Course Code: B20HS3101

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A) **R20**

III B.Tech. I Semester MODEL QUESTION PAPER

MANAGERIAL ECONOMICS AND FINANCIAL ACCOUNTANCY

Civil Engineering

Time: 3 Hrs. **Max. Marks: 70 M**

Answer **ONE Question** from **EACH UNIT**

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M
		UNIT-I			
1.		Define Managerial Economics and Explain its nature and scope	**1**	**2**	**14**
		OR			
2.		What do you mean by Elasticity of demand? Explain in detail about degrees of Price elasticity of Demand?	**1**	**2**	**14**
		UNIT-II			
3.		Define Cost & classify the Elements of Cost?	**2**	**2**	**14**
		OR			
4.		How do you calculate BEP? What are its Assumptions and Applications?	**2**	**3**	**14**
		UNIT-III			
5.		What are Market Structures and explain the features of Perfect Competition?	**3**	**2**	**14**
		OR			
6.		Why is pricing significant in the context of business? Describe any four pricing practices?	**3**	**2**	**14**
		UNIT-IV			
7.		Describe about the Importance of Accounting and types of accounts	**4**	**2**	**14**
		OR			
8.		FromthefollowingTrailBalanceofSureshasatDecember31,2013,prepare Trading, Profit and Loss Account for the year ended December 31,2013anda Balance Sheet as on that date: Dr.(Rs.) Cr.(Rs.) Purchases of materials 32,000 Productive wages 13,000 Sales 60,000 Salaries 4,000	**4**	**3**	**14**

		Travelling expenses 1,000 Carriage inwards 550 Insurance 300 Commission 650 Rent and rates 1,000 Cash in hand 350 Cash at bank 5,550 Repairs 600 Sundry expenses 110 Mortgage 6,100 Buildings 8,000 Machinery 3,000 Furniture 1,000 Stock on hand(1.1.2013) 11,500 Capital 21,310 Sundry debtors 9,000 Sundry creditors 4,200 91,610 91,610 ClosingstockRs.12,000			
		UNIT-V			
9.		Explain about capital and the sources available for raising finance	**5**	**2**	**14**
		OR			
10.		Explain about the concept and causes of depreciation. Evaluate the straight-line method and diminishing balance methods.	**5**	**2**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

		Course Code: B20CE3101			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		DESIGN OF STEEL STRUCTURES			
		Civil Engineering			
		TIME: 3Hrs.			**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**(a).**	Define (i) Pitch of bolt (ii) Gauge distance (iii) Edge distance	**1**	**21**	**4**
	(b).	Design a lap joint between two plates of size 120 ×12 mm thick and 100 × 12 mm thick using a single row of M20 bolt of grade 406 and grade 410 plates.	**1**	**4**	**10**
		OR			
2.	**(a).**	Explain any two factors that cause failure of bolted joints.	**1**	**2**	**4**
	(b).	Two plates of 200 × 12 mm are to be connected by a double cover bolt joint with 20 mm diameter bolt. The factored tensile force on the plates is 500 kN. Design the bolted connection.	**1**	**4**	**10**
		UNIT-II			
3.	**(a).**	Explain weld defects.	**2**	**2**	**2**
	(b).	Design a connection to joint two plates of size 200 × 10 mm of grade Fe 410 to use full plate tensile strength using shop fillet welds if (i) a lap joint is used (ii) a double cover bolt joint is used.	**2**	**4**	**12**
		OR			
4.	**(a).**	Explain inspection methods of welds.	**2**	**2**	**2**
	(b).	An ISMC 250 is used to transmit a factored force of 700 kN. The channel section is connected to a gusset plate 10 mm thick. Design a fillet weld, if the overlap is limited to 300 mm. Use slot welds if required.	**2**	**4**	**12**
		UNIT-III			
5.		Design a tension member 3.4 m between c/c of intersections using double angle section and carrying a factored pull of 200 kN. The member is subjected to reversal of stresses.	**3**	**4**	**14**
		OR			
6.		Design a tension member to carry a factored tensile load of 400 kN. Two angles placed back-to-back with long legs outstanding are desirable. The length of the member is 2.9 m.	**3**	**4**	**14**
		UNIT-IV			

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7.		Design a laced column 9 m long to carry a factored axial load of 1200 kN. The column is fixed at both the ends. Provide single lacing system with bolted connection. The column consist of two channels placed back-to-back.	**4**	**4**	**14**
		OR			
8.		Design a built-up column 9 m long to carry a factored axial compressive load of 1100 kN. The column is restrained in position but not in direction at both the ends. Design the column with connecting system as battens with bolted connections. Use two channel sections back-to-back. Use steel of grade Fe 410.	**4**	**4**	**14**
		UNIT-V			
9.		A Simply Supported steel joist of 5.0 m span has to support a load of 60 kN/m (inclusive of self-weight). The beam compression flange is restrained against buckling. Design an appropriate section using steel of grade Fe 410	**5**	**4**	**14**
		OR			
10.		Design a Simply supported beam of span 3.5 m subjected to a factored bending moment of 300 kNm and factored shear of 140 kN. The beam is laterally unsupported. steel grade of Fe 410.	**5**	**4**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

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		Course Code: B20CE3102			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		SOIL MECHANICS			
		Civil Engineering			
TIME: 3Hrs.					**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**(a).**	Derive the Relation $\rho_d=\frac{(1-n_a)G.\rho_w}{1+WG}$	**1**	**3**	**7**
	(b).	In a field exploration, a soil sample was collected in a sampling tube of internaldiameter5cm below ground water table. The length of the extracted sample was 10.2cmand its weight was 387gm.If G=2.7,and the weight of the dried sample is 313gm,Determine the porosity, Void Ratio, Degree of Saturation, Bulk density and dry density of the sample.	**1**	**3**	**7**
		OR			
2.	**(a).**	Discuss about Indian Standard Classification System	**1**	**3**	
	(b).	A soil sample obtained from a core cutter is 500mm in diameter and 100mm in height. Its wet unit weight is 17kN/m3 and dry unit weight is 13kN/m3. If the specific gravity of solids is 2.8 determine the volume of solids of the specimen and also determine the moisture content in the soil specimen.	**1**	**3**	**7**
		UNIT-II			
3.	**(a).**	A Sand deposit consists of two layers. The to player is 2.5mtthick(ρ=1709.67Kg/m3) and the bottom layer is 3.5mthick (ρsat=2064.52Kg/m3).The water table is at a depth of 3.5m from the surface and the Zone of capillary saturation is 1 m above the water table. Determine the Total, Neutral and effective stresses.	**2**	**3**	**7**
	(b).	Explain the factors Effecting Permeability	**2**	**3**	**7**
		OR			
4.	**(a).**	Explain Quick sand condition and critical hydraulic gradient.	**2**	**3**	**7**
	(b).	A Constant head Permeability test was carried out on a cylindrical sample of sand 10cms dia & 15cm height 160cm^3 of water was collected in 1.75 mins. Under a head of 30cm. Compute the Coefficient of permeability (K) & Velocity of Flow.	**2**	**3**	**7**
		UNIT-III			
5.	**(a).**	Derive an expression for the vertical stress at a point due to a point load, using Boussinesq's theory.	**3**	**3**	**7**

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	(b).	A square foundation5mx 5m is to carry a load of 4000kN.Calculate the vertical stress at a depth of 5m below the centre of the foundation IN=0.084for m=n=0.5. Also determine the vertical stress using 2:1 distribution.	**3**	**3**	**7**
		OR			
6.	**(a).**	Explain about Newmark's Influence Chart	**3**	**3**	**7**
	(b).	A Concentrated Load of 2000kNisappliedat the ground surface. Determine the vertical stress at a point P which is6m directly below the load. Also calculate the vertical stress at a point R which is at a depth of 6m but at a horizontal distance of 5m from the axis of the load.	**3**	**3**	**7**
		UNIT-IV			
7.	**(a).**	What is the Effect of Compaction on Engineering Properties of Soil? Discuss in briefly	**4**	**3**	**7**
	(b).	A Stratum of Clay is 2m thick and has an initial overburden pressure of50kN/m2 at its middle. Determine the final settlement due to an increase of 40kN/m2 at the middle of the clay layer. The clay is over-consolidated, with a pre consolidation pressure of 75kN/m2. The values of the coefficients of recompression and Compression index are 0.05 and 0.25, respectively. Take initial Void ratio as 1.40	**4**	**3**	**7**
		OR			
8.	**(a).**	Discuss Terzaghi's theory of consolidation, Stating various assumptions	**4**	**3**	**7**
	(b).	**A**3m thick clay layer beneath a building is over lain by a permeable stratum and is under lain by an impervious rock. The coefficient of consolidation of the clay was found to be 0.025cm2/minute. The final expected settlement for the layer is 8cm,(a) How much time will it take for 80% of the total settlement to take place? (b)Determine the time required for a settlement of 2.5cm to occur (c)Compute the settlement that would occur in one year.	**4**	**3**	**7**
		UNIT-V			
9.	**(a).**	What are the advantages of triaxialshear test over the direct sheartest	**5**	**3**	**7**
	(b).	In a direct shear test, the following results are obtained. Normal stress (kN/m2)25 50 75 Shear stress at failure (kN/m2) 30 45 60 Size of soil sample is 60mm x 60mm. Find the shear parameters if a triaxial test was conducted on the same soil with a cell pressure of 30kN/m2, what would be the deviator stress at failure?	**5**	**3**	**7**
		OR			
10.	**(a).**	How the shear tests classified is based on drainage conditions? What practical situations do they simulate?	**5**	**3**	**7**

	(b).	A shear Vane of 7.5cm diameter and 11.00cm length was used to measure the shear strength of soft clay. If a torque of 600N-m was required to shear the soil, Calculate the shear strength. The Vane was then rotated rapidly to cause remolding of the soil. The Torque Required in the remoulded state was 200N-m. Determine the Sensitivity of the soil.	**5**	**3**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

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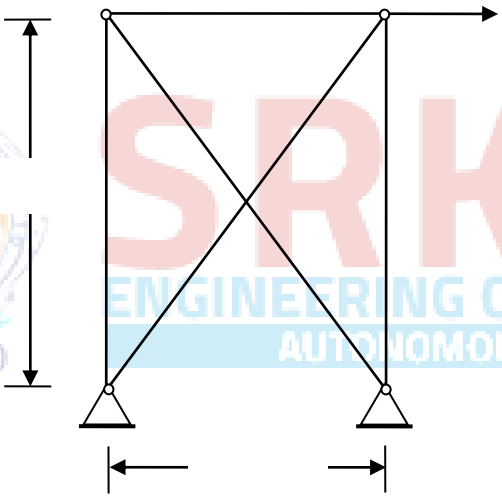
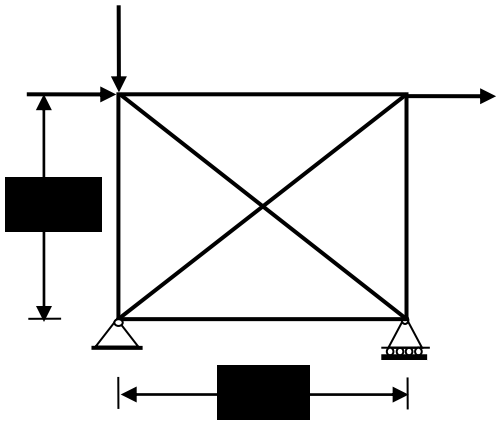
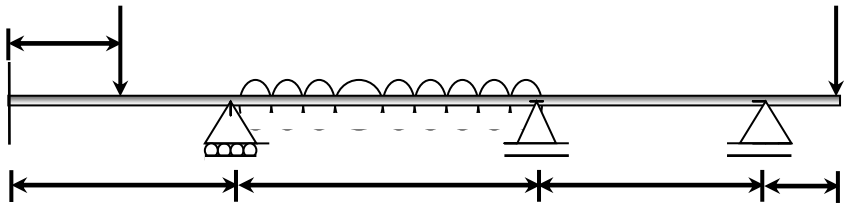
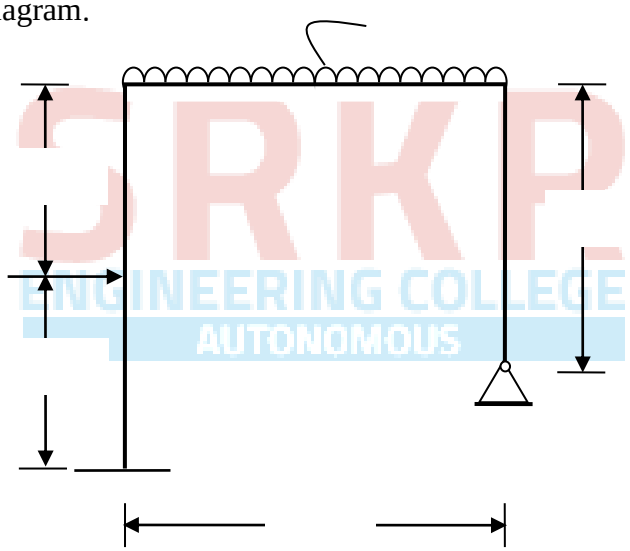
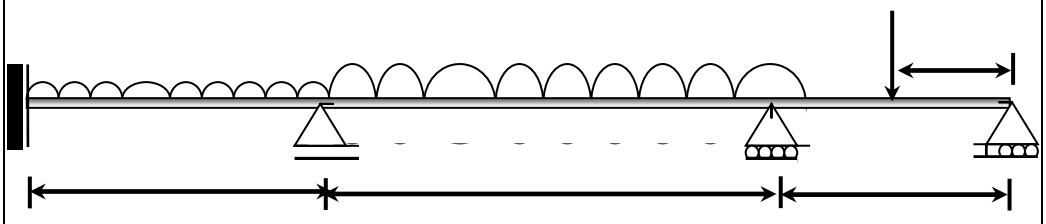
		Course Code: B20CE3103			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		ADVANCED STRUCTURAL ANALYSIS			
		Civil Engineering			
TIME: 3Hrs.					**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.		By the force method analyse the truss with cross diagonals and two hinged supports shown in Fig.(1) by using horizontal reaction at A as the redundant. Numbers in bracket are areas in cm^2, E = 20,000 kN/cm^2 	**1**	**4**	**14**
		OR			
2.		Find the forces in the members of the given truss shown in Fig.2. Cross section area of vertical members is 28 cm^2 and for the other members is 20 cm^2. Take E = 2×10^5MPa. Use Castigliano's theorem II. 	**1**	**4**	**14**

		UNIT-II			
3.		Analyse the continuous beam shown in Fig.3 by by moment distribution method and draw shear and moment diagram. 	**2**	**4**	**14**
		OR			
4.		Analyse the portal frame shown in Fig. (4) by moment distribution method and draw shear and moment diagram. 	**2**	**4**	**14**
		UNIT-III			
5.		Analyse the continuous beam shown in Fig.(5) byKani's method. Draw shear and moment diagram. 	**3**	**4**	**14**
		OR			

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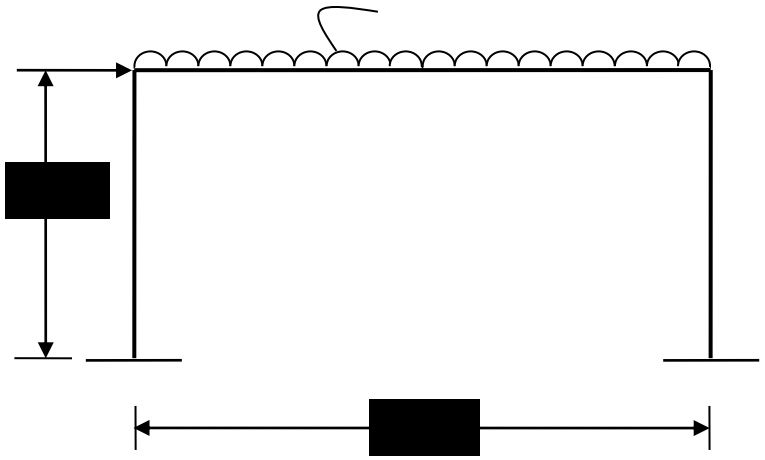
6.	**(a).**	Explain advantages and disadvantages of Kani's method over moment Distribution Method?	**3**	**2**	**2**
	(b).	Analyse the portal frame shown in Fig.(6) by Kani's method. Draw shear and moment diagram. 	**3**	**4**	**12**
		UNIT-IV			
7.		A symmetrical three hinged parabolic arch of span 40 m and rise 8 m carries a point load of 30 kN at 10 m horizontally from the left hand hinge. The hinges are provided at the supports and at the center of the arch. Calculate the reactions at the supports also calculate the bending moment, radial shear and normal thrust at a distance of 10 m from the left support. Also calculate the maximum Positive and B.M and maximum Negative B.M.	**4**	**4**	**14**
		OR			
8.		A two hinged parabolic arch has span 40 m and rise of 6 m it has second moment of arch varies as secant of the slope of rib axis and carries uniformly distributed load 30 kN/m over left half of the spam together with concentrated load of 120 kN act at 5m from right support. Calculate the reactions and horizontal thrust at the ends and point out the values of maximum positive and negative moments and also find out the radial shear and normal thrust at 10m from right support.	**4**	**4**	**14**
		UNIT-V			
9.	**(a).**	Explain the basic difference between a guide pulley and roller support for a suspension cable?	**5**	**2**	**2**
	(b).	A cable is suspended between two points A and B located 60 m apart horizontally. B is lower than A by 15 m. At the point G located at a horizontal distance of 15 m from A, the cable is 12.875 m below the point A. The cable carries a uniform load of 24 kN per metre of span. Determine the position and sag of the lowest point and horizontal tension H in the cable. Also determine the curved length of the cable. The cross-sectional area of cable is 90 cm^2,	**5**	**4**	**12**

		determine the maximum stress in the cable.			
		OR			
10.	**(a).**	Explain function of stiffening girder in a suspension bridge?	**5**	**2**	**2**
	(b).	A suspension bridge of 120 m span has two three hinged stiffening girders supported by two cables having a central dip of 12 m. the road way has a width of 6 m. The dead load on the bridge is 5 kN/m^2 while the live load is 10 kN/m^2 which acts on the left half of the span. Determine the shear force and bending moment in the girder at 30 m from the left end. Find also the maximum tension in the cable of position of live load.	**5**	**4**	**12**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

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		Course Code: B20CE3104			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		REMOTE SENSING AND GIS APPLICATIONS			
		Civil Engineering			
TIME: 3Hrs.					**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**(a).**	Explain the interaction of electromagnetic radiation with atmosphere. Highlight those aspects that find application in earth observation.	**1**	**2**	**7**
	(b).	What are the characteristics of Active and Passive Remote Sensing sensors? Relate them to their preferred applications.	**2**	**2**	**7**
		OR			
2.	**(a).**	Describe energy interaction with earth surface features. Indicate how this knowledge helps in design of sensors for data acquisition.	**1**	**2**	**7**
	(b).	Discuss at least two remote sensing platforms. Explain their relevance to various applications with examples from the Indian and International Space Sector.	**2**	**2**	**7**
		UNIT-II			
3.	**(a).**	Compare visual interpretation of analog satellite imagery and digital image analysis. State the advantages and limitations of both the approaches.	**3**	**2**	**7**
	(b).	Briefly describe the various stages of Digital Image Processing leading up to a classified image output.	**3**	**2**	**7**
		OR			
4.	**(a).**	What are image interpretation keys? Discuss their significance in standardizing the image interpretation exercise.	**3**	**2**	**7**
	(b).	Distinguish between Supervised and Unsupervised classification. State the criteria based on which, one or the other approach is adopted in Image Processing.	**3**	**2**	**7**
		UNIT-III			
5.	**(a).**	Illustrate the workflow of creating a digital Geographic Information System (GIS) Explain the key components.	**4**	**2**	**7**
	(b).	What are map projections? What changes do you notice when you switch the projection of a World Map from Mercator to Peter's projection?	**4**	**2**	**7**
		OR			
6.	**(a).**	Discuss in detail various application areas of Computer and Web-based	**4**	**2**	**7**

		Geographic Information Systems.			
	(b).	Differentiate between the Raster and Vector model of representing spatial data in computer models. State the applications of each model clearly.	**4**	**2**	**7**
		UNIT-IV			
7.	**(a).**	What is Overlay Analysis in GIS? Explain its applications and elaborate with one example.	**4**	**2**	**7**
	(b).	Define DEM and DTM. Draw out the differences in their conception and application.	**4**	**2**	**7**
		OR			
8.	**(a).**	What is Network Analysis in GIS? Explain its applications and elaborate with one example.	**4**	**2**	**7**
	(b).	Explain how 3 D Modelling tools in GIS can help in scenario planning for a dam breach scenario.	**4**	**2**	**7**
		UNIT-V			
9.	**(a).**	What is Land use / Land cover map? Explain its significance in any type of Geospatial Analysis.	**5**	**2**	**7**
	(b).	How can GIS help in Environmental Impact Assessment? Elaborate your answer.	**5**	**2**	**7**
		OR			
10.	**(a).**	State any twp 3D Modelling applications using GIS and explain each one briefly.	**5**	**2**	**7**
	(b).	Elaborate on a few urban applications of GIS.	**5**	**2**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

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			Course Code: B20CE3105		
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		ENVIRONMENTAL IMPACT ASSESSMENT			
		Civil Engineering			
TIME: 3Hrs.					**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**(a).**	List the elements of EIA and explain in detail.	**1**	**2**	**7**
	(b).	Name the guidelines for preparation of EIS and explain.	**1**	**2**	**7**
		OR			
2.	**(a).**	List governmental policies for protection of the environment and discuss.	**1**	**2**	**7**
	(b).	Define EIS. Explain it in detail.	**1**	**2**	**7**
		UNIT-II			
3.	**(a).**	Discuss different environmental indices in detail.	**2**	**2**	**7**
	(b).	Explain the socio-economic attributes and their effect on the environment.	**2**	**2**	**7**
		OR			
4.	**(a).**	Explain the human and cultural aspects.	**2**	**2**	**7**
	(b).	Explain different indices and their importance in EIA study.	**2**	**2**	**7**
		UNIT-III			
5.	**(a).**	Explain different methodologies used for EIA study.	**3**	**2**	**7**
	(b).	Explain the criteria for selection of methodology in EIA assessment.	**3**	**2**	**7**
		OR			
6.	**(a).**	Explain matrix and adhoc methodologies in detail.	**3**	**2**	**7**
	(b).	Explain checklist and network methods in detail.	**3**	**2**	**7**
		UNIT-IV			
7.	**(a).**	Explain how do you predict the impact on air and water	**4**	**2**	**7**
	(b).	Write about prediction and assessment of human and aesthetic attributes in EIA	**4**	**2**	**7**
		OR			
8.	**(a).**	Write in detail how do you predict the impacts of socio economic aspects	**4**	**2**	**7**
	(b).	Explain the prediction and assessment of noise and air	**4**	**2**	**7**
		UNIT-V			
9.	**(a).**	Explain the significance of cost-benefit analysis.	**5**	**2**	**7**
	(b).	Explain the impact of any thermal power plant on the environment.	**5**	**2**	**7**
		OR			

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10.	**(a).**	Explain about controlling measures of environmental impacts.	**5**	**2**	**7**
	(b).	Explain the impact of the mining industry on the environment.	**5**	**2**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

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			Course Code: B20CE3106		
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		PAVEMENT MATERIALS			
		Civil Engineering			
TIME: 3Hrs.					**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**(a).**	What are the desirable properties of subgrade soil? Enumerate the steps in preparation of subgrade.	**1**	**2**	**7**
	(b).	Explain the circumstances in which construction of embankment becomes necessary.	**1**	**2**	**7**
		OR			
2.	**(a).**	How is Subgrade strength assessed for design of flexible pavements? Briefly explain the test procedure.	**1**	**2**	**7**
	(b).	Explain the Concept of CBR and give step by step procedure for design of flexible pavement by CBR method as per IRC recommendations.	**1**	**2**	**7**
		UNIT-II			
3.	**(a).**	Write short notes on Hydrophobic and Hydrophilic Aggregates.	**2**	**2**	**7**
	(b).	Explain the desirable properties of aggregates to be used in pavement construction.	**2**	**2**	**7**
		OR			
4.	**(a).**	Briefly explain the classification of aggregates.	**2**	**2**	**7**
	(b).	Explain the desirable properties of aggregates to be used in different types of pavement construction. State the tests conducted for each property.	**2**	**2**	**7**
		UNIT-III			
5.	**(a).**	Compare bitumen and tar. What are the requirements of bitumen used for road works?	**3**	**2**	**7**
	(b).	Explain with neat sketch manufacturing process of bitumen.	**3**	**2**	**7**
		OR			
6.	**(a).**	Compare the sailent features / characteristics of cutback and emulsions. Under what condition each one is used.	**3**	**2**	**7**
	(b).	What is stripping? What are its adverse effects? Explain any one test on bitumen adhesion.	**3**	**2**	**7**
		UNIT-IV			
7.	**(a).**	Explain briefly the desirable properties of bituminous mixes.	**4**	**3**	**7**

	(b).	Plot the trend of following in a Marshall mix design a) Voids in Mineral aggregate v/s Bitumen content; b) Voids filled with bitumen v/s Bitumen content, c) Air voids v/s Bitumen content; d) Marshall Stability v/s Bitumen content; e) Marshall Flow v/s Bitumen content.	**4**	**3**	**7**
		OR			
8.	**(a).**	Give the concept and brief procedure for Marshall method of mix design.	**4**	**3**	**7**
	(b).	Explain the steps involved in the construction of bituminous penetration macadam base course.	**4**	**3**	**7**
		UNIT-V			
9.	**(a).**	List the different types of tests on cement with limitations as per code and explain any one test.	**5**	**3**	**7**
	(b).	Briefly explain the steps involved in the preparation of subgrade for cement concrete pavement.	**5**	**3**	**7**
		OR			
10.	**(a).**	Explain the requirements of good paving concrete.	**5**	**3**	**7**
	(b).	Outline IRC guidelines for design of concrete mix for concrete pavements.	**5**	**3**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

Estd. 1980
SRKR
ENGINEERING COLLEGE
AUTONOMOUS

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

Course Code: B20CE3201

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A) | **R20**

III B.Tech. II Semester MODEL QUESTION PAPER

WATER RESOURCES ENGINEERING

Civil Engineering

TIME: 3Hrs. **Max. Marks: 70M**

Answer **ONE Question** from **EACH UNIT**

All questions carry equal marks

Assume suitable data if necessary

<table>
<tr><th></th><th></th><th></th><th>CO</th><th>KL</th><th>M</th></tr>
<tr><td></td><td></td><td>UNIT-I</td><td></td><td></td><td></td></tr>
<tr><td>1.</td><td>(a).</td><td>Explain any two methods to compute average rainfall over a basin.</td><td>1</td><td>2</td><td>7</td></tr>
<tr><td></td><td>(b).</td><td>The ordinates of 3hr Unit Hydrograph are given below. Find the ordinates of 6hr Unit Hydrograph.
<table>
<tr><td>Time</td><td>0</td><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td><td>24</td><td>27</td><td>30</td></tr>
<tr><td>Ordinates of 3hr U.H</td><td>0</td><td>10</td><td>25</td><td>20</td><td>16</td><td>12</td><td>9</td><td>7</td><td>5</td><td>3</td><td>0</td></tr>
</table></td><td>1</td><td>4</td><td>7</td></tr>
<tr><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td>2.</td><td>(a).</td><td>Explain the factors affecting Runoff.</td><td>1</td><td>2</td><td>7</td></tr>
<tr><td></td><td>(b).</td><td>Develop an expression for yield of an open well by Recuperation test method.</td><td>1</td><td>4</td><td>7</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>UNIT-II</td><td></td><td></td><td></td></tr>
<tr><td>3.</td><td>(a).</td><td>Explain the zones of storage in a Reservoir.</td><td>2</td><td>2</td><td>7</td></tr>
<tr><td></td><td>(b).</td><td>Explain the various methods of apportionment of total cost of a multi-purpose reservoir.</td><td>2</td><td>2</td><td>7</td></tr>
<tr><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td>4.</td><td>(a).</td><td>Explain various methods for assessment of irrigation water charges.</td><td>2</td><td>2</td><td>7</td></tr>
<tr><td></td><td>(b).</td><td>A water course has a culturable commanded area of 2600 hectares out of which the intensities of irrigation for perennial sugarcane and rice crops are 20% and 40% respectively. The duty for these crops at the head of water course are 250hect/cumec and 1800hect/cumec respectively. Find the discharge required at the head of water course if the peak demand is 120% of average requirement.</td><td>2</td><td>4</td><td>7</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>UNIT-III</td><td></td><td></td><td></td></tr>
<tr><td>5.</td><td>(a).</td><td>Design an irrigation channel to carry a discharge of 6 cumecs. Assume N=0.0225 and m=1. The channel has a bed slope of 0.25 m per kilometer.Use Kennedys theory.</td><td>3</td><td>4</td><td>7</td></tr>
</table>

SRKR ENGINEERING COLLEGE AUTONOMOUS Estd. 1980

	(b).	Explain the modes of failure of a Gravity dam.	**3**	**2**	**7**
		OR			
6.	**(a).**	Explain the causes for Structural failures of earth dams.	**3**	**2**	**7**
	(b).	Explain USBR and IS Stilling Basins.	**3**	**2**	**7**
		UNIT-IV			
7.	**(a).**	Explain the components of Diversion Head Work with a neat figure.	**3**	**2**	**7**
	(b).	Explain the Khoslas method of Independent variables.	**3**	**2**	**7**
		OR			
8.	**(a).**	Explain the design principles of Syphon Well drop with a neat figure.	**3**	**2**	**7**
	(b).	Explain the Classification of Aqueducts with a neat figure.	**3**	**2**	**7**
		UNIT-V			
9.	**(a).**	Explain the classification of River training works.	**4**	**2**	**7**
	(b).	Explain Guide banks and Groynes.	**4**	**2**	**7**
		OR			
10.	**(a).**	Three turbo generators each of capacity 10,000kw have been installed at a hydel power station. During a certain period of load on the plant varies from 12,000kw to 26,000kw. Determine Total installed capacity , Load factor , Plant factor and Utilisation factor.	**4**	**2**	**7**
	(b).	Explain Forebay and Intake structure of a Hydel power plant.	**4**	**2**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

SRKR ENGINEERING COLLEGE

			Course Code: B20CE3202		
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		FOUNDATION ENGINEERING			
		CIVIL ENGINEERING			
TIME: 3Hrs.					**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**(a).**	Explain two boring methods with neat sketch	**1**	**2**	**7**
	(b).	Describe, in brief, various geo physical methods.	**1**	**2**	**7**
		OR			
2.	**(a).**	Discuss standard penetration test. What are the various corrections?	**1**	**2**	**7**
	(b).	The measured N value in a borehole is found tobe20.The depth of the borehole was15m.Thewatertable was located1.5mbelowgroundlevel. The soilis fine silty and it sun it weight above and below water table was16 and 21kN/m3 respectively. Calculate the corrected value of N.	**1**	**3**	**7**
		UNIT-II			
3.	**(a).**	What are different types of shallow foundation? Explain with the help of sketches.	**2**	**2**	**7**
	(b).	ASquarefootingistobedesignedtocarryatotalloadof500KNinasoil having C=10kN/m^2,Ø=25^0,γ=16kN/m^3.Thefootingistobelaidatadepthof 2mts.belowgroundlevelandF.Sis3.Find the Dimension of the footing. Given N_c=22,N_q=11,N_γ=9.	**2**	**4**	**7**
		OR			
4.	**(a).**	Derive the expression for Terzaghi's Bearing Capacity theory and write the assumptions?	**2**	**4**	**7**
	(b).	A footing 4mx2minplan,transmitsapressureof150N/sq.m on a cohesive soil having E=6x104 kN/sq.m andμ=0.50.Determine the immediate settlement of the footing at the center, assuming it to be (a) a flexible footing, I=1.32 and (b) a rigid footing,I=1.20	**2**	**4**	**7**
		UNIT-III			
5.	**(a).**	Explain Pneumatic Caisson with neat sketch and mention its advantages and disadvantages.	**3**	**2**	**7**
	(b).	A concrete pile, 25cm in diameter is driven in to a dense sand (Ø = 300 , γ=20kN/m3 ,K=1, Tanδ=0.70) for a depth of 6m. If the water table is at 2m from the ground level, estimate the safe load, taking Factor of safety 3.	**3**	**4**	**7**
		OR			

6.	**(a).**	Discuss the Causes and Remedies for Tilts and Shifts (with neat sketches) in Well Foundations.	**3**	**2**	**7**
	(b).	A pile group consists of 9 piles of 300mm dia and length 10m, is arranged in 3 rows at spacing of 750mm c/c. The piles are driven into a deposit of clay whose properties are C=100kN/m2 , γ=20kN/m3 .Determine the safe load on the pile group. Take F.S=3,α=0.6,Nc=9	**3**	**4**	**7**
		UNIT-IV			
7.	**(a).**	Discuss the Friction circle method for the stability analysis of slopes. Can this method be used for purely cohesive soil?	**4**	**2**	**7**
	(b).	A cut of length 10m is made in a cohesive soil deposit (C=30kN/m2 , Ø = 00 , γ=20kN/m3).There is a hard stratum under the cohesive soil at a depth of 12m below the original ground surface. If the required factor of safety is 1.5, determine the safe slope	**4**	**4**	**7**
		OR			
8.	**(a).**	Explain types of slope failures	**4**	**2**	**7**
	(b).	A slope is to be Construction in a soil For which C=0and Ø = 360. It is to be assumed that the water level may occasionally reach the surface of a slope, with seepage taking place parallel to the slope. Determine the maximum slope angle for a factor ofsafety1.5,assuming a potential failure surface parallel to the slope What would be the factor of safety of the slope, constructed at this angle ,if the water tables should be well below the surface?	**4**	**4**	**7**
		UNIT-V			
9.	**(a).**	What are the assumptions of Rankine's theory? Derive the expressions for active pressure and passive pressure	**5**	**2**	**7**
	(b).	Determine the passive pressure by Rankine's theory per unit run for a retaining wall 4m high, with i=150 , Ø = 30 0 and γ=20kN/m3 . The back face of the wall is smooth and vertical.	**5**	**4**	**7**
		OR			
10.	**(a).**	Discuss Culmann's method for the determination of active earth pressure.	**5**	**2**	**7**
	(b).	A5mhigh rigid retaining wall has to retain a backfill of dry cohesionless soil having the following properties: Ø = 30^0, e=0.74 and G=2.68. Plot the distribution of Rankine lateral earth pressure on the wall and determine the magnitude and point of application of the resultant thrust.	**5**	**4**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

SRKR ENGINEERING COLLEGE

					Course Code: B20HS3202
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. II Semester (R20) Regular Examinations			
		UNIVERSAL HUMAN VALUES-II: UNDERSTANDING HARMONY			
		(Common to CE, ECE, EEE)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT - I			
1.	a).	Discuss natural acceptance	**1**	**2**	**7**
	b).	Differentiate prosperity and deprivation	**1**	**2**	**7**
		OR			
2.	a).	Write a note on physical facilities.	**1**	**2**	**7**
	b).	Deliberate the right understanding in perspective to self exploration.	**1**	**2**	**7**
		UNIT – II			
3.	a).	Illustrate coexistence of "I" and "Body ".	**1**	**2**	**7**
	b).	Explain doer, seer and enjoyer.	**1**	**2**	**7**
		OR			
4.	a).	Discuss Characteristic activities of Harmony with "I".	**1**	**2**	**7**
	b).	Explain Sanyam and Health.	**1**	**2**	**7**
		UNIT – III			
5.	a).	Write a note on human-human relationship as regarding harmony.	**2**	**2**	**7**
	b).	Differentiate intention and competence.	**2**	**2**	**7**
		OR			
6.	a).	Discuss salient values in relationship.	**3**	**2**	**7**
	b).	Illustrate universal Harmonious Society - an Undivided society.	**3**	**2**	**7**
		UNIT – IV			
7.		Discuss orders of life in nature and its significance self regulation of individual	**4**	**2**	**14**
		OR			
8.		Illustrate existence of human being as coexistence with universe in perspective of space	**4**	**2**	**14**
		UNIT – V			
9.		Discuss importance of professional competence for augmenting universal human order.	**5**	**3**	**14**
		OR			
10.	a).	Case study of typical holistic technologies.	**5**	**3**	**7**
	b).	Role of engineer in promoting harmony in society	**5**	**3**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

		Course Code: B20CE3203			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		ADVANCED STEEL STRUCTURES			
		Civil Engineering			
TIME: 3Hrs.					**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.		Design the section of steel column and suitable base for an axial compressive factored force of 3000kN. The effective length of the column is 5.2 m. The concrete is used for making the pedestal is of M30 grade.	**1**	**4**	**14**
		OR			
2.		Design a stiffened seat connection to join ISMB 350@ 514 N/m with a column section ISHB 300 @ 576.8 N/m. The beam transmits an end reaction of 320 kN due to factored loads. Steel is of grade Fe 410.	**1**	**4**	**14**
		UNIT-II			
3.		Design a welded plate girder 24m in span and laterally restrained throughout. It has support a uniform load of 100 kN/m throughout the span exclusive of self- weight. Design the girder without intermediate transverse stiffeners. The steel for the flanges and web plate of grade Fe410, Design the c/s, end bearing stiffeners and connections	**2**	**4**	**14**
		OR			
4.		Design a welded a plate girder of 20 m span using the tension field action for the following factored forces. Maximum moment = 5000 kNm Maximum shear =900 kN The girder is laterally restrained, connections need not be designed	**2**	**4**	**14**
		UNIT-III			
5.		Design the components of elevated cylindrical steel tank for a capacity of 1,00,000 litres. The height of columns is to be kept as 10.5 m above the ground. The wind pressure intensity of 1.5 kN/m2. (a) Conical roof (b) Cylindrical shell (c)Suspended bottom (d) Connections.	**3**	**4**	**14**
		OR			
6.		Design an elevated cylindrical steel tank with hemispherical bottom, for a capacity of 1,20,000litres. The tank has conical roof and its ring beam is 15 m high above the G.L. Take basic wind pressure as 1.5 kN/m2.	**3**	**4**	**14**

		UNIT-IV			
7.		Design a through type plate railway bridge for single track B.G main line loading for the following data: Effective span: 24 m Spacing of main girders: 5 m c/c Spacing of cross beams: 3 m c/c Spacing of stringers: 2 m c/c Sleepers and their spacing: 250 mm ×× 150 mm ×× 2.8 m @ 0.4 m c/c Density of timber: 7.4 kN/m3 Weight of stock rails: 440 N/m (90 lb/ yard rails) Weight of guard rails: 200 N/m Weight of fastenings etc. 280 N/m of track	**4**	**4**	**14**
		OR			
8.		A Pratt truss girder through bridge for single broadgauge track has an effective span of 40 m. The truss girder has 8 panels of 5 m each. The cross-girders are spaced 5 m apart while the stringers are spaced 2 m between centre lines. The sleepers are spaced 45 cm from centre to centre and has size of 2.8 m ×× 250 mm ×× 200 mm, made of timber weighing 7.5 kN/m3. The weight of stock rails and check rails may be taken as 0.6 and 0.4 kN per metre run. The centre to centre spacing of main girders is 7 m. Design, for the central panel, the top chord member, bottom chord member and vertical and diagonal. Also design the joints. Take the height of girder between c.g of chord as 6.5 m.	**4**	**4**	**14**
		UNIT-V			
9.		Design a rocker bearing for a bridge girder having the following data; (a) DL+LL+IL reaction: 1200 kN (b) Reaction due to wind overturning effect: 230 kN (c) Lateral load due to wind: 80 kN (d) Longitudinal force: 360 kN Assume any other data not given.	**5**	**4**	**14**
		OR			
10.		Design a roller bearing of the type suggested by a Railway Board for the data of the above (9th Question)	**5**	**4**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

SRKR ENGINEERING COLLEGE AUTONOMOUS

		Course Code: B20CE3204			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		AIR POLLUTION AND CONTROL			
		Civil Engineering			
TIME: 3Hrs.					**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**(a).**	Define air pollution. Explain the various factors influencing air pollution.	**1**	**2**	**7**
	(b).	Explain about the typical gaseous pollutants and their sources	**1**	**2**	**7**
		OR			
2.	**(a).**	Explain various air quality standards	**1**	**2**	**7**
	(b).	Explain the major harmful effects of particulate matter on human health and materials?	**1**	**2**	**7**
		UNIT-II			
3.	**(a).**	Explain the plume behaviour in detail.	**2**	**2**	**7**
	(b).	What is maximum mixing depth? Explain its practical significance in Air pollution control.	**2**	**2**	**7**
		OR			
4.	**(a).**	What is atmospheric stability? Explain the temperature inversions with reference to air pollution.	**2**	**2**	**7**
	(b).	What is meant by effective stack height? Mention guidelines for minimum.	**2**	**2**	**7**
		UNIT-III			
5.	**(a).**	List the recorded major air pollution episodes chronologically. State their significant features.	**3**	**2**	**7**
	(b).	How SOx and NOx emissions affect human health and the growth of plants?	**3**	**2**	**7**
		OR			
6.	**(a).**	Discuss the Causes and Remedies for Tilts and Shifts (with neat sketches) in Well Foundations.	**3**	**2**	**7**
	(b).	A pile group consists of 9 piles of 300mm dia and length 10m, is arranged in 3 rows at spacing of 750mm c/c. The piles are driven into a deposit of clay whose properties are C=100kN/m2 , γ=20kN/m3 .Determine the safe load on the pile group. Take F.S=3,α=0.6,Nc=9	**3**	**4**	**7**
		UNIT-IV			
7.	**(a).**	List the sampling devices used for air quality monitoring. Explain in brief various sampling methods of gaseous pollutants.	**4**	**2**	**7**

	(b).	Explain the importance of stack monitoring. List out various methods of stack monitoring.	**4**	**2**	**7**
		OR			
8.	**(a).**	Write short notes on Ambient Air Quality monitoring.	**4**	**2**	**7**
	(b).	What is the use of high volume sampler? Explain.	**4**	**2**	**7**
		UNIT-V			
9.	**(a).**	Explain with the help of a neat sketch the working of an electrostatic precipitator.	**5**	**2**	**7**
	(b).	Explain with the help of a neat sketch the working of a centrifugal scrubber.	**5**	**2**	**7**
		OR			
10.	**(a).**	Explain working of a cyclone separator with a neat sketch.	**5**	**2**	**7**
	(b).	Explain when do you recommend absorption as a method of control of gaseous contaminants?	**5**	**2**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

Estd. 1980
SRKR
ENGINEERING COLLEGE
AUTONOMOUS

		Course Code: B20CE3205			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		URBAN HYDROLOGY			
		Civil Engineering			
TIME: 3Hrs.					**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.		Define Urbanisation. Explain its effect on water cycle.	**1**	**2**	**14**
		OR			
2.		Explain Urban Hydrological Cycle with a neat figure.	**1**	**2**	**14**
		UNIT-II			
3.		Explain the methods of estimation of time of concentration for design of urban drainage systems.	**1**	**2**	**14**
		OR			
4.		Explain Intensity-Duration-Frequency (IDF) curves for rainfall analysis.	**1**	**2**	**14**
		UNIT-III			
5.		Explain Natural Resources Conservation Service (NRCS) curve number approach to Urban drainage.	**2**	**2**	**14**
		OR			
6.		Explain any two elements of drainage systems.	**2**	**2**	**14**
		UNIT-IV			
7.		Explain the design of storm water network.	**3**	**2**	**14**
		OR			
8.		Explain about Swales and Constructed wetlands.	**3**	**2**	**14**
		UNIT-V			
9.		Explain the typical urban drainage master plan.	**4**	**2**	**14**
		OR			
10.		Explain the use of models in planning drainage plans.	**4**	**2**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

SRKR ENGINEERING COLLEGE AUTONOMOUS Estd. 1980

			Course Code: B20CE3206		
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		GEOSYNTHETICS AND ITS APPLICATIONS			
		Civil Engineering			
TIME: 3Hrs.					**Max. Marks: 70M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**(a).**	Explain the characteristics of different types of geosynthetics.	**1**	**2**	**7**
	(b).	Explain about geosynthetic clay liners and geocells.	**1**	**2**	**7**
		OR			
2.	**(a).**	Explain in detail about geotextiles and geomembranes.	**1**	**2**	**7**
	(b).	Explain in detail any two major factors to be consider in the selection of a geosynthetic for field application.	**1**	**2**	**7**
		UNIT-II			
3.		Describe the major steps of manufacturing process for Woven and Non-woven geotextiles	**2**	**2**	**14**
		OR			
4.		Explain various bonding processes used in manufacturing of geosynthetics	**2**	**2**	**14**
		UNIT-III			
5.		Explain in detail the mechanical properties of geosynthetics.	**3**	**2**	**14**
		OR			
6.		Explain various hydraulic properties of geosynthetics in detail.	**3**	**2**	**14**
		UNIT-IV			
7.		Explain the reinforcement and filtration function of geosynthetics in detail.	**4**	**2**	**14**
		OR			
8.	**(a).**	Explain drainage function of geosynthetics in detail.	**4**	**2**	**7**
	(b).	Explain the suitability of various geosynthetics according to their function.	**4**	**2**	**7**
		UNIT-V			
9.		Explain in detail any two applications of geosynthetics in soil reinforcement.	**5**	**2**	**14**
		OR			
10.		Explain how geosynthetics are used for hydraulic applications.	**5**	**2**	**14**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

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