SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)
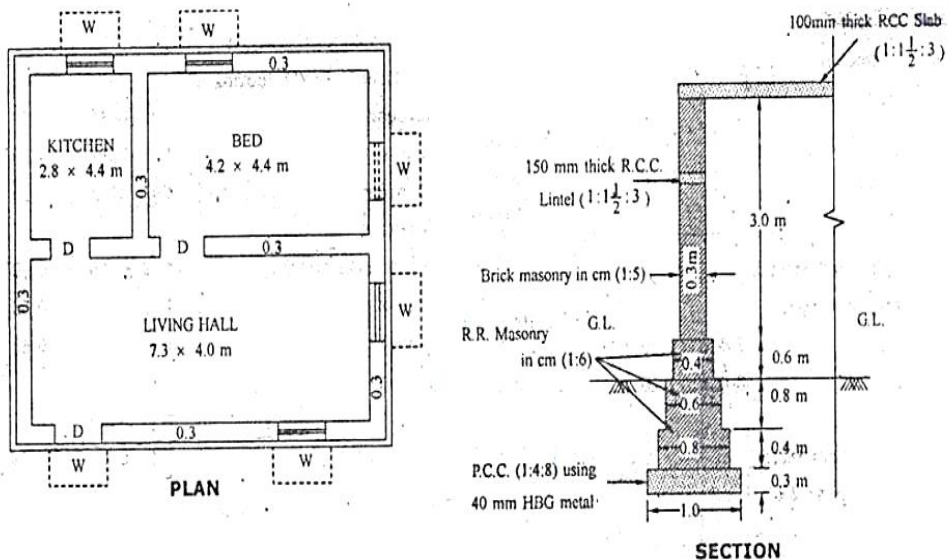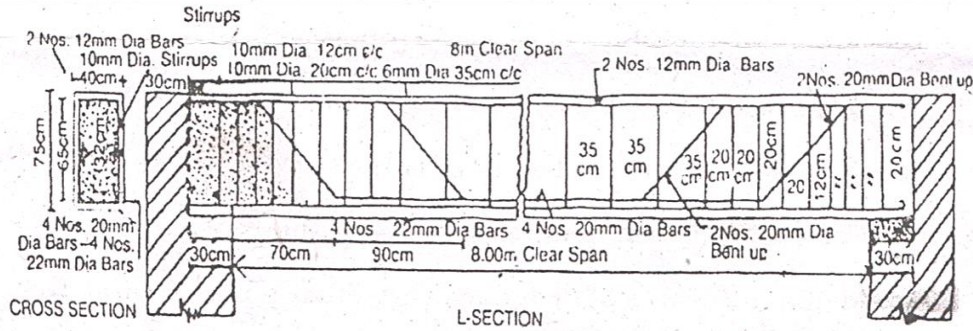**IV B.Tech. I Semester MODEL QUESTION PAPER**
ESTIMATION, SPECIFICATIONS & CONTRACTS
CIVIL ENGINEERING

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).**	State and explain different types of Sanctions/Approvals		**1**	**2**	**7**
	b).	Explain the following: i) SoR ii) Contingencies and Work charged establishment		**1**	**2**	**7**
		OR				
2.	**a).**	Explain about data required for preparation of estimate?		**1**	**2**	**7**
	b).	State and explain different types of estimates?		**1**	**2**	**7**
		UNIT–II				
3.		 Estimate the quantities of the building items of a two roomed building from the given plan and section as shown in the figure below Lime concrete in foundation 1st class brick work with 1:6 cement mortar in foundation Brick work in Super structure		**2**	**3**	**14**

		OR			
4.		Prepare a detailed estimate of the following items for a R.C.C. beam of 8 meter clear span and 75cm X 40cm in section from the given figure i) R.C.C. work including centering and shuttering ii) Steel in detail shall be calculated separately and iii) Prepare a schedule of bars. 	2	3	14
		UNIT–III			
5.	**a).**	Prepare the rate analysis for Brick masonry work in CM (1:6).	3	3	7
	b).	Prepare the rate analysis for Plastering in CM (1:4), 12mm thick for walls	3	3	7
		OR			
6.	**a).**	Give the detailed specifications for the following items of work i) RCC (1:2:4) for roof slabs ii) Random Rubble stone masonry in (1:3) lime sand mortar	3	3	7
	b).	Give the detailed specifications for the following items of work i) Plastering for walls ii) Wood work for door and window frames	3	3	7
		UNIT–IV			
7.		Estimate the cost of earthwork for a portion of road for 360m length from the following data: The formation width of the road is 10m and the side slopes are 2:1 in banking and 1.5:1 in cutting	4	3	14

Stn	25	26	27	28	29	30	31	32	33	34	35
Dist (m)	0	40	80	120	160	200	240	280	320	360	400
Rlof Gl (m)	51.0	50.9	50.5	50.8	50.6	50.70	51.2	51.4	51.3	51.0	50.6
Rlof Fl (m)	52.0	----------------Downward gradient of 1 in 200----------------------→									

		OR					

		The ground levels along the center line of the road are given below				

Chainage (meters)	0	50	100	150
RL of Ground	97.00	96.50	96.00	97.50

8.		The road is to be formed in embankment with the formation level at 100.00m throughout the length. If the road width is10.00 m and the side slopes 2:1, calculate the quantity of earthwork required by Trapezoidal rule. Assume transverse slope as level	4	3	14

		UNIT–V			
9.	**a).**	Differentiate between i) Market Value and Book Value ii) Scrap value and Salvage Value	5	2	7
	b).	An old building has been purchased by a person @ a cost of Rs. 6,00,000/- excluding the cost of land. Calculate the amount of annual sinking fund @ 9% interest assuming the life of building as 30 years and the scrap value of the building as 10% of the purchase.	5	3	7
		OR			
10.	**a).**	Define contact and explain types of contracts.	5	2	7
	b).	Explain about the conditions of contract in construction	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

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

IV B.Tech. I Semester MODEL QUESTION PAPER

DESIGN OF ADVANCED RCC STRUCTURES

CIVIL ENGINEERING

TIME: 3Hrs					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 cantilever retaining wall is to retain an earthen embankment 3 m high above ground level and loaded uniformly with a load of 80 kN/m^2. Its foundation is 1.2 m below the ground level. The soil bearing capacity (SBC) of soil is 250 kN/m^2. The unit weight of earth is 17 kN/m^3 and angle of repose is 30^0. Design the slab-protons the heel and the toe and sketch the reinforcement details.	1	4	14
		OR			
2		A counterfort retaining wall to retain 4 m earth above ground level. The surface of backfill is horizontal. The unit weight of soil (γ) is 15 kN/m^3. The angle of internal friction (Φ) of soil is 30^0. The safe bearing capacity of soil is 200 kN/m^2 and the coefficient of friction (μ) between soil and wall is 0.60. Design Stem, heel slab and counterfort and sketch the reinforcement details.	1	4	14
		UNIT–II			
3		An under-ground water tank of internal dimensions 12 m x 3 m x 2.4 m deep. Take unit weight of saturated soil (γ_{sat}), angle of repose (Φ) are 18 kN/m^3 and 30^0 respectively. Design long and short walls of the tank when tank is empty and active earth pressure is present. And sketch details of reinforcement.	2	4	14
		OR			
4		Design a circular tank with a flexible base for a tank of 1,00,000 liters capacity by using Approximate method. The depth of water in the tank is 5m. Use M25 grade of concrete and Fe 415 steel. Take unit weight of water is 9.80 kN/m^2.	2	4	14

		UNIT–III			
5.		Design a reinforced concrete slab culvert for a effective span of 14.5m to suit the following data carriageway (Two lane) 7.5 m wide Grade of concocteM20 Grade, Grade of steel Fe415, Kerbs 600mm wide clear span 6m, wearing coat 80mm, width of bearing 400mm. Design the deckslab. The design should confirm to relevant IRC codes. Sketch the reinforcement details in the slab	3	4	14
		OR			
6.		Design T-Beam bridge for a effective span of 14.5m of state highway. Clear roadway 7.5m,M20concrete and Fe415 HySDbarsclear cover to reinforcement 40mm The design should confirm to IRC codes	3	4	14
		UNIT–V			
7.		Design a precast pile of diameter 400 mm carrying an axial load of 275 kN, placed in submerged medium dense sandy soil having an angle of internal friction of 32°. The density of soil is 18 kN/m^3. And submerged density of soil is 10 kN/m3. Angle of wall friction between concrete pile and soil, δ is 0.75 ϕ= 24°. Assume the following data: Depth of top of pile cap below ground level is 500 mm, thickness of pile cap is 1.5 m, grade of concrete in pile is M25, Fe 4154 steel is used, and clear cover to reinforcement is 75 mm, Determine the vertical carrying capacity of the pile in accordance with IS 2911(part 1, Section 1) and design the pile. Sketch the details of reinforcements in the pile.	4	4	14
		OR			
8.		An RC column of size 500 mm × 500 mm is supported on four piles of 300 mm diameter (bored cast in situ piles).The column carries a load of 1000 kN, a moment of 300 kNm in x-x direction, and a shear force of 50 kN on top of the pile. Design the pile cap assuming M25 concrete and Fe 415 steel. Further, assume that the piles are capable of resisting the reaction from the pile capand sketch the details of reinforcements.	4	4	14
		UNIT–V			
9.		Design the interior panel of a large single-storey warehouse flat slab roof with a panel size of 6 m× 6 m supported by columns of size 500 mm × 500 mm. The height of the columns is 5 m. Take live load as 3.0 kn/m^2 and weight of finishes including waterproof treatment as 2.5 kN/m^2. Use M25 concrete and Fe 415 steel. (Flat slab with drop panels). Assume mild environment.	5	4	14
		OR			
10.		Design a flat slab supported on columns spaced at 5.5 m in both directions. The size of the column is 500 mm × 500 mm and the imposed	5	4	14

| | | load on the panel is 4.0 kN/m^2. Height of the each floor is 3.5 m. The floor slab is exposed to moderate environment. Assume floor finish load to be 1.0 kN/m^2 and use M25 concrete and Fe 415grade steel. | | | |

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: B20CE4103
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			
		IV B.Tech. I Semester MODEL QUESTION PAPER			
		SOLID WASTE MANAGEMENT			
		CIVIL ENGINEERING			
TIME: 3Hrs					**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).	Explain about sources, types and characteristics of solid waste.	1	3	7
	b).	What are the problems due to improper disposal of solid waste? Explain.	1	2	7
		OR			
2.	a).	Explain the physical and chemical characteristics of solid wastes in detail.	1	3	7
	b).	Define the term refuse. Explain different sources of refuse generation in detail.	1	3	7
		UNIT-II			
3.	a).	Explain the functional elements of the solid waste management.	2	3	7
	b).	Explain how waste is handled at each source in detail.	2	3	7
		OR			
4.	a).	Explain the collection methods of solid wastes.	2	3	7
	b).	Explain the process of reuse and recycling of solid wastes.	2	3	7
		UNIT–III			
5.	a).	Explain the processes in transfer station.	3	3	7
	b).	Explain about various segregation and processing methods of solid waste in detail.	3	3	7
		OR			
6.	a).	Explain various methods of segregation of solid wastes.	3	3	7
	b).	Explain in detail how solid wastes are transported from the source.	3	3	7
		UNIT–IV			
7.	a).	Explain composting in detail.	4	3	7

	b).	Explain the advantages and disadvantages of solid waste incineration method.	4	3	7
		OR			
8.	**a).**	Explain incineration process in detail.	4	3	7
	b).	Explain the processing and transformation of solid wastes.	4	3	7
		UNIT-V			
9.	**a).**	Explain Disposal methods of solid wastes.	5	3	7
	b).	Explain the operation of landfill in detail.	5	3	7
		OR			
10.	**a).**	Explain deep well injection of solid waste.	5	3	7
	b).	List various energy recovery processes. Explain any two processes in detail.	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

			Course Code: B20CE4104		
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			
		IV B.Tech. I Semester MODEL QUESTION PAPER			
		SURFACE HYDROLOGY			
		CIVIL ENGINEERING			
TIME: 3Hrs					**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).**	Explain Hydrological Cycle.	**1**	**2**	**7**
	b).	Explain the Constituents of atmosphere.	**1**	**2**	**7**
		OR			
2.	**a).**	Define Precipitation. Classify types of Precipitation.	**1**	**2**	**7**
	b).	Explain about Global Water Budget.	**1**	**2**	**7**
		UNIT–II			
3.	**a).**	Explain the working of any two Automatic Rain Gauges.	**2**	**2**	**7**
	b).	The normal annual rainfall at stations A, B and C are 170.6, 180.3 and 165.3cm respectively. In 1987 station B was inoperative and stations A and c recorded annual precipitations of 153.0 and 145.1cm respectively. Determine the rainfall at station B in that year.	**2**	**2**	**7**
		OR			
4.		Explain the methods of computation of average rainfall over a basin.	**2**	**2**	**14**
		UNIT–III			
5.	**a).**	Define Infiltration Index. How do you determine it?	**2**	**2**	**7**
	b).	Explain the factors affecting Infiltration.	**2**	**2**	**7**
		OR			
6.		Define Evaporation. Explain various factors effecting Evaporation and also discuss the methods of measuring Evaporation.	**2**	**2**	**14**
		UNIT–IV			
7.	**a).**	Explain the factors affecting Runoff.	**3**	**2**	**7**
	b).	The ordinates of 3hr Unit Hydrograph are given below. Find the ordinates of 6hr Unit Hydrograph.	**3**	**3**	**7**

		Time	0	3	6	9	12	15	18	21	24	27	30			
		ordinates of 3hr U.H	0	10	25	20	16	12	9	7	5	3	0			
		OR														
8.	a).	What is S-Hydrograph and how is it constructed and what is the purpose of it?											3	2	7
	b).	Define Unit Hydrograph. Explain its use in construction of Flood Hydrograph and also explain the assumptions of Unit Hydrograph theory.											3	2	7
		UNIT–V														
9.	a).	Explain the working principle of Current meter.											4	2	7
	b).	What are the factors to be considered for selection of a Stream Gauging site?											4	2	7
		OR														
10.	a).	Explain the relation between area-velocity method and area-slope method.											4	2	7
	b).	Explain the Dilution method of Stream Flow measurement.											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

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

IV B.Tech. I Semester MODEL QUESTION PAPER

SOIL DYNAMICS AND MACHINE FOUNDATION

CIVIL ENGINEERING

TIME: 3Hrs					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.		Explain briefly about free and forced vibration with and without damping		**1**	**2**	**7**
		OR				
2.		Explain clearly about types of damping and what do you understand about resonance		**1**	**2**	**7**
		UNIT–II				
3.		Describe different modes of vibrations and also write about natural frequency of foundation soil system		**2**	**2**	**7**
		OR				
4.		Explain briefly about Reisner Theory and limitations of Reisner theory		**2**	**2**	**7**
		UNIT–III				
5.		Explain dynamic properties of soils and their importance in the field		**3**	**2**	**7**
		OR				
6.		Illustrate block vibration test and explain determination of damping factor		**3**	**2**	**7**
		UNIT–IV				
7.		Explain types of machine foundations and what are the general requirements for design		**4**	**2**	**7**
		OR				
8.		Explain the IS code provisions for the design foundations of reciprocating machines.		**4**	**2**	**7**
		UNIT–V				
9.		Explain about the design data and design criteria for machine foundations		**5**	**2**	**7**
		OR				
10.		Explain the IS code provisions for the design foundations of Impact type of machines.		**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

						Course Code: B20CE4106

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

IV B.Tech. I Semester MODEL QUESTION PAPER

REPAIRS, RETROFITTING AND REHABILITATIONS OF 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 the following terms i) Repair, ii) Retrofit, iii) Rehabilitation, iv) strengthening	1	2	7
	b).	What are the causes of deterioration of concrete? Explain any three.	1	2	7
		OR			
2.		Explain the causes and characteristics of cracks in RCC structural members.	1	3	14
		UNIT-II			
3.	**a).**	Discuss the purpose of damage assessment.	2	3	7
	b).	List out various Non-destructive testing methods and explain any two of them.	2	2	7
		OR			
4.	**a).**	Explain about the rapid assessment of damage	2	3	7
	b).	Explain the chemical tests of concrete	2	3	7
		UNIT-III			
5.	**a).**	Explain the effects due to temperature on durability of concrete	3	3	7
	b).	Explain the mechanism of corrosion of steel reinforcement	3	3	7
		OR			
6.		Mention the various corrosion protection techniques and explain any three	3	3	14
		UNIT-IV			
7.	**a).**	Explain briefly CFRP and GFRP	4	3	7
	b).	Explain about sulphur infiltrated concrete	4	3	7
		OR			
8.	**a).**	Explain the usage of epoxy resins.	4	3	7

			CO	KL	M
b).	Explain about ferro cement as rehabilitation material	4	3	7
		UNIT-V			
9.	**a).**	Explain about drypack repairing technique	5	3	7
	b).	Differentiate between shoring and underpinning. Explain any two methods of underpinning	5	3	7
		OR			
10.	**a).**	Explain the column jacketing technique with neat sketch	5	3	7
	b).	List out various techniques for strengthening of beams and explain any one technique with neat sketch	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: B20CE4107

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

IV B.Tech. I Semester MODEL QUESTION PAPER

GROUND IMPROVEMENT TECHNIQUES

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 various factors that affect field compaction of soils?	1	3	7
	b).	Explain in detail the different types of drains used for in-situ densification of cohesive soils with neat sketches?	1	3	7
		OR			
2.	a).	Describe various methods of installation of stone columns?	1	3	7
	b).	Explain various types of rollers used in field compaction of soils.	1	3	7
		UNIT–II			
3.	a).	Explain different types of grouting with one example to each.	2	3	7
	b).	Explain various categories of grouting with neat sketches wherever necessary.	2	3	7
		OR			
4.	a).	Explain various components of grout plant.	2	3	7
	b).	What is Tube-A-Manchette. How grouting is done using it.	2	3	7
		UNIT–III			
5.	a).	Explain various applications of geotextiles in accordance with their functions.	3	3	7
	b).	Explain any two tests carried out for suitability of geotextiles as reinforcement in soil.	3	3	7
		OR			
6.		Explain different tests you would conduct to determine the physical and hydraulic properties of geotextiles?	3	3	14
		UNIT–IV			
7.	a).	What is reinforced soil. How is it different from reinforced concrete?	4	3	7
	b).	Explain in detail the components of Reinforced soil	4	3	7
		OR			
8.	a).	What are the various applications of reinforced soil?	4	3	7

	b).	Explain various factors that affect angle of interfacial friction.	4	3	7
		UNIT–V			
9.	a).	Explain Ruthfutch's Method of proportioning soils for Mechanical stabilization?	5	3	7
	b).	What is lime stabilization of soils? Explain various engineering benefits of lime stabilization of soils.	5	3	7
		OR			
10.	a).	What is cement stabilization of soils? Explain soil-cement reactions and factors that effect cement stabilization of soil.	5	3	7
	b).	Explain various in-situ methods used in stabilization of soils.	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: B20CE4108

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

IV B.Tech. I Semester MODEL QUESTION PAPER

TRAFFIC MANAGEMENT

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

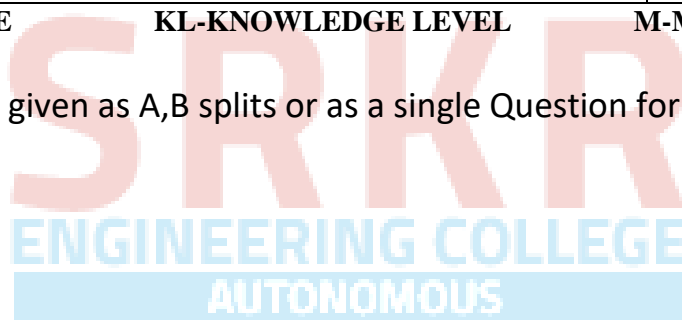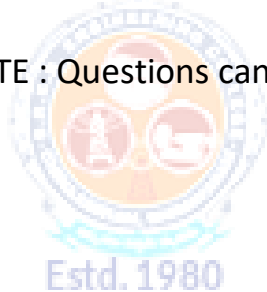|			CO	KL	M
		UNIT-I			
1.		Explain the following traffic management measures: a) Tidal flow operation b) Exclusive bus lane c) Restriction on turning movement d) Traffic calming	1	2	14
		OR			
2.	**a)**	Explain the various measures for traffic calming.	1	2	7
	b)	Explain Intelligent transportation System and discuss how the different functional areas of ITS helps in traffic management.	1	2	7
		UNIT-II			
3.	**a)**	What is the need for speed regulation and discuss the various methods of enforcing speed regulations.	2	2	7
	b)	Explain the various regulations concerning the driver.	2	2	7
		OR			
4.	**a)**	Explain Motor vehicle Act.	2	2	7
	b)	Explain significance of traffic regulations in traffic engineering?	2	2	7
		UNIT-III			
5.	**a)**	Define basic capacity, possible capacity and practical capacity.	3	2	7
	b)	Explain concept of LOS With neat sketches	3	2	7
		OR			
6.	**a)**	Explain the procedure for computation of capacity of rotary intersection using Wardrop's formula.	3	2	7
	b)	Explain factors that influence the capacity of signalised intersection.	3	2	7
		UNIT-IV			

7.	a)	Describe the measures that can be adopted to prevent accidents	4	2	7
	b)	Explain (a) Condition Diagram (b) Collision Diagram, and its use in accident studies	4	2	7
		OR			
8.	a)	Explain traffic segregation methods.	4	2	7
	b)	What are the causes of road accidents and discuss how each of these factors leads to accident and its preventive measures.	4	2	7
		UNIT–V			
9.	a)	Explain the warrants for traffic signals	5	2	7
	b)	Differentiate between at grade intersections and grade separated intersections with sketches.	5	2	7
		OR			
10.	a)	Explain the various types of co-ordinated signal system	5	2	7
	b)	Explain with a neat diagram, the various design elements of rotary type intersections. How the capacity of a rotary is determined?	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

			CO	KL	M

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

IV B.Tech. I Semester MODEL QUESTION PAPER

CONSTRUCTION TECHNOLOGY AND MANAGEMENT

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	**a)**	Explain "Mile stone Charts" with an Example?	**1**	**2**	**7**
	b)	Explain the scope and significance of Construction Management?	**1**	**2**	**7**
		OR			
2	**a)**	Explain the 3 Phases of Construction Project Management?	**1**	**2**	**6**
	b)	Draw a Bar-Chart for the following data and find out the date of completion of the project if it commences on Friday 7th November. There are only 5 working days in a week. Both Saturday and Sunday are holidays. Activity / Duration in days table below These activities can be performed in the following manner: ▪ Activity A and B can be performed in parallel ▪ Activity C and D cannot start until Activity A is completed ▪ Activity E cannot start until half the work of the activity C is completed ▪ Activity F can start only after Activity D is completed ▪ Activity G succeeds Activity C ▪ Activity H is the last activity which should succeed Activity E	**1**	**3**	**8**
		UNIT-II			
3		A project consists of 9 activities and the details about them are given below. Draw the project network, identify critical path and determine duration of the project.	**2**	**3**	**14**

Activity	A	B	C	D	E	F	G	H
Duration in days	2	4	2	4	6	4	5	4

Activity	A	B	C	D	E	F	G	H	I (Last)
Duration in weeks	8	6	3	7	5	6	3	10	5
Predecessor(s)	-	A	B	C	D	B	B	G	EFH

OR

4	a)	Briefly explain various types of Floats in CPM network analysis?	2	2	7
	b)	Explain the three-time estimates of PERT?	2	2	7

UNIT-III

5	a)	Define the term "Updating" and explain why it is necessary to Update a network?	3	2	7
	b)	Explain briefly about project direct cost and indirect cost?	3	2	7

OR

6	The following information is given about the various activities of a network Project overhead costs are at Rs.2000 per week. Determine (a) Optimum duration and min cost of the given project network (b) Plot total cost Vs time curve.	3	3	14

Activity	Normal duration	Normal cost (Rs)	Crash duration	Crash cost (Rs.)
1-2	4 weeks	4,000	3 weeks	7,000
1-3	8 weeks	5,000	7 weeks	8,000
2-3	5 weeks	8,000	3 weeks	10,000

UNIT-IV

7	Explain briefly about various Trucks and handling equipment?	4	2	14

OR

8	Explain the calculation of truck production with an Example?	4	2	14

UNIT-V

9	a)	Explain the importance of workmen compensation act in Construction Industry?	5	2	7

	b)	What are the common safety problems in construction? Explain?	**5**	**2**	**7**
		OR			
10	**a)**	Explain the importance of safety in construction Industry?	**5**	**2**	**7**
	b)	Explain the provisions of minimum wages act?	**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

	**SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)**		**R20**
IV B.Tech. I Semester MODEL QUESTION PAPER
PRESTRESSED CONCRETE
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.	**a)**	Explain about pre-tensioning and post-tensioning systems with figures.	**1**	**3**	**7**
	b)	Explain advantages and limitations of prestressed concrete?	**1**	**2**	**7**
		OR			
2.	**a)**	Explain briefly principal of post-tensioning?	**1**	**3**	**7**
	b)	List out the types of prestressing systems and explain Freyssinet system.	**1**	**2**	**7**
		UNIT – II			
3.		rectangular concrete beam,100 mm wide by 250 mm deep, spanning over 8 m is prestressed by a straight cable carrying an effective prestressing force of 250 kN located at an eccentricity of 40 mm. The beam supports a live load of 1.2 kN/m. a) Calculate the resultant stress distribution for the central cross-section of the beam.The density of concrete is 24 kN/m^3. b) Find the magnitude of the prestressing force with an eccentricity of 40 mm which can balance the stresses due to D.L and L.L at the bottom fibre of the central section of the beam.	**2**	**3**	**14**
		OR			
4.		A prestressed concrete beam of section 120 mm wide by 300 mm deep is used over an effective span of 6 m to support a uniformly distributed load of 4 kN/m, which includes the self-weight of the beam. The beam is prestressed by a straight cable carrying a force of 180 kN and located at an eccentricity of 50 mm. Determine the location of the thrust line in the beam and plot its position at quarter and central span sections?	**2**	**3**	**14**
		UNIT – III			

5.	a)	A pretensioned beam of rectangular cross-section, 150 mm wide and 300 deep, is prestressed by 8.7 mm wires located 100 mm from the soffit of the beam. If the wires are initially tensioned to a stress of 1100 N/mm², calculate their stress at transfer and the effective stress after all losses given the following data. Up to time of transfer Total Relaxation of steel --- 35 N/mm² 70 N/mm² Shrinkage of concrete --- 100×10^{-6} 300×10^{-6} Creep Coefficient --- --------- 1.6 E_s = 210 kN/mm² E_c = 31.5 kN/mm²	3	3	10
	b)	Explain types of losses in prestressed concrete beams?	3	3	4
		OR			
6.	a)	A pretensioned beam 250 mm wide and 300 mm deep is prestressed by 12 wires each of 7 mm diameter initially stressed to 1200 N/mm² with their centroids located 100 mm from the soffit, estimate the final percentage loss of stress due to elastic deformation, creep, shrinkage and relaxation using IS:1343-1980 code and the following data: Relaxation of steel stress = 90N/mm², Es = 210N/mm², Ec = 35 N/mm², Creep coefficient ø =1.6, Residual shrinkage strain = 3×10^{-4}	3	3	10
	b)	Write a note on creep of concrete in prestressed members?	3	3	4
		UNIT – IV			
7.	a)	A pretensioned, T-section has a flange which is 300 mm wide, 200 mm thick. The rib is 150 mm wide by 350 mm deep. The effective depth of the cross-section is 500 mm. Given, Ap= 200 mm², f_{ck}= 50 N/mm² and f_u=1600 N/mm², estimate the ultimate moment capacity of theT-section using the Indian Standard Code regulations.	4	3	10
	b)	Explain about the assumptions made in analysis of flexure?	4	3	4
		OR			
8.	a)	A prestressed concrete beam of rectangular section 300 mm wide and 600 mm deep is prestressed by two post tensioned cables of area 600 mm²each initially stressed to 1600 N/mm². The cables are located at a constant eccentricity of 100 mm. The span of the beam is 10 m. If f_{ck}= 40 N/mm². Estimate the ultimate shear resistance of support section uncracked in flexure.	4	3	10
	b)	Explain shear recommendations of IS 1343-1980	4	3	4
		UNIT – V			
9.		The end block of a post–tensioned prestressed member is 550 mm wide and 550 deep. Four cables, each made up of 7 wires of 12 mm diameter	5	3	14

		strands and carrying a force of 1000 kN, are anchored by plate anchorages, 150 mm×150 mm, located with their centres at 125 mm from the edges of the end block. The cable duct is of 50 mm diameter. The 28 days cube strength of concrete f_{cu} is 45 N/mm². The cube strength of concrete at transfer f_{ci} is 25 N/mm². Permissible bearing stresses behind anchorages should confirm with IS 1343. The characteristics yield stress in mild steel anchorage reinforcement is 260 N/mm². Design suitable anchorage for the end block.			
		OR			
10.	**a)**	Discuss the stress distribution in end block in post-tensioned member.	**5**	**2**	**4**
	b)	A Freyssinet anchorage (125 mm diameter),carrying 12 wires of 7 mm diameter stressed to 950N/mm²,is embedded concentrically in the web of an I-section beam at the ends.The thickness of the web is 225 mm. Evaluate the maximum tensile stress and the bursting tensile force in the end block.Design the reinforcement for the end block?	**5**	**4**	**10**

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

	SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)	R20

IV B.Tech. I Semester MODEL QUESTION PAPER

EXPANSIVE SOILS

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.		Explain briefly about the origin, occurrence and distribution of expansive soils in India.	1	2	14
		OR			
2.		Explain about distress symptoms with a relevant case study.	1	2	14
		UNIT-II			
3.	a)	Explain various clay minerals with neat sketches.	2	2	7
	b)	Explain how you determine swell potential of clay soil in laboratory.	2	2	7
		OR			
4.	a)	Explain various methods of field exploration in clayey deposits.	2	2	7
	b)	Explain different types of soil structures with neat sketches.	2	2	7
		UNIT-III			
5.	a)	Explain about soil-moisture suction.	3	2	7
	b)	Explain about empirical methods used in prediction of soil heave.	3	2	7
		OR			
6.		Explain briefly about double an doedometer tests with neat sketches wherever required.	3	2	14
		UNIT-IV			
7.		Explain In general the design consideration used for stiffened mats and under reamed piles.	4	2	14
		OR			
8.		Explain the design consideration followed for individual and continuous footings in expansive soils.	4	2	14

		UNIT-V			
9.	**a)**	What is cement stabilization of soils? Explain soil-cement reactions and factors that affect cement stabilization of soil.	5	2	7
	b)	Explain briefly about the purpose of granular pile anchors in expansive soils.	5	2	7
		OR			
10.	**a)**	Explain about under reamed piles in expansive soils.	5	2	7
	b)	Explain about CNS concept and how it would control the swelling behavior of expansive soil.	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

	Course Code: B20CE4112

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)	R20
IV B.Tech. I Semester MODEL QUESTION PAPER	
ADVANCED WATER RESOURCES ENGINEERING	
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	

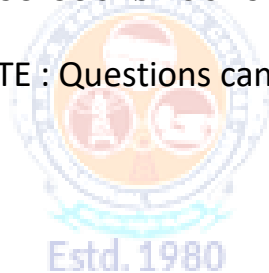|			CO	KL	M
		UNIT–I			
1.	a)	Explain briefly the components of various types of falls with neat sketches.	1	3	7
	b)	Explain Khosla's theory in detail.	1	3	7
		OR			
2.	a)	Define Head regulator. State the functions of a distributing head regulator and cross regulator.	1	2	7
	b)	Explain various aqueducts with neat sketches.	1	2	7
		UNIT–II			
3.	a)	Explain the various river training works with neat sketches.	2	2	7
	b)	Explain the following: i) Bank pitching ii) Launching aprons iii) Marginal embankments.	2	2	7
		OR			
4.	a)	Explain River training works and their objectives.	2	2	7
	b)	Explainthe differences between groynes and cutoffs.	2	2	7
		UNIT–III			
5.	a)	Explain the Development of Hydro Power in India.	3	3	7
	b)	Explain the following i) Fore bay ii) Intake structures iii) Trash racks iv) Surge Tanks	3	3	7
		OR			
6.	a)	Explain the specifications required for substructure and super structure of a power house.	3	3	7
	b)	The Load on hydel power project varies from a minimum of 15000kw to a maximum of 40000 kw, two generators of capacities 25000kw each have been installed. Calculate plant factor, Load	3	3	7

		Factor and utilization factor?			
		UNIT–IV			
7.	**a)**	Explain different types of aquifers with neat sketches.	4	2	7
	b)	Explain about any two types of wells with neat sketches.	4	2	7
		OR			
8.	**a)**	Explain Darcy's law.	4	2	7
	b)	Explain how do you determine hydraulic properties of aquifer.	4	2	7
		UNIT–V			
9.	**a)**	Explain the causes of drought and state its preventive measures for controlling it.	5	2	7
	b)	Explain different water harvesting methods.	5	2	7
		OR			
10.	**a)**	Explain about natural and artificial ground water recharge methods.	5	2	7
	b)	Explain about drought contingency planning.	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

			CO	KL	M
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R20**
IV B.Tech. I Semester MODEL QUESTION PAPER					
DISASTER MANAGEMENT AND PREPAREDNESS					
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.	a)	What are Natural Disasters? Is there a relationship between development And occurrence of natural disasters?	1	2	7
	b)	What are urban floods? Should they be considered natural disaster or man-made disaster?	1	2	7
		OR			
2.	a)	What are Man-made Disasters? How is the work of scientists and engineers related to their occurrence?	1	2	7
	b)	Are urban and rural population susceptible to the same types of natural and man-made disasters? Are rural population at lower risk compared to urban population from a disaster point-of-view?	1	2	7
		UNIT–II			
3.	a)	Explain the Impacts of disasters on the loss of human lives and livestock with examples. How are the physical and environmental conditions affected by a disaster?	2	2	7
	b)	Summarise the interventions needed in a community in the aftermath of a disaster. What support do the disaster survivors need to rebuild their communities?	2	2	7
		OR			
4.	a)	Explain global climate change. Establish any relationship between global climate change and the occurrence of natural disasters.	2	2	7
	b)	Why are GHG (Green House Gas) reductions the focus of climate change mitigation? Which of the GHGs are the greatest contributors to climate change from the top 5 GHG emitting countries in the world?	2	2	7
		UNIT–III			
5.	a)	Discuss the various stages of the disaster management cycle. Explain	3	2	7

		the structural and non-structural measures necessary for effective mitigation of disaster impacts.			
	b)	Associate the basic strategies and practices of disaster risk reduction with the disaster management cycle.	3	2	7
		OR			
6.	a)	Describe a risk management framework. How do you assess the vulnerability of a community to incidence of disasters?	3	2	7
	b)	Explain the global policies and best practices in the domain of disaster risk reduction and management.	3	2	7
		UNIT–IV			
7.	a)	Differentiate between government preparedness and community preparedness. Why is it important to have community preparedness for facing disasters?	4	2	7
	b)	Describe the role of education in community preparedness to face disasters. What are the essentials of school disaster education?	4	2	7
		OR			
8.	a)	What is the difference between disaster mitigation and adaptation? How does social capital enhance the community response to disasters?	4	2	7
	b)	Explain how resilience can be designed in a community towards facing disasters. How do you go about building community capacity for action?	4	2	7
		UNIT–V			
9.	a)	Explain how technology is helping forecast natural disasters and supporting disaster management.	5	2	7
	b)	Explain the role of multimedia technology in disaster risk management and training.	5	2	7
		OR			
10.	a)	How does Geospatial Information help in predicting extreme weather events and associated disasters?	5	2	7
	b)	Explain how indigenous and traditional knowledge of environment and ecology can help reduce the incidence of disasters.	5	2	7

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

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