Code No: 80134 | MR18(2018-19) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH IV YEAR I SEMESTER REGULAR EXAMINATIONS, JANUARY-2022

SUBJECT: STRUCTURAL ENGINEERING II (DSS)

BRANCH: CE

Time: 3 hours **Max. Marks: 70**

Note: Allow IS: 800-2007, 875 Part-3.

Answer all questions **5X14M=70 M**

All Questions carries equal marks

Q. NO	QUESTIONS	MARKS	*BT LEVEL	CO
1.	Calculate the strength of a 20mm diameter bolt of grade 4.6 for the following cases. The main plates to be joined are 12mm thick. a) Lap Joint b) Single cover butt joint, the cover plate being 10mm thick c) Double cover butt joint, each of cover plate being 8mm thick.	14	L3	1
	OR			
2.	Explain in brief about the concept of a) Limit State of Strength b) Limit State of Serviceability	7 7	L3	1
3.	A diagonal member of roof truss carries a maximum pull of 300kN. Design the section and its connection with a 16mm thick gusset plate. The length of the connection is limited to 340mm. design the lug angles also if required. The steel is of grade E250 and bolts of grade 4.6 are to be used.	14	L3	3
	OR			
4.	Design a splice to connect a 400mm X 30mm plate with a 400 X 15mm plate. The design load is 550 KN. Use 20mm black bolts, fabricated in the shops	14	L4	2
5.	A stanchion ISHB 300@618 N/m in the lower storey of a building is to be jointed to a stanchion ISHB 200@ 392.4 N/m of the next upper storey. A load of 600 kN is to be transferred from the top storey stanchion. Design the column splice. The column ends are made flush. Use steel Fe 410 grade and bolt 4.6 grade	14	L4	3
	OR			
6.	A column ISHB 300 @ 576.8 N/m is to support a load of 900 KN. The column section is to be spliced at a height of 2.5m. Design the splice plate using 4.6 grade bolts. Use steel of grade Fe 410.	14	L4	3
7.	A simply supported steel joint of 4m effective span is laterally supported throughout. It carries a total UDL of 40 KN (Inclusive of self weight). Design an appropriate section using steel of grade Fe 410.	14	L4	4
	OR			
8.	Design a laterally unsupported beam for the following data Effective Span- 4m Max bending moment- 550 kNm Max shear force – 200 kN Steel of grade – Fe 410	14	L4	4

9.	Design an I section Purlin, for an industrial building situated in the outskirts of Allahabad, to support a galvanized corrugated iron sheet roof for the following data: Spacing of the truss c/c = 0.6m Spacing of truss = 12.0m Spacing of purlins c/c= 1.5m Intensity of wind pressure = 2kN/m2 Weight of galvanized sheets = 130 N/m2 Grade of steel = Fe 410	14	L4	5
	OR			
10.	Design a Fink type roof truss for an industrial building for the following data: Overall Length of the building = 48m Overall Width of the building = 16.5m Width (c/c of roof columns) = 16m C/C spacing of trusses = 8m Rise of truss = ¼ of span Self weight of purlin = 318 N/m Height of Column = 11m Roofing and side coverings Asbestos cement sheets (dead weight = 117N/m2) The building is located in industrial area Naini, Allahabad. Both the ends of the truss are hinged. Use steel of grade Fe 410.	14	L4	5

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.

Code No: 80142 | MR18(2018-19) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH IV YEAR I SEMESTER REGULAR EXAMINATIONS, JANUARY-2022

SUBJECT: Remote Sensing & Geographical Information Systems

BRANCH: CE

Time: 3 hours **Max. Marks: 70**

Answer all questions **5X14M=70 M**

All Questions carries equal marks

Q. No	Question	MARKS	BT LEVEL	CO
1.	a) Distinguish Map and Mosaic.	7	L4	1
	b) What is photogrammetry and explain the types of photogrammetry in detail?	7	L2	1
	OR			
2.	a) Suggest and discuss few applications of aerial photography along with its classification.	7	L3	1
	b) Calculate the relief displacement in a vertical photograph of an object with 200 m height at a distance of 5 inches from nadir point taken from an altitude of 7000 m.	7	L2	1
3.	(a) Describe the spectral properties of water bodies.	7	L2	2
	(b) Evaluate the interpretation of Terrain features.	7	L4	2
	OR			
4.	a) Differentiate active and passive sensors.	7	L2	2
	b) Determine the impacts of Energy interaction with Atmosphere.	7	L4	2
5.	Distinguish Raster model and Vector model.	14	L4	3
	OR			
6.	a) Explain the components & theoretical framework of GIS.	7	L2	3
	b) Discuss keyboard entry method and Coordinate Geometry Procedure (COGO) in GIS.	7	L2	3
7.	Describe Computational Analysis Methods (CAM) and Visual Analysis Methods (VAM).	14	L2	4
	OR			
8.	a) Evaluate the errors during Spatial analysis.	7	L5	4
	b) Explain data manipulation and analysis in GIS.	7	L2	4
9.	How would you use LC/LU for surface water mapping and inventory?	14	L3	5
	OR			
10.	a) Explain the significance of inland waters.	7	L2	5
	b) Write short notes on Water depth estimation and bathymetry.	7	L2	5

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.

Code No: 80135 | MR18(2018-19) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH IV YEAR I SEMESTER REGULAR EXAMINATIONS, JANUARY-2022

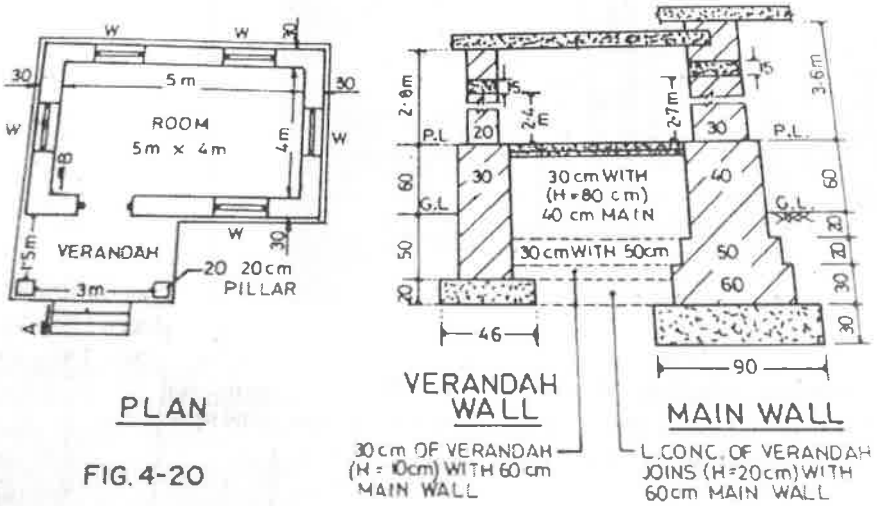
SUBJECT: Estimating Costing & Construction Management

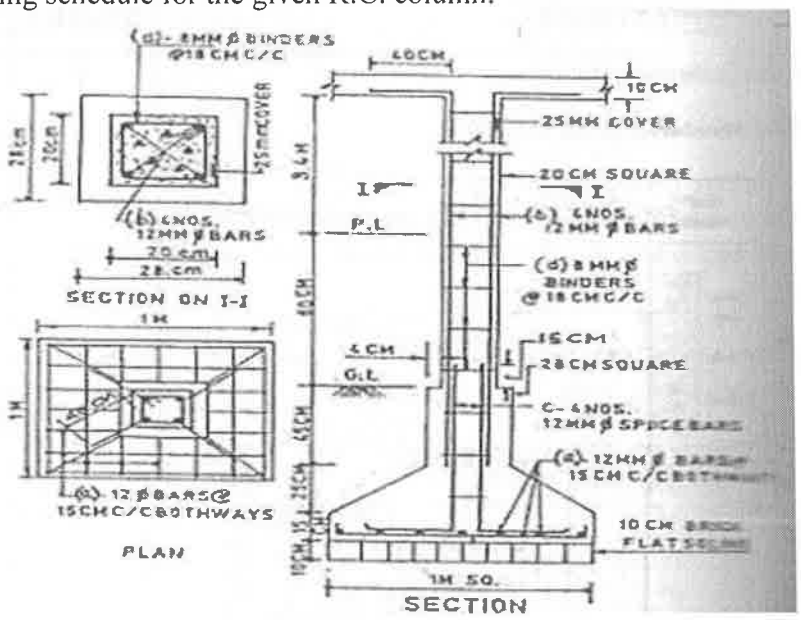
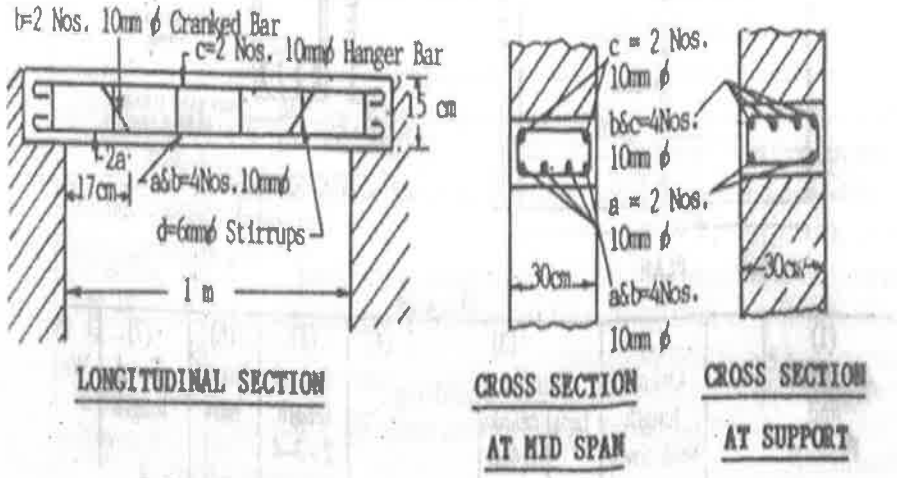
BRANCH: CE

Time: 3 hours | **Max. Marks: 70**

Answer all questions | **5X14M=70 M**

All Questions carries equal marks

Q.NO	QUESTIONS	MARKS	*BT LEVEL	CO
1.	**a)** Express the units for the following items i) Earthwork in excavation ii) Damp proof course iii) Reinforced cement concrete iv) Distempering	4	L2	2
	b) Estimate the quantities of the following items of a single roomed building from the plan and section as shown in figure below. Use Long and Short Wall Method.  FIG. 4-20 a) Earthwork in excavation in foundation. b) First class brickwork in 1:6 cement mortar in foundation and plinth. c) First class brickwork in 1:4 cement mortar in superstructure.	10		
	OR			
2.	a) What are the differences between long wall-Short wall Method and Center line Method?	4	L2	1,2
	b) Prepare an approximate estimate of building project with total plinth area of all building is 800 sqm. and from following data. i) Plinth area rate Rs. 4500 per sqm ii) Cost of water supply @7½%of cost of building. iii) Cost of Sanitary and Electrical installations each @ 7½% of cost of building. iv) Cost of architectural features @1% of building cost. v) Cost of roads and lawns @5% of building cost. Cost of P.S. and contingencies @4% of building cost. Determine the total cost of building project.	10		

3.	Figure shows plan &c/s of the footing slab with a square R.C. Column 20 cm outside with the following particulars: Area at the base slab =1m x1m Area of the base column =28 cm x 28 cm Depth of slab at column face =40 cm Depth of slab at outer edge =15cm Reinforcement in the slab=12 mm dia.bars both ways at 15 c/c Reinforcement in the column 4 nos.12 mm dia. bars with 8 mm dia. Binders at a pitch of is 18 cm c/c & for slab is 50 mm & for column is 25 mm. other particulars are as per drawing. If weight f 12 mm dia. & 8 mm dia. bars are 0.89 kg and 0.39 kg per m respectively. Prepare a bar bending schedule for the given R.C. column.  	14	L3	3
	OR			
4.	a) Prepare the bar bending schedule of bars for the R.C.C. Lintel shown in Figure, assuming bearing of the lintel be 15 cm on walls at each side. Weight of 10 mm =0.62 kg/m and 6mm ϕ=0.22kg/m.  b) Calculate the materials, labours etc. Required and work out the rate analysis for the following items. i)R.C.C Work in beams, Slabs etc 1:2:4 per 1 cubic m. ii)I Class brickwork in foundation and plinth with 20 x 10 x 10 cm. bricks with 1:6 cement sand mortar per 1 cubic m	7 7	L2	2

5.	What is tender? Explain Tender notice and Tender document.	14	L1	3
	OR			
6.	Explain the following terms: a) Item rate contract and Cost-plus contract b) Local competitive bidding and global bidding	 7 7	L2	3
7.	a) List out the significance of construction management b) Explain various stages in constructions	7 7	L2	3,4
	OR			
8.	a) Discuss objectives of construction management. b) Define management. Explain functions and principles of management.	7 7	L3	3,4
9.	Explain the following terms: a) Conditions of contract and contract documents b) Significance of safety & Quality in Construction work	 7 7	L2	3,5
	OR			
10.	a) Explain Earnest money deposit & Security deposits b) Discuss various types of construction contracts	7 7	L3	5

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.

Code No: 80136 | MR18(2018-19) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH IV YEAR I SEMESTER REGULAR EXAMINATIONS, JANUARY-2022

SUBJECT: Traffic Engineering and Management

BRANCH: CE

Time: 3 hours | **Max. Marks: 70**

Answer all questions | **5X14M=70 M**

All Questions carries equal marks

Q.NO.	QUESTIONS	MARKS	*BT LEVEL	CO
1.	a) Three vehicles are travelling in a circular loop of 1km length. The time taken by the vehicles to travel the loop is 1.2mins, 1.5mins and 2 mins. Calculate Space Mean Speed and Time Mean Speed.	7	L4	1
	b) Explain the concept of PIEV theory.	7	L2	1
	OR			
2.	a) What are the advantages of conducting speed studies?	7	L2	1
	b) What are different types of land use? Explain how land use impact traffic planning with an example.	7	L3	1
3.	a) List out the various methods for measuring spot speeds. Explain any one of them.	7	L2	2
	b) Explain different types of parking inventory surveys.	7	L4	2
	OR			
4.	Explain the different methods of conducting volume studies in detail?	14	L2	3
5.	With the help of a neat sketch, Elaborate different types of Level of Service	14	L3	3
	OR			
6.	A dual carriageway runs north and south is intersected by a single carriageway running East and West. Layout of junction is been designed such that there are two straight through lanes of 3.5m width and an exclusive right turn lane in each of northern and southern approaches. Island width is 1.2m. Radius of right turning lane is 12m. A fixed 3 phase signal is to be designed with an exclusive lane for right turners from north and south. Assume all other data. Traffic flow in pcu/hr are given below:	14	L4	3

From	N			E			S			W		
To	E	S	W	S	W	N	W	N	E	N	E	S
Flow	70	1050	250	55	800	70	125	950	220	85	700	150

Calculate optimum cycle time. Draw phasing and timing diagrams.

7.	Explain the concept in the design of rotary with all the formula and figures.	14	L3	4
	OR			

8.	a) Explain the importance of atgrade intersection and grade separated intersection and at which places it is provided?	7	L2	4
	b) Mention the guidelines for providing street lighting.	7	L2	4
9.	Explain the concept of tidal operation method.	14	L3	5
	OR			
10.	a) What are the advantages of one way street?	7	L2	5
	b) Write the objectives of ITS.	7	L3	5

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.

Code No: 80140 | MR18(2018-19) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH IV YEAR I SEMESTER REGULAR EXAMINATIONS, JANUARY-2022

SUBJECT: Solid and Hazardous Waste Management

BRANCH: CE

Time: 3 hours **Max. Marks: 70**

Answer all questions **5X14M=70 M**

All Questions carries equal marks

Q.NO.	QUESTIONS	MARKS	*BT LEVEL	CO
1.	Compare solid waste composition between developing nations and developed nations.	14	L4	1
	OR			
2.	Explain about sources of solid waste and factors influencing solid waste generation.	14	L2	1
3.	Explain in detail about collection vehicle routing.	14	L2	2
	OR			
4.	Analyze the role of transfer station in solid waste management.	14	L4	2
5.	Identify sources of hazardous waste and explain about classification of hazardous waste.	14	L3	3
	OR			
6.	Explain in detail about thermal treatment methods in hazardous waste management.	14	L2	3
7.	With a neat sketch explain single composite liner system and double liner composite liner system.	14	L2	4
	OR			
8.	Explain in detail about leachate collection and treatment system.	14	L2	4
9.	Discuss briefly about hazardous waste management rules & regulations.	14	L2	5
	OR			
10.	Illustrate the role of 5R's in waste reduction.	14	L4	5

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.

Code No: 80149 | MR18(2018-19) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH IV YEAR I SEMESTER REGULAR EXAMINATIONS, JANUARY-2022

SUBJECT: Disaster Management & Mitigation

BRANCH: CE

Time: 3 hours | **Max. Marks: 70**

Answer all questions | **5X14M=70 M**

All Questions carries equal marks

Q.NO.	QUESTIONS	MARKS	*BT LEVEL	CO
1.	a) What is meant by human ecology? How it is related to disasters. b) Write down the types of environmental hazards and disasters?	7 7	L2 L2	1
	OR			
2.	a) Explain different approaches to disaster management. b) Discuss the types of man-Induced hazards?	7 7	L3 L2	1
3.	a) What are the causes and hazardous effects of volcanic eruptions? b) Summarize the distribution of earthquakes across the globe.	7 7	L2 L2	2
	OR			
4.	a) Discuss the flood-prone regions in India. b) What causes lightning and hailstorms? Explain.	7 7	L2 L2	2
5.	a) Explain about various methods to predict natural disaster. b) Enlist the different stages of disaster management.	7 7	L3 L3	3
	OR			
6.	What is cyclone? How can people be warned of it beforehand? Give an example from a real incident when warning against a cyclone helped the people.	14	L3	3
7.	What is integrated disaster management? Explain briefly for disaster preparedness.	14	L2	4
	OR			
8.	Explain the role of following bodies in disaster management: a) Seismological observatory b) Industrial safety Inspectorate	14	L3	4
9.	a) Write a short note on Environmental policies and programs in INDIA. b) Explain the role of panchayats in disaster management.	6 8	L2 L3	5
	OR			
10.	Explain briefly the need for ecological planning for sustainability and sustainable development.	14	L3	5

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.