y. state the properties of Correlation. 7M
(b) Statically independent random variables x and y have moments m_{10}=2,m_{20}=14 and m_{11}=-6. Find the moment μ_{22}. 7M

UNIT – IV

7. (a) State and prove the properties of the cross correlation function. 6M
(b) (b) Assume that an Ergodic random process x(t) has an ACF 8M

$$R_{XX}(\tau) = 18 + \frac{2}{6+\tau^2}\,(1 + 4\cos(2\tau))$$

i) Find $|\bar{X}|$
ii) Does this process have a periodic component?
(iii) What is the average power in x(t).

(OR)

8. (a) State and prove the wiener-khintchin relations. 7M
(b) A WSS random variable x(t) has PSD $S_{XX}(w) = \frac{w^2}{w^4+10\,w^2+9}$ find the autocorrelation and mean square value of the process. 7M

UNIT-V

9. (a) Prove that the output power spectral density equals the input power spectral density multiplied by the squared magnitude of the transform of the filter. 8M
(b) Explain the system evaluation using random noise. 6M

(OR)

10. (a) Define the following random processes. (i) Band pass (ii) Band Limited (iii) Narrow Band. 6M
(b) A random noise x(t) having power spectrum $S_{XX}(w) = \frac{3}{49+w^2}$ is applied to a network for which $h(t) = \mu(t)t^2e^{-7t}$. The network response is denoted by y(t). 8M
(i)Find the average power in x(t)? (ii) Find the power spectrum of y(t).
(iii) Find the average power in y(t).

Q.P. Code: 457812 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: ELECTROMAGNETIC WAVES & TRANSMISSION LINES (ECE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Describe the propagation of wave in good dielectrics. 7M

   (b) A lossy dielectric has $\mu_r = 1, \varepsilon_r = 50\ and\ \sigma = 60\mho/m$ at 15.9MHz. Find α, β, υ and η if the uniform plane wave is travelling through this medium. 7M

(OR)

2. (a) What do you mean by practical dielectric? What are the values of propagation constant and intrinsic impedance? 7M

   (b) A 300MHz uniform plane wave propagates through fresh water for which $r = 0, \mu_r = 1, \varepsilon_r = 78.$ find (i) Attenuation constant , (ii) Phase constant, (iii) Wavelength , (iv) Intrinsic impedance. 7M

UNIT – II

3. (a) Define the complex pointing vector and explain how to obtain an average power. 7M

   (b) A plane electromagnetic wave travelling in free space has $E_{\max} = 1500\mu V/m$ .Find the accompanying $H_{\max}$ and average power transmitted. 7M

(OR)

4. (a) What is transmission coefficient? Derive the expression for transmission coefficient of a uniform plane wave at normal incidence. 7M

   (b) A uniform plane wave of 200MHz travelling in a free space impinges normally on a large block of material having $\sigma = 0, \mu_r = 9, \varepsilon_r = 4.$ Calculate transmission and reflection coefficients at the interface. 7M

UNIT – III

5. (a) Explain the various primary constants for two wire transmission line and also explain the features of primary constants. 7M

   (b) A transmission line has the following primary constants measured per km; R=10.15Ω, L=3.39mH, C==0.00797μF, G=0.29μ℧. Determine Z_0 and propagation constant at a frequency of 796Hz.Also calculate the ratio of current at a point which is 100km down the line to the current at the sending end if the line is terminated in its characteristic impedance. 7M

(OR)

6. (a) Define the following terms and explain significance of each. 7M
   (i) Attenuation constant, (ii) Characteristic impedance
   (iii) Phase constant and (iv) Phase velocity as applied to the transmission line.

   (b) A distortion less transmission line has attenuation constant $\alpha = 1.15X10^{-3}$ Np/m and capacitance of 0.1nF/m. The characteristic resistance $\sqrt{L/C} = 50\Omega$. Find the resistance, inductance and conductance per meter of the line. 7M

UNIT – IV

7. (a) Derive expression for the input impedance of lossless line. Hence evaluate Z_0 and Z_{sc}, also sketch their variation with line length. 7M

   (b) A 50 Ω line feeds an inductive load Z=(35+j35)Ω .Design a double stub tuner to match this load to the line(make use of a smith chart) 7M

(OR)

8. (a) Explain the significance and design of single stub impedance matching. Discuss the factors on which length depends. 7M

   (b) Design a single stub match for a load of (150+j255)Ω for a 75 ohms line at 500MHz using smith chart. 7M

UNIT-V

9. (a) Derive the expression for field components, cut-off frequency in TE_{10} mode of electromagnetic waves travelling in rectangular waveguide. 7M

   (b) The wave length measured in an air filled rectangular waveguide, 20cm X 5.0cm in cross - section, is 12cm.Calculate the frequency of the wave .Assume TE_{01} mode and $c=3 \times 10^8$ m/s. 7M

(OR)

10. (a) Write short notes on "Cavity resonators". 6M

    (b) A frequency of 3GHz is impressed on a hallow rectangular waveguide of dimensions 6cm x 4cm.Compute 8M

    (i) Cut-off wave length
    (ii) Guide wave length
    (iii) Phase velocity
    (iv) Wave impedance for the TE_{10} mode of propagation.

Q.P. Code: 458012 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: PULSE AND DIGITAL CIRCUITS (ECE)

Time : 3 Hours | Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1.	(a)	A 10 V Step is switched on to a 50 KΩ resistor in series with a 500pF capacitor. Calculate the rise time of the Capacitor Voltage, the time for the capacitor to charge to 63.2% of its maximum voltage and the time for the capacitor to be completely charge.	4M
	(b)	Draw the output waveform of an RC high-pass circuit with a square wave input under different time constants. Derive the expression for percentage of tilt.	10M
		(OR)	
2.		Explain in detail about RC Low Pass Circuit for square wave Input with neat diagrams?	14M

UNIT – II

3.		What is Clamping? Explain in detail about types of Clamping Circuits?	14M
		(OR)	
4.	(a)	What is a clipper? Explain different types of Series Clippers?	7M
	(b)	Explain the working of a two level diode clipper with the help of circuit diagram?	7M

UNIT – III

5.		Explain in detail about Schmitt trigger and derive expressions for UTP and LTP?	14M
		(OR)	
6.		Explain in detail about Astable Multivibrator and its types?	14M

UNIT – IV

7.		Explain in detail about Transistor Bootstrap Time Base generator?	14M
		(OR)	
8.	(a)	Explain in detail about UJT and Sweep Circuit generation using UJT?	7M
	(b)	Explain in detail about Current time base generators?	7M

UNIT-V

9.		Explain the operation of linear bidirectional sampling gate using Transistors?	14M
		(OR)	
10.		Explain briefly about CMOS Inverter, RTL NOR gate, Two input ECL NOR gates?	14M

Q.P. Code: 458212 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: ELECTRONIC CIRCUIT ANALYSIS (ECE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1.	(a)	What are the characteristics of CB, CE, and CC amplifier?	7M
	(b)	Explain the CE amplifier with voltage divider bias in terms of input impedance, output impedance, voltage gain and current gain.	7M
		(OR)	
2.	(a)	Explain the CE amplifier with Fixed bias with emitter resistance.	7M
	(b)	Explain in detail about frequency response and distortion in amplifiers.	7M

UNIT – II

3.	(a)	Derive the parameters of f_α , f_β , and f_T	7M
	(b)	Explain the differences between simplified hybrid model and generalized approximate model using with example.	7M
		(OR)	
4.	(a)	Explain the analysis of CC configuration in detail using the approximate model.	7M
	(b)	Explain the hybrid-π model at high frequencies.	7M

UNIT – III

5.	(a)	Explain the Common Drain amplifier.	7M
	(b)	Explain about Cascode FET amplifier.	7M
		(OR)	
6.	(a)	Explain about coupling mechanisms in multistage amplifiers.	7M
	(b)	Draw the two stage RC coupled amplifier and explain the operation, advantage and disadvantage of RC coupled amplifier.	7M

UNIT – IV

7.	(a)	Draw the circuit diagram of CE amplifier with voltage shunt feedback. And derive the input impedance, output impedance and voltage gain of CE amplifier with voltage shunt feedback	7M
	(b)	The current series feedback types of transistor amplifier with R_1=20KΩ, R_2=20 KΩ, h_{ie}=2 KΩ, R_L=1 KΩ, R_e= 100 Ω and h_{fe}=80. Calculate A, β, R_{if}, A_f, and loop gain in dB.	7M
		(OR)	
8.	(a)	In the Hartley oscillator L_2=0.4mH and C=0.004μF. If the frequency of the oscillator is 120KHZ, find the value of L_1. Neglect the mutual inductance.	7M
	(b)	Explain in detail about RC phase shift oscillator.	7M

UNIT-V

9.	(a)	Explain in detail about Double tuned amplifier.	7M
	(b)	Explain the effect of Cascading single tuned amplifier on Bandwidth.	7M
		(OR)	
10.	(a)	What are the classification of Power amplifier and explain in detail about Class-A amplifier.	8M
	(b)	Calculate the effective resistance seen looking into the primary of a 10:1 transformer connected to an output load of 16Ω	6M

Q.P. Code: 458612 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: ANALOG COMMUNICATIONS (ECE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1.	(a)	Explain the fundamental limitations of communication systems	7M
	(b)	Discuss about electromagnetic spectrum and its applications	7M
		(OR)	
2.	(a)	Draw the block diagram of the frequency discrimination method of generating SSB waves and explain its working	7M
	(b)	What is the need for VSB transmission? What is the transmission bandwidth of VSB?	7M

UNIT – II

3.	(a)	With the help of neat diagram explain narrow band FM and draw its spectrum	7M
	(b)	Explain balanced slope-detector for detecting FM signal	7M
		(OR)	
4.	(a)	Draw the block diagram of Direct method of generating a wideband FM signal and explain its working principle.	7M
	(b)	Obtain Transmission bandwidth by carson rule also compare FM & PM	7M

UNIT – III

5.	(a)	Explain about super hetrodyne receiver with neat diagram	7M
	(b)	Discuss the importance of choice of IF	7M
		(OR)	
6.	(a)	Explain about capture effect in FM system	7M
	(b)	Write a short note on the following (i) AGC, (ii) Tracking characteristics	7M

UNIT – IV

7.	(a)	Prove that figure of merit for AM is 33%	7M
	(b)	Derive an expression for output SNR for FM system	7M
		(OR)	
8.	(a)	Briefly explain about external and internal sources of noise	7M
	(b)	Derive an expression for output SNR for SSB-SC system	7M

UNIT-V

9.	(a)	State and prove sampling theorem	7M
	(b)	Explain about Flat-top sampling with necessary equations	7M
		(OR)	
10.	(a)	With suitable circuit explain the scheme of degeneration of PPM signals.	7M
	(b)	Describe with suitable circuit the scheme of Generation and degeneration of PWM signals	7M

Q.P. Code: 557612 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: MANUFACTURING TECHNOLOGY (ME)

Time: 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Briefly explain the procedure to be followed for making san mould.
   (b) Define the terms cope, drag, bottom board as related to casting.

(OR)

2. (a) Explain the function of a runner extension in a gating system
   (b) Explain about any six types of pattern with a neat sketch.

UNIT – II

3. (a) Describe the constructional feature of a cupola furnace.
   (b) What are the methods available for the removal of gates and risers from the casting?

(OR)

4. (a) Explain hot chamber die-casting machine with a neat sketch by stating its pros and cons.
   (b) Compare a cold-chamber die-casting process with a hot-chamber die-casting process.

UNIT – III

5. (a) Explain Oxy-acetylene gas welding with a neat sketch.
   (b) How do classify different weld positions?

(OR)

6. (a) Why flux is essential to use in some welding situations.
   (b) Explain the principle of an oxy- fuel gas welding process.

UNIT – IV

7. (a) Briefly explain soldering and brazing.
   (b) What are the differences between TIG and MIG welding process?

(OR)

8. (a) What do you understand by braze weding?
   (b) Explain any three type of weld defects with a neat sketch.

UNIT-V

9. (a) What are the specific merits of cold working over hot working?
   (b) Explain with sketches the difference between direct and indirect extrusion.

(OR)

10. (a) With a neat sketch explain Smith forging.
    (b) What are the differences between drop forging and roll forging?

Q.P. Code: 557812 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: THERMAL ENGINEERING - I (ME)

Time : 3 Hours | Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Illustrate the constructional details of I.C engines. Explain briefly about the important components and its materials. 7M
   (b) Explain the working of a four-stroke C.I engine with a neat sketch 7M

(OR)

2. (a) Differentiate between Spark Ignition and Compression Ignition engine. 7M
   (b) Compare and contrast the valve-timing diagram and port timing diagram. 7M

UNIT – II

3. (a) Describe the two types of general injection systems. Why the air injection system is not used now a days? 7M
   (b) Describe a typical mist lubrication system used for a two stroke engine. 7M

(OR)

4. With neat sketch explain Magneto ignition system. 14M

UNIT – III

5. (a) What will be the consequences if a diesel fuel is used in the SI engine? 7M
   (b) Bring out clearly the process of combustion in CI engines and also explain the various stages of combustion. 7M

(OR)

6. (a) Explain the phenomena of pre-ignition? How pre-ignition leads to detonation and vice-versa? 7M
   (b) Explain the various factors that influence the flame speed 7M

UNIT – IV

7. The output of a single cylinder four-stroke I.C engine is measured by a rope brake dynamometer. The diameter of brake pulley is 750 mm and rope diameter 50 mm. The dead load on the tight side of the rope is 400 N and spring balance reading is 50 N. The bore is 150 mm and the stroke is 190 mm. The engine consumes 4 kg/hr of fuel at rated speed of 1000 rpm. The calorific value of fuel is 44 MJ/kg. Calculate the brake specific fuel consumption, bmep and brake thermal efficiency. If the mechanical efficiency is 80%, calculate IP, imep, indicated specific fuel consumption and indicated thermal efficiency. 14M

(OR)

8. What is the significance of conducting Morse test? Explain the same in detail. 14M

UNIT-V

9. (a) Discuss the effect of clearance on volumetric efficiency of a compressor? 6M
   (b) Estimate the volumetric efficiency and power consumption of a single stage reciprocating compressor, given the following data: 8M

   Cylinder diameter: 30 cm; Stroke : 22cm; Clearance ratio : 0.03
   Delivery pressure : 8 bar; Suction pressure : 1 bar; Speed : 400 rpm
   Compression and expression follows $pv^{1.3}$=Constant.

(OR)

10. (a) Briefly explain the working of fan, blower and compressor. 6M
    (b) A single stage double acting compressor is required to deliver 14 m^3 of air per minute measured at 1.013 bar and 15^0C. The delivery pressure is 7 bar and speed 300 rpm. Take clearance volume 5% of the swept volume with the compression index of n = 1.3. Calculate (i) Swept volume of the cylinder, (ii) The delivery temperature, (iii) Indicated power 8M

Q.P. Code: 558012 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: KINEMATICS OF MACHINERY (ME)

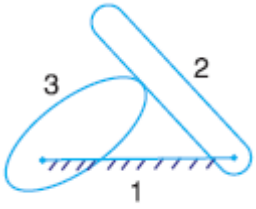
Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

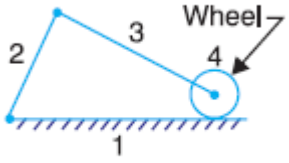
UNIT - I

1. (a) Define Grashof's law. State how is it helpful in classifying the four link mechanisms into different types? 6M

   (b) Determine the DOF of the following mechanisms 8M



(a)



(b)

(OR)

2. (a) Describe types of constrained motion? 4M

   (b) Sketch and explain any two inversions of a double slider crank chain. 10M

UNIT – II

3. Explain the Hart mechanism with a neat sketch and Prove that it produces an exact straight line motion. 14M

(OR)

4. (a) Derive the conditions of correct steering for Davis Steering gear with a neat sketch. 7M

   (b) Explain the single Hook's joint with a neat sketch. 7M

UNIT – III

5. What is the Coriolis acceleration component? In which cases does it occur? How is it determined? 14M

(OR)

6. ABCD is a four bar chain with link AD is fixed. The lengths of the links are AB = 60mm, BC = 175mm, CD = 110mm, and AD = 200mm. the crank AB rotates at 10rad/sec clockwise. Draw the acceleration diagram when angle BAD 60^0 and B and C are lie on the same side of AD. Determine angular acceleration of links BC and CD 14M

UNIT – IV

7. Discuss the displacement, velocity and acceleration diagrams when the follower moves with SHM. 14M

(OR)

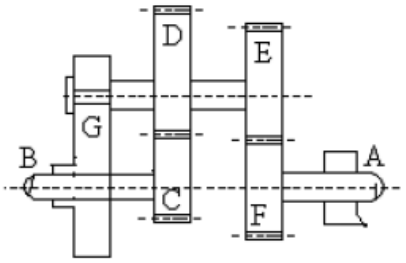
8. A cam operating a knife - edged radial follower has the following data. Follower moves outwards through 50mm during 120° of cam rotation. 14M

   Follower dwells for the next 45°.
   Follower returns of its original position during next 90°.
   Follower dwells for the rest of the rotation.

   The displacement of the follower is to take place with uniform velocity during the outward and the return strokes. The least radius of the cam is 50mm. Draw the cam profile.

UNIT-V

9. In the epicyclic gear shown in Figure, the wheel C is keyed the shaft B and the wheel F is keyed to the shaft A, D and E rotate together on a pin fixed to the arm G, C has 35 teeth, D has 65 teeth, E has 32 teeth and F has 68 teeth. If A rotates at 60 r.p.m. and B rotates at 28 r.p.m. in the opposite direction to A, find the speed and direction of arm G. 14M



(OR)

10. State and prove law of gearing. Show that involute profile satisfies the conditions for correct gearing. 14M

Q.P. Code: 558212 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: MECHANICS OF FLUIDS (ME)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Discuss vacuum and atmospheric pressure and show the schematic representation of different pressures. 4M

   (b) Calculate the pressure at a height of 7500 m above sea level if the atmospheric pressure is 10.143 N/cm^2 is 15^{0}C at sea-level, assuming i) air is incompressible, ii) pressure variation flows isothermal law, and iii) pressure variation follows adiabatic law. Take the density of air at the sea-level as equal to 1.285 kg/m^3. Neglect variation of g with altitude. 10M

(OR)

2. (a) Write the applications of U-tube differential manometer and inverted U-tube differential manometers. 4M

   (b) In a stream of glycerin in motion, the velocity gradient at a certain point is 0.3 m/s per meter. Calculate the shear stress at the point if the mass density of the liquid is 1275kg/m^3 and the kinematic viscosity is 6.3x10^{-4} m^2/s. 10M

UNIT – II

3. (a) What are the various forces that may influence the motion of fluid? 6M

   (b) Explain the various practical applications of Bernoulli's equation. 8M

(OR)

4. The water is flowing through a pipe having diameter 20 cm and 15 cm at section 1 and 2 respectively. The rate of flow through pipe is 40 lit/s. The section 1 is 9 m above datum line and section 2 is 5 m above the datum. If the pressure at section 1 is 32.4 N/cm^2, find the intensity of pressure at section 2. 14M

UNIT – III

5. List the minor losses of energy in pipe flow. 14M

(OR)

6. How to measure the flow using venturi meter in pipes? Explain with neat sketch? 14M

UNIT – IV

7. Explain the boundary layer characteristics along the thin plate, bring out essential important points. 14M

(OR)

8. For the velocity profile for laminar boundary layer $\frac{u}{U} = 2\left(\frac{y}{\delta}\right) - 2\left(\frac{y}{\delta}\right)^3 + \left(\frac{y}{\delta}\right)^4$ Determine the boundary layer thickness, shear stress, drag force and co-efficient drag in terms of Reynold's number. 14M

UNIT-V

9. Experiments were conducted in a wind tunnel with a wind speed of 50 km/hr on a flat plate of size 2 m long and 1 m wide. The density of air is 1.15 kg/m^3. The co-efficient of lift and drag are 0.75 and 0.15 respectively. Determine i) the lift force, ii) the drag force, iii) the resultant force, iv) direction of resultant force and v) power exerted by air on the plate. 14M

(OR)

10. (a) Explain the concept of 'Terminal velocity of body'. 4M

    (b) A metallic ball of diameter 2x10^{-3} m drop in a fluid of sp.gr. 0.95 and velocity 15 poise. The density of the metallic ball is 12000 kg/m^3. Find i) The drag force exerted by fluid on metallic ball ii) the pressure drag and skin friction drag iii) the terminal velocity of ball in fluid. 10M

Q.P. Code: 558412 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: COMPOSITE AND NANO MATERIALS (ME)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1. Define a composite material. How are composite materials classified according to matrix and the reinforcements? Describe the characteristics of each of them. 14M

(OR)

2. (a) Discuss the applications of various types of composites. 7M

   (b) Describe any one method of fabricating fiber reinforced composites. 7M

UNIT – II

3. What are the essential requirements of good matrix material? Discuss the functions and properties of matrix phase. 14M

(OR)

4. Discuss the properties and applications of Metal Matrix Composites and Polymer Matrix Composites. 14M

UNIT – III

5. Compare the characteristics, properties and applications of Portland Cement Concrete (PCC) and Reinforced Cement Concrete (RCC). 14M

(OR)

6. Discuss the characteristics, properties and applications of Hybrid Composites. 14M

UNIT – IV

7. Discuss the properties, advantages, limitations and applications of ceramic materials. 14M

(OR)

8. Describe the fabrication of glass by: (i) blowing (ii) flat drawing 14M

UNIT-V

9. Discuss the characteristics, properties and applications of nano phase materials. 14M

(OR)

10. Discuss the properties and applications of Cermets. 14M

Q.P. Code: 558612 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: PROBABILITY AND STATISTICS (Common to ME & CSE)

Time: 3 Hours | Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) If X is a continuous random variable and k is a constant then prove that var (X+k) = var (X). 7M

   (b) Probability density function of a random variable X is $f(x)=\begin{cases}\frac{1}{2}\sin x, & \text{for } 0\le x\le\pi\\ 0, & \text{otherwise}\end{cases}$. 7M

   Find the mean and median of the distribution.

(OR)

2. State and Prove Baye's theorem. 14M

UNIT – II

3. The marks obtained in Mathematics by 1000 students is normally distributed with mean 78% and standard deviation 11%. 14M
   Determine (i) How many students got marks above 90% ,
   (ii) What was the highest mark obtained by the lowest 10% of the students,
   (iii) Within what limits did the middle of 90% of the students lie.

(OR)

4. (a) The probability that a pen manufactured by a company will be defective is 0.1. If 12 such pens are manufactured, find the probability that (i) exactly two will be defective, (ii) at least two will be defective and (iii) none will be defective. 7M

   (b) Fit a Poisson distribution for the following distribution: 7M

x	0	1	2	3	4
f	122	60	15	2	1

UNIT – III

5. (a) A sample analysis of examination results of 500 students was made. It was found that 220 students had failed,170 had secured a third class,90 were placed in second class and 20 got a first class. Do these figures commensurate with the general examination results which is in the ratio of 4 :3:2:1 for the various categories respectively. 7M

   (b) Two random samples drawn from two normal populations are given below: 7M

x	19	17	26	28	22	23	19	24	26			
y	28	32	40	37	30	35	40	48	41	45	30	36

   Obtain the estimates of variance of the population and test whether the two populations have the same variance.

(OR)

6. (a) The mean and standard deviation of a population are 11795 and 14054 respectively. If n=50 find 95% confidence limits for mean 7M

   (b) In two large populations, there are 30% and 225% respectively of fair-haired people. In this difference likely to be hidden in samples of 1200 and 900 respectively from the two populations. 7M

UNIT – IV

7. Find the regression lines of y on x and x on y for the following data. 14M

x	2	4	6	8	10
y	5	7	9	8	11

(OR)

8. (a) If θ is the angle between the two regression lines then show that $Tan\theta = \frac{1-r^2}{r}.\frac{\sigma_x\sigma_y}{\sigma_x^{\,2}+\sigma_y^{\,2}}$, Explain the significance when $r=0$ and $r=\pm 1$. 7M

(b) For two random variables x and y with the same mean, the two regression lines are y = ax + b and x = cy + d. Show that $\frac{b}{d}=\frac{1-a}{1-c}$. 7M

UNIT-V

9. (a) Explain the terms statistical quality control. Discuss its aspects and advantages. 7M

(b) Discuss the basic principles underlying control charts. Explain in brief how control limits are determined for (i) P-chart (ii) C- chart. 7M

(OR)

10. Each telephone call is considering a product and the time to answer the call indicates the quality of service. Five calls chosen at random and times recorded at a busy hour. Results for the last 10 hours shown below (in seconds). 14M

Sample Number	1	2	3	4	5	6	7	8	9	10
Mean	20	34	45	39	26	29	13	34	37	23
Range	13	9	15	5	20	17	21	11	10	10

Construct $\bar{X}$ and R charts and determine whether the product is under control.

Q.P. Code: 657612 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: COMPUTER ORGANIZATION (CSE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT – I

1.	(a)	Explain about Basic operational concepts Computer with Suitable diagram?	8M
	(b)	Compare between Multiprocessor and Multi Computer?	6M
		(OR)	
2.	(a)	Explain about Floating point addition and subtraction with suitable example.	7M
	(b)	Explain about Basic performance equation of computer in detail	7M

UNIT – II

3.	(a)	Explain about Interrupt Cycle with flow chat?	10M
	(b)	Explain about memory – reference instructions?	4M
		(OR)	
4.		Explain about Addressing modes with neat Diagrams in Detail.	14M

UNIT – III

5.	(a)	How the Address sequencing in Computer for Micro Program Explain?	10M
	(b)	Draw the Booth multiplication for 2's complement numbers Flow Chart?	4M
		(OR)	
6.	(a)	What is the difference between Hard wired control and Micro programmed control	8M
	(b)	Draw the Division Algorithms flow chart?	6M

UNIT – IV

7.		What is "Cache Memory"? Explain about various mapping procedures	14M
		(OR)	
8.		Explain the following. (i) Virtual Memory , (ii) DMA Transfer	14M

UNIT-V

9.	(a)	Explain about Instruction Pipeline with neat diagram?	10M
	(b)	What are the Characteristics of Multiprocessors? Explain	4M
		(OR)	
10.	(a)	Explain about Inter Processor Communication in Computer	7M
	(b)	Explain about Multi Stage Switching network?	7M

Q.P. Code: 657812 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Sem (R15) Supple. Examinations of November 2019
SUB: JAVA PROGRAMMING (CSE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. Explain in detail about 14M
   i) Abstraction, ii) Encapsulation, iii) Polymorphism, iv) Inheritance

(OR)

2. Differentiate Classes and Object and write a Program that declares two objects in a class? 14M

UNIT – II

3. Why multiple inheritance is not supported in java Explain in detail with a example java Program? 14M

(OR)

4. Write a program in java to implement the concept of Automated Decision making? 14M

UNIT – III

5. Describe the following keywords with an example program 14M
   i) Try, ii) catch, iii) throw, iv) throws, v) Finally

(OR)

6. Write a java program for creating three child threads by concept of multithreading? 14M

UNIT – IV

7. (a) Define Event Class and explain different event classes in detail? 7M
   (b) Explain in detail about Adapter classes with example? 7M

(OR)

8. (a) Write a program in java for creating Frame by extending Frame class? 7M
   (b) Describe various controls supported by AWT? 7M

UNIT-V

9. Explain the concept of parameter passing to an applet with an example program? 14M

(OR)

10. Explain with an example how to Use Buttons, Check Boxes, and Radio Buttons 14M

Q.P. Code: 658012 | **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: FORMAL LANGUAGES & AUTOMATA THEORY (CSE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Design minimal DFA that accepts all strings of a's and b's in which every string contains even number of a's and odd number of b's. 5M

   (b) Minimize the FA given and show both given and reduced one are equivalent q_0 is initial state and q_6 is final state. 9M

s/∑	a	b
qo	q0	q3
q1	q2	q5
q2	q3	q4
q3	q0	q5
q4	q0	q6
q5	q1	q4
q6	q1	q3

(OR)

2. (a) Explain Mealy machine and Moore machine with examples 6M

   (b) Design mealy and moore machine that takes all binary numbers and produce "Residue mod 5" 8M

UNIT – II

3. (a) Construct FA for the language which accepts all the strings containing aba as substring and derive RE using Arden's theorem. 7M

   (b) Construct R.E. for the language which consists of consecutive three a's over the set ∑={a,b} 7M

(OR)

4. (a) Prove that the language p is a prime number is not regular. 8M

   (b) Explain the procedure for converting regular expression to regular grammar. 6M

UNIT – III

5. (a) Reduce the following CFG 8M

   S->A/0C1
   A->B/01/10
   C->CD/ε

   (b) Explain Left recursion and left factoring with examples. 6M

(OR)

6. (a) Decide whether L = {xcx / x Є {a, b}* } is CFL or not. 9M

   (b) show that the following grammar is ambiguous 5M

   S -> a/Sa/bSS/SSb/SbS

UNIT – IV

7.	(a)	Design PDA for the language { $L=a^nb^n/n>=1$}	8M
	(b)	Write short notes on NPDA and two stack PDA	6M
		(OR)	
8.	(a)	Find a CFG which generates the language L={ $a^nb^mc^n/m,n>0$ }. Construct a PDA M from the grammar designed by you. Show the derivation and the moves of the PDA for the string aabcc.	9M
	(b)	Distinguish between finite automata and push down automata.	5M

UNIT-V

9.	(a)	Design a TM for computing 2's complement of a binary number.	6M
	(b)	Write short notes on: (i) Recursively enumerable and recursive languages. (ii) FAs and TMs. (ii) Church's hypothesis.	8M
		(OR)	
10.	(a)	Prove that PCP is undecidable.	7M
	(b)	Explain any four variations of Turing machines.	7M

Q.P. Code: 658212 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: DATABASE MANAGEMENT SYSTEMS (CSE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1.	(a)	Why do we need DBMS?	7M
	(b)	What is a database schema? What is the difference between external and internal schema?	7M
		(OR)	
2.		Explain the concept of E-R model? Draw an E-R diagram for banking System. Assume your own entities (Minimum of 5 entities), attributes and relations, Mention cardinality ratio?	14M

UNIT – II

3.	(a)	Explain the Basic Structure of SQL Queries with example?	7M
	(b)	Explain the commands available for modifying the database in SQL?	7M
		(OR)	
4.	(a)	Write about aggregate functions in SQL?	7M
	(b)	Write about SQL joins with an example?	7M

UNIT – III

5.		What is normalization? Explain all Normal forms?	14M
		(OR)	
6.		What are the pitfalls in relational database design? With a suitable example, explain the role of functional dependency in the process of normalization.	14M

UNIT – IV

7.	(a)	Define Query processing? Explain Measures of Query Cost?	7M
	(b)	Explain Transformation of Relational Expressions?	7M
		(OR)	
8.	(a)	List and explain the desirable properties of transactions?	7M
	(b)	What is serilisability? How can serilisability be ensured?	7M

UNIT-V

9.	(a)	Discuss the problems of deadlock and starvation in transaction processing and the different approaches to deal with these problems?	7M
	(b)	Explain about Validation-Based Protocols?	7M
		(OR)	
10.	(a)	Explain Failure Classification and Buffer Management in any recovery system?	7M
	(b)	Explain Lock-Based Protocols?	7M

Q.P. Code: 658412 **SET - 2**

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Sem (R15) Supple. Examinations of November 2019

SUB: OPERATING SYSTEMS (CSE)

Time : 3 Hours Max. Marks: 70

Answer any FIVE Questions choosing one question from each unit.
All questions carry Equal Marks.

UNIT - I

1. (a) Explain in detail about operating system services. 7M
   (b) Describe in detail operating system functions. 7M

(OR)

2. (a) Illustrate and explain operating system structure. 7M
   (b) Explain in detail about distributed systems. 7M

UNIT – II

3. (a) Assume you have the following jobs to execute with one processor, with the jobs arriving in the order listed here: M3 7M

i	T (pi)	Arrival Time
0	80	0
1	20	10
2	10	10
3	20	80
4	50	85

   i) Suppose a system uses RR scheduling with a quantum of 15. Create a Gantt chart illustrating the execution of these processes?
   ii) What is the turnaround time for process p3?
   iii) What is the average wait time for the processes?

   (b) Explain Dining Philosophers Problem and write a monitor scheme to solve that problem. 7M

(OR)

4. (a) Explain briefly FCFS and SJF scheduling algorithms with suitable examples. 7M
   (b) Describe briefly about Semaphore and Semaphore implementation. 7M

UNIT – III

5. Explain briefly about paging, structure of page table with suitable example. 14M

(OR)

6. Explain briefly about demand paging and describe the steps in handling a page fault. 14M

UNIT – IV

7. Describe in detail about various algorithms for deadlock avoidance. 14M

(OR)

8. (a) Explain the structure of directory with a neat sketch. 7M
   (b) Describe the mechanisms to protect the files. 7M

UNIT-V

9. (a) What is protection? List various principles to protection. 7M
   (b) Explain about the implementation of Access Matrix. 7M

(OR)

10. Explain in detail about Program threats with its types. 14M