SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4101]

IV B. Tech I Semester (R19) Regular Examinations

WATER RESOURCES ENGINEERING-I

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

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<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 the types of precipitation.</td><td>CO1</td><td>K2</td><td>8M</td></tr>
<tr><td></td><td>b.</td><td>Explain the consistency of rainfall record by double mass curve.</td><td>CO1</td><td>K2</td><td>7M</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 Infiltration.</td><td>CO1</td><td>K2</td><td>8M</td></tr>
<tr><td></td><td>b.</td><td>Explain the estimation of evaporation-by-evaporation pans.</td><td>CO1</td><td>K2</td><td>7M</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 terms ‘Unit Hydrograph’ and ‘Direct Runoff Hydrograph’.</td><td>CO1</td><td>K2</td><td>8M</td></tr>
<tr><td></td><td>b.</td><td>Convert the given 2-hour Unit Hydrograph into a 3-hour Unit Hydrograph using S-curve method.
<table>
<tr><td>Time (Hr)</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td>2Hr UH Ordinates (Cumecs)</td><td>0</td><td>2</td><td>5</td><td>11</td><td>9</td><td>6</td><td>3</td><td>1</td><td>0</td></tr>
</table></td><td>CO1</td><td>K3</td><td>7M</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>Define ‘Runoff’. Explain any two methods for its measurement.</td><td>CO1</td><td>K2</td><td>8M</td></tr>
<tr><td></td><td>b.</td><td>Explain the limitations and applications of Unit Hydrograph.</td><td>CO1</td><td>K2</td><td>7M</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></td><td>Develop an expression for yield of an open well by Recuperation test method.</td><td>CO2</td><td>K3</td><td>15M</td></tr>
<tr><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td>6.</td><td>a.</td><td>The thickness of an aquifer is found to be 20 m. Its hydraulic conductivity is 20 cm/day. Calculate the transmissibility of the aquifer.</td><td>CO2</td><td>K3</td><td>8M</td></tr>
<tr><td></td><td>b.</td><td>Differentiate between steady flow in Confined and Unconfined aquifers.</td><td>CO2</td><td>K2</td><td>7M</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>UNIT-IV</td><td></td><td></td><td></td></tr>
<tr><td>7.</td><td>a.</td><td>Explain the zones of storage in Reservoirs.</td><td>CO3</td><td>K2</td><td>8M</td></tr>
<tr><td></td><td>b.</td><td>Explain the procedure for determination of reservoir capacity using mass flow curve and demand curve.</td><td>CO3</td><td>K2</td><td>7M</td></tr>
<tr><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
</table>

8.	a.	Define the term 'reservoir yield'. How does sedimentation affect reservoir yield?	CO3	K2	8M
	b.	What is an ideal site for reservoir? Explain.	CO3	K2	7M
		UNIT–V			
9.	a.	A water course has a culturable command area of 1200 ha. The intensity of irrigation for crop A is 40% and for crop B is 35% , both the crops being rabi crops. Crop A has a Kor period of 20 days and crop B has kor period of 15 days. Calculate the discharge of the water course if the Kor depth of crop A is 10cm and for crop B is 16cm.	CO4	K3	8M
	b.	Explain drip irrigation with a neat figure.	CO4	K2	7M
		OR			
10.	a.	Explain the factors affecting duty.	CO4	K2	8M
	b.	Explain the methods of assessment of irrigation water charges.	CO4	K2	7M

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4102]

IV B. Tech I Semester (R19) Regular Examinations

TRANSPORTATION ENGINEERING–II

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

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			CO	KL	M
		UNIT–I			
1.	(a)	Draw a typical cross-section of a permanent way. Discuss in brief the basic functions of various components of a railway track.	CO1	K2	7M
	(b)	Define gauge of a railway track. Mention the gauges existing in different countries of the world.	CO1	K2	8M
		OR			
2.	(a)	What are the characteristics of a good ideal rail joint?	CO1	K2	7M
	(b)	Describe the methods of correcting the creep.	CO1	K2	8M
		UNIT–II			
3.	(a)	Explain the necessity of gradients. Discuss all the types of gradients giving their permissible values adopted on Indian Railways.	CO2	K2	7M
	(b)	A 6 degrees curve branches off from a 3 degrees main curve in an opposite direction in the layout of a B.G.Yard. If the speed on branch line is limited to 35.5 Kmph. Calculate the speed restriction on the main line. Given cant deficiency = 7.62 cm.	CO2	K3	8M
		OR			
4.	(a)	What are the objects of providing transition curves on railways? Explain as to how the length of a transition curve is decided?	CO2	K2	7M
	(b)	Define super-elevation and show how it is worked out. Also discuss the factors affecting super-elevation.	CO2	K2	8M
		UNIT–III			
5.	(a)	Draw a neat diagram of simple right-hand turnout and show its various component parts. Explain the working principle of the turnout.	CO3	K2	7M
	(b)	Explain clearly the location and application of Outer Signal, Home Signal, Starter Signal, Advance starter signal and Point-indicators.	CO3	K2	8M
		OR			
6.	(a)	Define Interlocking and explain the principle of interlocking. Describe the various mechanical devices used for interlocking.	CO3	K2	7M
	(b)	Describe the different types and shapes of switches.	CO3	K2	8M

		UNIT–IV			
7.	(a)	Name the different characteristics of aircrafts. How do they affect the planning and design of airports?	CO4	K2	7M
	(b)	Enumerate the various factors which you would keep in view while selecting a suitable site for an airport.	CO4	K2	8M
		OR			
8.	(a)	What is a wind rose diagram? What is its utility? What are its types? Explain each type.	CO4	K2	7M
	(b)	Discuss in brief the need of air traffic control.	CO4	K2	8M
		UNIT–V			
9.	(a)	What are the requirements of a good port?	CO5	K2	7M
	(b)	Explain the terms: Littoral Drift, Neap tide, Spring tide and Fetch.	CO5	K2	8M
		OR			
10.	(a)	Describe various types of Harbour signals.	CO5	K2	7M
	(b)	Compare mound type breakwater with wall type breakwater.	CO5	K2	8M

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4103]

IV B. Tech I Semester (R19) Regular Examinations

ADVANCED STRUCTURAL ANALYSIS

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

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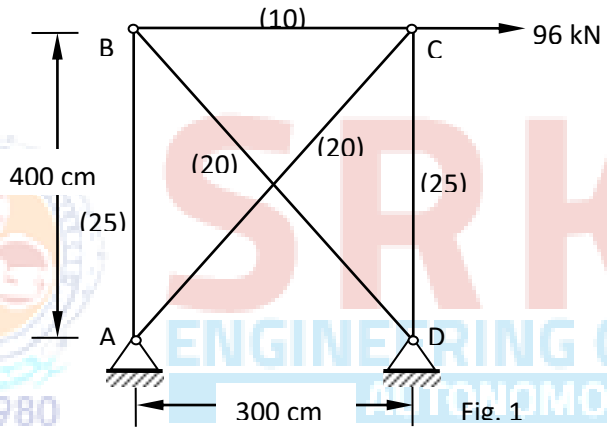
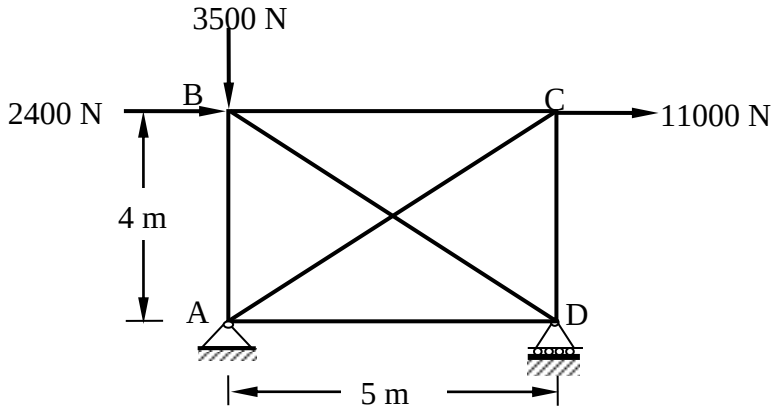
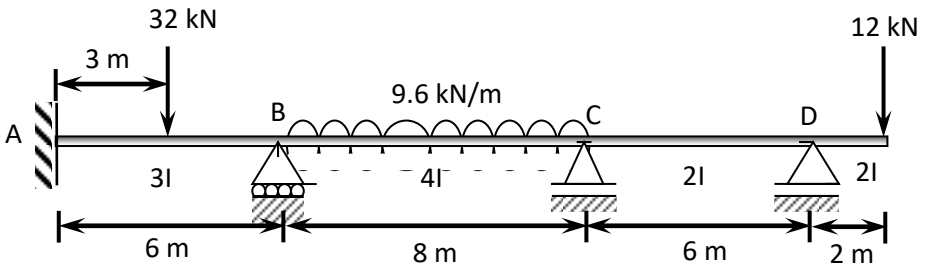
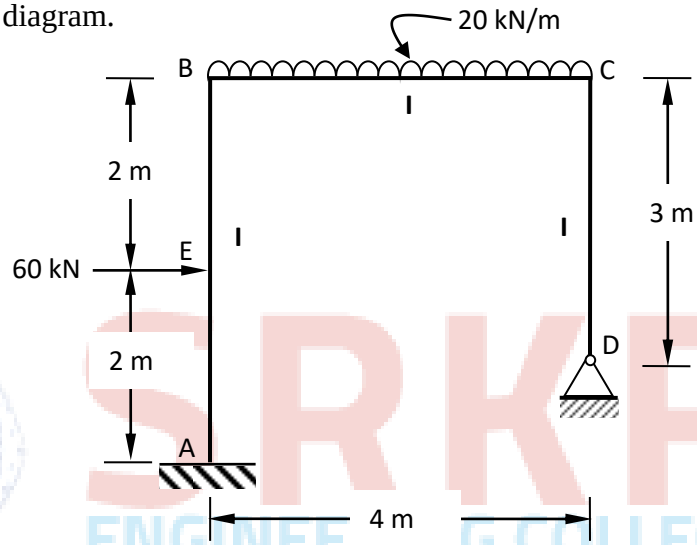
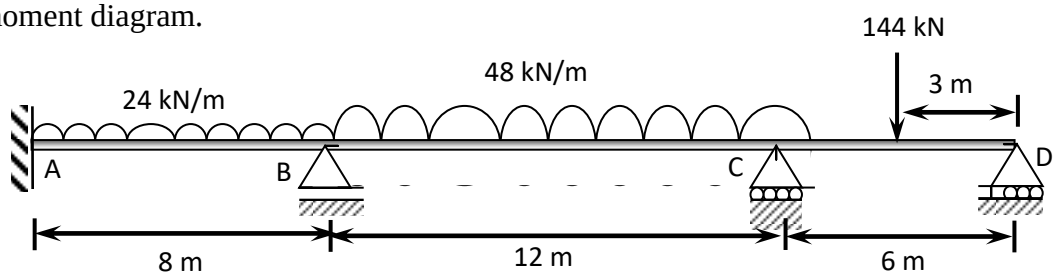
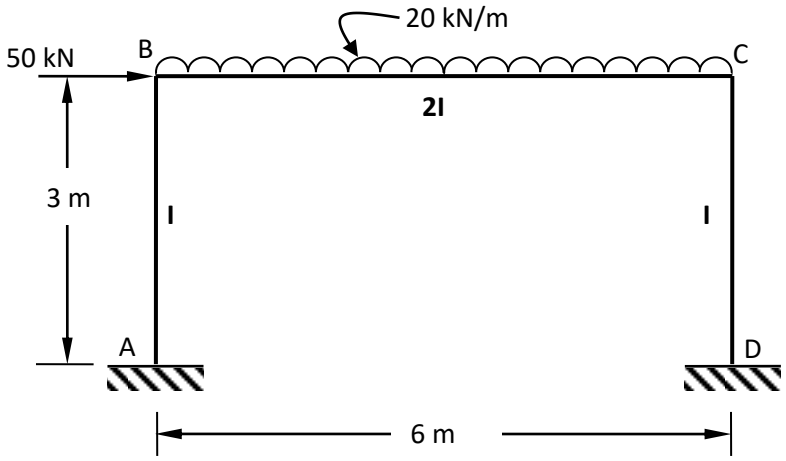
		CO	KL	M
	UNIT-I			
1.	By the force method analyse the truss with cross diagonals and two hinged supports shown in Fig.(1) by using horizontal reaction at A as the redundant. Numbers in bracket are areas in cm^2, E = 20,000 kN/cm^2  Fig. 1	CO1	K4	15M
	(OR)			
2.	Calculate the forces in the members of 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.  Fig. 2	CO1	K4	15M
	UNIT-II			

3.	Analyse the continuous beam shown in Fig.3 by moment distribution method and draw shear and moment diagram.  Fig.3	CO2	K4	15M
	(OR)			
4.	Analyse the portal frame shown in Fig. (4) by moment distribution method and draw shear and moment diagram.  Fig.4	CO2	K4	15M
	UNIT-III			
5.	Analyse the continuous beam shown in Fig.(5) byKani's method. Draw shear and moment diagram.  Fig.5	CO3	K4	15M
	OR			
6. (a)	Explain advantages and disadvantages of Kani's method over moment Distribution Method?	CO3	K2	3M

(b)	Analyse the portal frame shown in Fig.(6) by Kani's method. Draw shear and moment diagram.  Fig.6	CO3	K4	12M
	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.	CO4	K4	15M
	OR			
8. (a)	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.	CO4	K4	15M
	UNIT-V			
9. (a)	Explain the basic difference between a guide pulley and roller support for a suspension cable?	CO5	K2	3M
(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. Calculate the position and sag of the lowest point and horizontal tension H in the cable. Also calculate the curved length of the cable. The cross-sectional area of cable is 90 cm^2, calculate the maximum stress in the cable.	CO5	K4	12M
	OR			
10.(a)	Explain function of stiffening girder in a suspension bridge?	CO5	K2	3M
(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 roadway has a width of 6m. The dead load on the bridge is 5 kN/m^2 while the live load is 10 kN/m^2 which	CO5	K4	12M

	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. Also find the maximum tension in the cable of position of live load.			

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

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4104]

IV B. Tech I Semester (R19) Regular Examinations

SOLID WASTE MANAGEMENT

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

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			CO	KL	M
		UNIT–I			
1.	(a)	Explain about sources, types and characteristics of solid waste.	CO1	K2	8M
	(b)	What are the problems due to improper disposal of solid waste? Explain.	CO1	K2	7M
		OR			
2.	(a)	Explain the physical and chemical characteristics of solid wastes in detail.	CO1	K2	8M
	(b)	Define the term refuse. Explain different sources of refuse generation in detail.	CO1	K2	7M
		UNIT-II			
3.	(a)	Explain the functional elements of the solid waste management.	CO2	K2	8M
	(b)	Explain how waste is handled at each source in detail.	CO2	K2	7M
		OR			
4.	(a)	Explain the collection methods of solid wastes.	CO2	K2	8M
	(b)	Explain the process of reuse and recycling of solid wastes.	CO2	K2	7M
		UNIT–III			
5.	(a)	Explain the processes in transfer station.	CO3	K2	8M
	(b)	Explain about various segregation and processing methods of solid waste in detail.	CO3	K2	7M
		OR			
6.	(a)	Explain various methods of segregation of solid wastes.	CO3	K2	8M
	(b)	Explain in detail how solid wastes are transported from the source.	CO3	K2	7M
		UNIT–IV			
7.	(a)	Explain composting in detail.	CO4	K2	8M
	(b)	Explain the advantages and disadvantages of solid waste incineration method.	CO4	K2	7M
		OR			
8.	(a)	Explain incineration process in detail.	CO4	K2	8M
	(b)	Explain the processing and transformation of solid wastes.	CO4	K2	7M

		UNIT-V			
9.	(a)	Explain Disposal methods of solid wastes.	CO5	K2	8M
	(b)	Explain the operation of landfill in detail.	CO5	K2	7M
		OR			
10.	(a)	Explain deep well injection of solid waste.	CO5	K2	8M
	(b)	List various energy recovery processes. Explain any two processes in detail.	CO5	K2	7M

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4105]

IV B. Tech I Semester (R19) Regular Examinations

SURFACE HYDROLOGY

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

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			CO	KL	M
		UNIT–I			
1.	a.	Explain Hydrological Cycle.	CO1	K2	8M
	b.	Explain the Constituents of atmosphere.	CO1	K2	7M
		OR			
2.	a.	Define Precipitation. Classify types of Precipitation.	CO1	K2	8M
	b.	Explain about Global Water Budget.	CO1	K2	7M
		UNIT–II			
3.	a.	Explain the working of any two Automatic Rain Gauges.	CO2	K2	8M
	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.	CO2	K3	7M
		OR			
4.		Explain the methods of computation of average rainfall over a basin.	CO2	K2	15M
		UNIT–III			
5.	a.	Define Infiltration Index. How do you determine it?	CO2	K2	8M
	b.	Explain the factors affecting Infiltration.	CO2	K2	7M
		OR			
6.		Define Evaporation. Explain various factors effecting Evaporation and also discuss the methods of measuring Evaporation.	CO2	K2	15M
		UNIT–IV			
7.	a.	Explain the factors affecting Runoff.	CO3	K2	8M
	b.	The ordinates of 3hr Unit Hydrograph are given below. Find the ordinates of 6hr Unit Hydrograph.	CO3	K3	7M
		OR			

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**

8.	a.	What is S-Hydrograph and how is it constructed and what is the purpose 36it?	CO3	K2	8M
	b.	Define Unit Hydrograph. Explain its use in construction of Flood Hydrograph and also explain the assumptions of Unit Hydrograph theory.	CO3	K2	7M
		UNIT–V			
9.	a.	Explain the working principle of Current meter.	CO4	K2	8M
	b.	What are the factors to be considered for selection of a Stream Gauging site?	CO4	K2	7M
		OR			
10.	a.	Explain the relation between area-velocity method and area-slope method.	CO4	K2	8M
	b.	Explain the Dilution method of Stream Flow measurement.	CO4	K2	7M

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4106]

IV B. Tech I Semester (R19) Regular Examinations

TRAFFIC MANAGEMENT

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

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			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	CO1	K2	**15M**
		OR			
2.	(a)	Explain the various measures for traffic calming.	CO1	K2	**7M**
	(b)	Explain Intelligent transportation System and discuss how the different functional areas of ITS helps in traffic management.	CO1	K2	**8M**
		UNIT–II			
3.	(a)	What is the need for speed regulation and discuss the various methods of enforcing speed regulations.	CO2	K2	**7M**
	(b)	Explain the various regulations concerning the driver.	CO2	K2	**8M**
		OR			
4.	(a)	Explain Motor vehicle Act.	CO2	K2	**7M**
	(b)	Explain significance of traffic regulations in traffic engineering?	CO2	K2	**8M**
		UNIT–III			
5.	(a)	Define basic capacity, possible capacity and practical capacity.	CO3	K2	**7M**
	(b)	Explain concept of LOS With neat sketches	CO3	K2	**8M**
		OR			
6.	(a)	Explain the procedure for computation of capacity of rotary intersection using Wardrop's formula.	CO3	K2	**7M**
	(b)	Explain factors that influence the capacity of signalised intersection.	CO3	K2	**8M**
		UNIT–IV			
7.	(a)	Describe the measures that can be adopted to prevent accidents	CO4	K2	**7M**
	(b)	Explain (a) Condition Diagram (b) Collision Diagram, and its use in accident studies	CO4	K2	**8M**
		OR			
8.	(a)	Explain traffic segregation methods.	CO4	K2	**7M**

	(b)	What are the causes of road accidents and discuss how each of these factors leads to accident and its preventive measures.	CO4	K2	**8M**
		UNIT–V			
9.	(a)	Explain the warrants for traffic signals	CO5	K2	**7M**
	(b)	Differentiate between at grade intersections and grade separated intersections with sketches.	CO5	K2	**8M**
		OR			
10.	(a)	Explain the various types of co-ordinated signal system	CO5	K2	**7M**
	(b)	Explain with a neat diagram, the various design elements of rotary type intersections. How is the capacity of a rotary determined?	CO5	K2	**8M**

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

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4107]

IV B. Tech I Semester (R19) Regular Examinations

ADVANCED STEEL STRUCTURES

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

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			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.	CO1	K4	15M
		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.	CO1	K4	15M
		UNIT-II			
3.		Design a welded plate girder 24m in span and laterally restrained throughout. It has supporta 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.	CO2	K4	15M
		OR			
4.		Design a welded a plate girder of 20 m span using the tension field action for the following factored forces. Maximum moment = 5000kNm Maximum shear =900kN The girder is laterally restrained, connections need not be designed.	CO2	K4	15M
		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/m^2. (a) Conical roof (b)Cylindrical shell (c)Suspended bottom (d) Connections	CO3	K4	15M
		OR			
6.		Design an elevated cylindrical steel tank with hemispherical bottom, for a capacity of 1,20,000 litres. The tank has conical roof and its ring beam is	CO3	K4	15M

		15 m high above the G.L. Take basic wind pressure as 1.5 kN/m^2.			
		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/m^3 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	CO4	K4	15M
		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/m^3. 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, fof 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.	CO4	K4	15M
		UNIT–V			
9.		Design a rocker bearing for a bridge girder having the following data; DL+LL+IL reaction: 1200 kN Reaction due to wind overturning effect: 230 kN Lateral load due to wind: 80 kN Longitudinal force: 360 kN Assume any other data not given.	CO5	K4	15M
		OR			
10.		Design a roller bearing of the type suggested by a Railway Board for the data of the above (9th Question)	CO5	K4	15M

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4108]

IV B. Tech I Semester (R19) Regular Examinations

EXPANSIVE SOILS

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

*****

		CO	KL	M
	UNIT-I			
1.	Explain briefly about the origin, occurrence and distribution of expansive soils in India.	CO1	K2	15M
	(OR)			
2.	Explain about distress symptoms with a relevant case study.	CO1	K2	15M
	UNIT-II			
3. a.	Explain various clay minerals with neat sketches.	CO2	K2	8M
b.	Explain how you determine swell potential of clay soil in laboratory.	CO2	K2	7M
	(OR)			
4.a.	Explain various methods of field exploration in clayey deposits.	CO2	K2	8M
b.	Explain different types of soil structures with neat sketches.	CO2	K2	7M
	UNIT-III			
5.a.	Explain about soil-moisture suction.	CO3	K2	8M
b.	Explain about empirical methods used in prediction of soil heave.	CO3	K2	7M
	OR			
6.	Explain briefly about double and oedometer tests with neat sketches wherever required.	CO3	K2	15M
	UNIT-IV			
7.	Explain In general the design consideration used for stiffened mats and under reamed piles.	CO4	K2	15M
	OR			
8.	Explain the design consideration followed for individual and continuous footings in expansive soils.	CO4	K2	15M
	UNIT-V			
9.a.	What is cement stabilization of soils? Explain soil-cement reactions and factors that affect cement stabilization of soil.	CO5	K2	8M
b.	Explain briefly about the purpose of granular pile anchors in expansive soils.	CO5	K2	7M
	OR			
10.a.	Explain about under reamed piles in expansive soils.	CO5	K2	8M

b.	Explain about CNS concept and how it would control the swelling behavior of expansive soil.	CO5	K2	7M

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

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4109]

IV B. Tech I Semester (R19) Regular Examinations

REMOTE SENSING AND GIS APPLICATIONS

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

*****

		CO	KL	M
	UNIT-I			
1.a)	Explain the interaction of electromagnetic radiation with atmosphere. Highlight those aspects that find application in earth observation.	CO1	K2	8M
b)	What are the characteristics of Active and Passive Remote Sensing sensors? Relate them to their preferred applications.	CO1	K2	7M
	(OR)			
2.a)	Describe energy interaction with earth surface features. Indicate how this knowledge helps in design of sensors for data acquisition.	CO1	K2	8M
b)	Discuss at least two remote sensing platforms. Explain their relevance to various applications with examples from the Indian and International Space Sector.	CO1	K2	7M
	UNIT-II			
3.a)	Compare visual interpretation of analog satellite imagery and digital image analysis. State the advantages and limitations of both the approaches.	CO2	K2	8M
b)	Briefly describe the various stages of Digital Image Processing leading up to a classified image output.	CO2	K2	7M
	(OR)			
4.a)	What are image interpretation keys? Discuss their significance in standardizing the image interpretation exercise.	CO2	K2	8M
b)	Distinguish between Supervised and Unsupervised classification. State the criteria based on which, one or the other approach is adopted in Image Processing.	CO2	K2	7M
	UNIT-III			
5.a)	Illustrate the workflow of creating a digital Geographic Information System (GIS) Explain the key components.	CO3	K2	8 M
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?	CO3	K2	7 M
	OR			
6.a)	Discuss in detail various application areas of Computer and Web-based Geographic Information Systems.	CO3	K2	8M
b)	Differentiate between the Raster and Vector model of representing spatial data in computer models. State the applications of each model clearly.	CO3	K3	7M
	UNIT-IV			

7.a)	What is Overlay Analysis in GIS? Explain its applications and elaborate with one example.	CO4	K2	8M
b)	Define DEM and DTM. Draw out the differences in their conception and application.	CO4	K2	7M
	OR			
8.a)	What is Network Analysis in GIS? Explain its applications and elaborate with one example.	CO4	K2	8M
b)	Explain how 3 D Modelling tools in GIS can help in scenario planning for a dam breach scenario.	CO4	K2	7M
	UNIT-V			
9.a)	What is Land use / Land cover map? Explain its significance in any type of Geospatial Analysis.	CO5	K2	8M
b)	How can GIS help in Environmental Impact Assessment? Elaborate your answer.	CO5	K2	7M
	OR			
10.a)	State any twp 3D Modelling applications using GIS and explain each one briefly.	CO5	K2	8M
b)	Elaborate on a few urban applications of GIS.	CO5	K2	7M

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

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4110]

IV B. Tech I Semester (R19) Regular Examinations

CONSTRUCTION TECHNOLOGY AND MANAGEMENT

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3 Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks

*****

<table>
<tr><th></th><th></th><th></th><th>CO</th><th>KL</th><th>M</th></tr>
<tr><td colspan="6">UNIT - I</td></tr>
<tr><td>1.</td><td>a).</td><td>Explain “Mile stone Charts” with an Example?</td><td>CO1</td><td>K2</td><td>7M</td></tr>
<tr><td></td><td>b).</td><td>Explain the scope and significance of Construction Management?</td><td>CO1</td><td>K2</td><td>8M</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td>2.</td><td>a).</td><td>Explain the 3 Phases of Construction Project Management?</td><td>CO1</td><td>K2</td><td>7M</td></tr>
<tr><td></td><td>b).</td><td>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.
<table>
<tr><td>Activity</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td></tr>
<tr><td>Duration in Days</td><td>2</td><td>4</td><td>2</td><td>4</td><td>6</td><td>4</td><td>5</td><td>4</td></tr>
</table>
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
</td><td>CO1</td><td>K3</td><td>8M</td></tr>
<tr><td colspan="6">UNIT - II</td></tr>
<tr><td>3.</td><td>a).</td><td>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.
<table>
<tr><td>Activity</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td><td>I(Last)</td></tr>
<tr><td>Duration in weeks</td><td>8</td><td>6</td><td>3</td><td>7</td><td>5</td><td>6</td><td>3</td><td>10</td><td>5</td></tr>
<tr><td>Predecessor(s)</td><td>-</td><td>A</td><td>B</td><td>C</td><td>D</td><td>B</td><td>B</td><td>G</td><td>E,F,H</td></tr>
</table></td><td>CO2</td><td>K3</td><td>15M</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td>4.</td><td>a).</td><td>Explain briefly the various types of Floats in CPM network analysis?</td><td>CO2</td><td>K2</td><td>8M</td></tr>
<tr><td></td><td>b).</td><td>Explain the three time estimates of PERT?</td><td>CO2</td><td>K2</td><td>7M</td></tr>
<tr><td colspan="6">UNIT - III</td></tr>
<tr><td>5.</td><td>a).</td><td>Define the term “Updating” and explain why it is necessary to Update a network?</td><td>CO3</td><td>K2</td><td>8M</td></tr>
<tr><td></td><td>b).</td><td>Explain briefly about project direct cost and indirect cost?</td><td>CO3</td><td>K2</td><td>7M</td></tr>
<tr><td colspan="6">OR</td></tr>
</table>

<table>
<tr><td>6.</td><td>a).</td><td>The following information is given about the various activities of a network

<table><tr><th>Activity</th><th>Normal duration</th><th>Normal cost (Rs)</th><th>Crash duration</th><th>Crash cost (Rs.)</th></tr><tr><td>1-2</td><td>4 Weeks</td><td>4,000</td><td>3 Weeks</td><td>7,000</td></tr><tr><td>1-3</td><td>8 Weeks</td><td>5,000</td><td>7 Weeks</td><td>8,000</td></tr><tr><td>2-3</td><td>5 Weeks</td><td>8,000</td><td>3 Weeks</td><td>10,000</td></tr></table>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.</td><td>CO3</td><td>K3</td><td>15M</td></tr>
<tr><td colspan="6">UNIT - IV</td></tr>
<tr><td>7.</td><td>a).</td><td>Explain briefly about various Trucks and handling equipment?</td><td>CO4</td><td>K2</td><td>15M</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td>8.</td><td>a).</td><td>Explain the calculation of truck production with an Example?</td><td>CO4</td><td>K2</td><td>15M</td></tr>
<tr><td colspan="6">UNIT - V</td></tr>
<tr><td>9.</td><td>a).</td><td>Explain the importance of workmen compensation act in Construction Industry?</td><td>CO5</td><td>K2</td><td>7M</td></tr>
<tr><td></td><td>b).</td><td>What are the common safety problems in construction? Explain?</td><td>CO5</td><td>K2</td><td>8M</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td>10.</td><td>a).</td><td>Explain the importance of safety in construction Industry?</td><td>CO5</td><td>K2</td><td>7M</td></tr>
<tr><td></td><td>b).</td><td>Explain the provisions of minimum wages act?</td><td>CO5</td><td>K2</td><td>8M</td></tr>
</table>

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4111]

IV B. Tech I Semester (R19) Regular Examinations

DESIGN OF ADVANCED REINFORCED CONCRETE STRUCTURES

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

*****

			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.	CO1	K4	15
		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.	CO1	K4	15
		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.	CO2	K4	15
		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.	CO2	K4	15
		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	CO3	K4	15
		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	CO3	K4	15

		40mm The design should confirm to IRC codes			
		UNIT–V			
7.		The foundation for a structure comprising six piles of square cross section has to support a service load of 3600 kN. The piles are driven through a hard stratum and bear on hard rock. Design the reinforcements in the pile assuming the pile to be 6 m long and using M20 grade of concrete and Fe 415 HYSD bars. Sketch the details of reinforcements in the pile.	CO4	K4	15
		OR			
8.		A pile cap consisting four reinforced concrete piles of 300 mm x 300 mm is to be designed to support a reinforced concrete column 400 mm x 400 mm carrying a service load of 2000 kN. The piles are located parallel to the column faces with their centers located 800 mm from the center of the column. Using M25 grade concrete and Fe 415 grade steel. Design the pile cap and sketch the details of reinforcements.	CO4	K4	15
		UNIT–V			
9.		Design the interior Panel of the flat Slab floor system for a warehouse 24mx 24m divided into Panels of 6 mx6m	CO5	K4	15
		OR			
10.		Design the Exterior Panel of the flat Slab floor system for a warehouse 24mx 24m divided into Panels of 6 mx6m	CO5	K4	15

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4112]

IV B. Tech I Semester (R19) Regular Examinations

DISASTER MANAGEMENT AND PREPAREDNESS

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

*****

			CO	KL	M
1.	a)	What are Natural Disasters? Is there a relationship between development And occurrence of natural disasters? S	CO1	K2	7M
	b)	What are urban floods? Should they be considered natural disaster or man-made disaster?	CO1	K2	8M
		(OR)			
2.	a)	What are Man-made Disasters? How is the work of scientists and engineers related to their occurrence?	CO1	K2	7M
	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?	CO1	K2	8M
		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?	CO2	K2	7M
	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?	CO2	K2	8M
		(OR)			
4.	a)	Explain global climate change. Establish any relationship between global climate change and the occurrence of natural disasters.	CO2	K2	7M
	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?	CO2	K2	8M
		UNIT-III			
5.	a)	Discuss the various stages of the disaster management cycle. Explain the structural and non-structural measures necessary for effective mitigation of disaster impacts.	CO3	K2	7M
	b)	Associate the basic strategies and practices of disaster risk reduction with the disaster management cycle.	CO3	K2	8M
		OR			
6.	a)	Describe a risk management framework. How do you assess the vulnerability of a community to incidence of disasters?	CO3	K2	7M
	b)	Explain the global policies and best practices in the domain of disaster risk reduction and management.	CO3	K2	8M

		UNIT-IV			
7.	a)	Differentiate between government preparedness and community preparedness. Why is it important to have community preparedness for facing disasters?	CO4	K2	7M
	b)	Describe the role of education in community preparedness to face disasters. What are the essentials of school disaster education?	CO4	K2	8M
		OR			
8.	a)	What is the difference between disaster mitigation and adaptation? How does social capital enhance the community response to disasters?	CO4	K2	7M
	b)	Explain how resilience can be designed in a community towards facing disasters. How do you go about building community capacity for action?	CO4	K2	8M
		UNIT-V			
9.	a)	Explain how technology is helping forecast natural disasters and supporting disaster management.	CO5	K2	7M
	b)	Explain the role of multimedia technology in disaster risk management and training.	CO5	K2	8M
		OR			
10.	a)	How does Geospatial Information help in predicting extreme weather events and associated disasters?	CO5	K2	7M
	b)	Explain how indigenous and traditional knowledge of environment and ecology can help reduce the incidence of disasters.	CO5	K2	8M

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4113]

IV B. Tech I Semester (R19) Regular Examinations

SOIL DYNAMICS AND MACHINE FOUNDATION

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

*****

			CO	KL	M
		UNIT–I			
1.		Explain briefly about free and forced vibration with and without damping	CO1	K2	8M
		OR			
2.		Explain clearly about types of damping and what do you understand about resonance	CO1	K2	7M
		UNIT–II			
3.		Describe different modes of vibrations and also write about natural frequency of foundation soil system	CO2	K2	8M
		OR			
4.		Explain briefly about Reisner Theory and limitations of Reisner theory	CO2	K2	7M
		UNIT–III			
5.		Explain dynamic properties of soils and their importance in the field	CO3	K2	7M
		OR			
6.		Illustrate block vibration test and explain determination of damping factor	CO3	K2	8M
		UNIT–IV			
7.		Explain types of machine foundations and what are the general requirements for design	CO4	K2	7M
		OR			
8.		Explain the IS code provisions for the design foundations of reciprocating machines.	CO4	K2	8M
		UNIT–V			
9.		Explain about the design data and design criteria for machine foundations	CO5	K2	7M
		OR			
10.		Explain the IS code provisions for the design foundations of Impact type of machines.	CO5	K2	8M

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

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

[B19CE4114]

IV B. Tech I Semester (R19) Regular Examinations

INTELLIGENCE TRANSPORT SYSTEM

CIVIL ENGINEERING

MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

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

All questions carry equal marks.

*****

			CO	KL	M
		UNIT–I			
1.	(a)	Define ITS? What are its roles and responsibilities in the field of transportation?	CO1	K2	**7M**
	(b)	What is ATIS functionality and its role in transportation system?	CO1	K2	**8M**
		OR			
2.		Discuss the importance of smart route systems briefly and explain its benefits with examples.	CO1	K2	**15M**
		UNIT–II			
3.	(a)	Explain ATMS? List the objectives and uses of ATMS?	CO2	K2	**7M**
	(b)	Explain various strategies employed in ATMS?	CO2	K2	**8M**
		OR			
4.		Explain in detail about congestion pricing with examples.	CO2	K2	**15M**
		UNIT–III			
5.	(a)	Describe various types of APTS? Discuss the use of APTS in real time traffic analysis.	CO3	K2	**7M**
	(b)	How does 'ITS' improves the efficiency and safety of Commercial Vehicle Operations?	CO3	K2	**8M**
		OR			
6.	(a)	Explain goals of Automated Highway System (AHS).	CO3	K2	**7M**
	(b)	Explain objectives and benefits of Electronic Toll Collection?	CO3	K2	**8M**
		UNIT–IV			
7.	(a)	Explain the organizational and institutional issues involved in ITS?	CO4	K2	**7M**
	(b)	Explain about Regionally - Scaled ITS deployment.	CO4	K2	**8M**
		OR			
8.		Explain the working of ITS in developed and developing countries.	CO4	K2	**15M**
		UNIT–V			
9.	(a)	Explain critical issues in ITS. Suggest suitable measures to control them.	CO5	K2	**7M**
	(b)	Explain various issues involved in R & D policy. Explain briefly.	CO5	K2	**8M**
		OR			
10.	(a)	Describe various conclusions which are needed to develop future ITS?	CO5	K2	**7M**

	(b)	What are the major emerging issues in ITS?	CO5	K2	**8M**

CO-COURSE OUTCOME KL-KNOWLEDGE LEVEL M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)
[B19CE4201]
IV B. Tech II Semester (R19) Regular Examinations
WATER RESOURCES ENGINEERING-II
CIVIL ENGINEERING
MODEL QUESTION PAPER

TIME: 3Hrs. **Max. Marks: 75 M**

Answer **ONE Question** from **EACH UNIT.**
All questions carry equal marks.
*****

			CO	KL	M
		UNIT-I			
1.	(a).	Differentiate Kennedy's and Lacey's theories.	CO1	K2	8M
	(b).	Design an irrigation channel using Kennedy's silt theory to carry a discharge of 45cumecs. Take N=0.0225 and m=1.05. The channel has bed slope of 1 in 5000.	CO1	K3	7M
		(OR)			
2.	(a).	Using Lacey's theory, design an irrigation channel for the following data: Silt factor, f=1 and side slope= ½:1	CO1	K3	8M
	(b).	Give a complete classification of canals.	CO1	K2	7M
		UNIT-II			
3.	(a).	Discuss in brief various modes of failure of a gravity dam.	CO2	K2	8M
	(b).	Derive an expression for the base width of the elementary profile for no tension case.	CO2	K2	7M
		(OR)			
4.	(a).	Explain the classification of Spillways.	CO2	K2	8M
	(b).	Explain the causes of failures of earth dams.	CO2	K2	7M
		UNIT-III			
5.	(a).	Explain the method of independent variables for estimating the pressures under impervious floors of weirs.	CO2	K2	8M
	(b).	Discuss briefly the components of various types of falls with neat sketches. Also discuss the suitability of each type.	CO2	K2	7M
		(OR)			
6.	(a).	Explain the method of fixing the water way of drain in an aqueduct.	CO2	K2	8M
	(b).	Define Head Regulator. State the functions of a distributing head regulator and cross regulator.	CO2	K2	7M
		UNIT-IV			
7.	(a).	Define River Training works. Explain its Objectives.	CO3	K2	8M
	(b).	Explain about Marginal Embankment and Guide banks.	CO3	K2	7M
		(OR)			
8.	(a).	Explain the differences between Groynes and Cutoffs.	CO3	K2	8M
	(b).	Explain about Bank Pitching and Launching Aprons.	CO3	K2	7M

UNIT-V					
9.	(a).	Explain the development of Hydro Power in India.	CO4	K2	8M
	(b).	The load on the hydel project varies from a minimum of 15000KW to a maximum of 40000KW, two generators of capacities 25000KW each have been installed. Calculate Plant factor, Load factor & Utilization factor.	CO4	K2	7M
(OR)					
10.	(a).	Explain the component parts of hydel power project.	CO4	K2	8M
	(b).	Explain the assessment of available power.	CO4	K2	7M

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

NOTE : Questions can be given as A,B splits or as a single Question for 15 marks