Code No.: **30133/ 40132** | **MR13/ MR14**

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

IV B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019

Subject: **Prestressed Concrete Structures**

Branch: **CE**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1Mark=5 Marks**

1. What is the basic principle of pre-stress?
2. What are the systems in pre-stressing?
3. Define eccentric prestressing.
4. What is an anchorage zone?
5. What is the importance of control of deflection?

II. Answer ALL questions of the following **10x2Mark=20 Marks**

1. What is circumferential prestressing?
2. Mild steel cannot be used in prestressing. Why?
3. Mention the reasons for the loss of pre-stress in pre-tensioned members.
4. Explain relaxation of steel in PSC members.
5. Write the assumptions of sections for flexure.
6. What is a pressure line?
7. Draw the stress distribution in end block.
8. What are the various methods generally used for the investigation of anchorage zone stresses.
9. What are the general design considerations that are made in the analysis of composite beams.
10. What is the differential shrinkage in composite construction?

PART-B

Answer ALL questions of the following **5x10 Marks= 50Marks**

1.) Why pre-stressed concrete is preferred for liquid retaining structures. (4M)
   b) Pre-stressed concrete members are said to be more durable and more load carrying members than Reinforced cement concrete members. Why. (6M)

OR

2. a) Explain the limitations of the application of prestressed concrete. (5M)
   b) Explain the classification of prestressing. (5M)

3.a) Differentiate between linear and circular prestressing. (4M)
   b) A pretensioned concrete beam 100mm wide and 300mm deep is prestresses by straight wires carrying an initial force of 150kN at an eccentricity of 50mm. The modulous of elasticity of steel and concrete are 210 and 35kN/mm^2 respectively. Estimate the percentage loss of stress in steel due to elastic deformation of concrete, if the area of steel wires is 188 mm^2 (6M)

OR

4. a) List various losses in pre-tensioning and post tensioning with standard percentage losses. (5M)
   b) How do you compute the loss of stress due to curvature and wobble effect (friction loss). (5M)

5. Design the shear reinforcement for a post-tensioned simply beam of span 20 m. The beam has a symmetrical I-section the details are: Flanges 600 mm wide and 150 mm thick, the thickness of the web is also 100 mm and the total depth of the section is 900 mm. The beam is subjected to a dead load of 15 kN/m and a live load of 25 kN/m at working load level. It is subjected to an effective prestressing force of 1250 kN using parabolic tendons with eccentricity is zero at the ends and 300 mm at the mid-span. Concrete is of M40 grade. The stress in prestressing steel is 1200 N/mm^2 and the yield stress of stirrup steel is 250 N/mm^2.

OR

6. Briefly explain the ultimate shear resistance of prestressed concrete members (Types of cracks and failure).

7. The end block of a post tensioned pre-stressed member is 550mm wide and 550 mm deep. Two cables, each made up of 6 wires of 7 mm diameter strands and carrying a force of 750 KN, are anchored by plate anchorages 150mmX150mm, located with their centres at 125 mm from the edges of the end block. The cable duct is 50mm diameter. The 28 days cube strength of concrete is 50 N/mm^2. The cube strength of concrete at transfer is 30N/mm^2, The characteristic yield stress in mild steel anchorage reinforcement is 250 N/mm^2. Design the suitable anchorages for the end block.

OR

8. Design an end block of a prestressed concrete beam of rectangular section 200 mm× 400 mm to transmit an effective prestressing force of 500 kN at an eccentricity of 75 mm by a distribution plate 200 mm× 200 mm. Also determine the maximum bursting force and the maximum tensile stresses.

9. A simply supported precast pre-tensioned concrete beam of cross-section 200 mm× 300 mm has an effective span of 6 m, is prestressed by tendons with their centroid coinciding with the bottom kern. The initial prestressing force in tendons is 200 kN. The beam is incorporated in a composite T-Beam by casting a top flange of width 500 mm and thickness 60 mm. If the composite beam is subjected to a live load of 10 kN/m^2, determine the resultant stresses developed in the precast and cast-in-situ concrete assuming the pre-tensioned beam as propped. Adopt the loss of prestress as 20% and the modulus of elasticity of concrete in precast and cast-in-situ is the same.

OR

10. Design a precast prestressed inverted 'T' section to be used in a composite slab of total depth 600mm and width 300mm. The composite slab is required to support an imposed load of 16 KN/m^2 over a span of 14m. The compressive stress in concrete at transfer and the tensile stress under working loads may be assumed to be 20 and 1N/mm^2 respectively. The loss ratio is 0.85. Determine the prestressing force required for the section.

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IV B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019

Subject: **Construction Management**

Branch: **CE**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1Mark=5 Marks**

1. Define Management process.
2. What is Bidding?
3. What do you mean by stores?
4. What is the importance of measurement books.
5. What do you understand by contract labour act?

II. Answer ALL questions of the following **10x2Mark=20 Marks**

1. Write short notes on social responsibilities of a project manager
2. What is the role of a project manager in gathering the information regarding the material cost?
3. Explain earliest and latest start times.
4. Write about preliminary planning.
5. What are different types of man power in construction?
6. What are the major advantages involved in resource leveling?
7. What are the different types of contract documents?
8. What are the important conditions in preparing muster roll.
9. What are the daily field reports on the job site?
10. Mention significance of manpower in construction projects.

PART-B

Answer ALL questions of the following **5x10 Marks= 50Marks**

1. a) Explain in brief the importance of management.

   b) Explain motivation performance and leadership.

OR

2. Explain the following terms with examples in construction site [3+3+2+2]

   a) Planning b) Organizing c) Staffing d) Directing

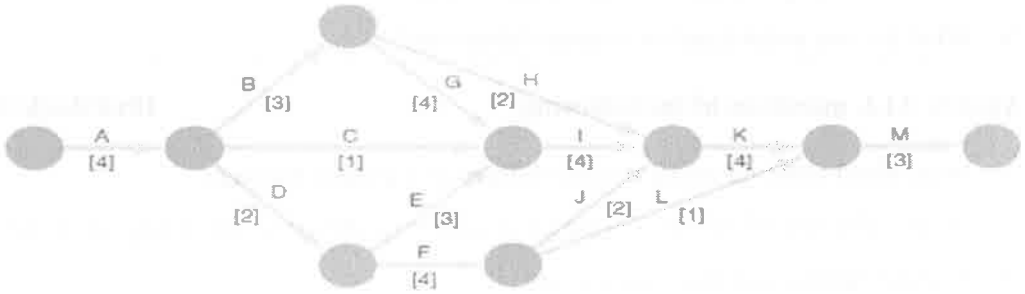
3. Draw the network for the activities of the table given below. [5+5]

Activity	Duration in days
1 - 2	20
1 - 3	25
2 - 3	10
2 - 4	12
3 - 4	6
4 - 5	10

Find free float, Total float and independent float for each activity mentioned in the table

OR

4. a) Write short notes on i) activity and event ii) Total and free float. [4+4+2]
   b) Determine the critical path for the following network:



b) The maintenance project of a building consists of 10 jobs. The predecessor relationships are

a. identified by their node numbers, as indicated below:

Job	*Identification*	*Job*	*Identification*
A	(1, 2)	F	(4, 5)
B	(2, 3)	G	(4, 7)
C	(2, 4)	H	(5, 8)
D	(3, 6)	I	(6, 8)
E	(3, 5)	J	(7, 8)

b. Draw the network diagram for the project.

5. Explain resource planning with examples.

OR

6. Explain the human resource management and its application in construction field.
7. Write down the process of tender in construction and explain about the tender documents.

OR

8. How do you prepare NMR format (payment of wages to labour)
9. Explain various safety aspects considered as per the codes in construction industry?

OR

10. a) Explain the salient features of "Minimum wages act" and "Workmen's compensation act" with reference to the construction industry.
    b) Describe various attributes of construction management. How do construction project differ from other industrial and manufacturing projects ?

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MR14

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IV B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019

Subject: **Solid Waste Management**

Branch: **CE**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1Mark=5 Marks**

1. Give examples of inorganic waste.
2. What are the methods of primary collection?
3. What is enzymatic hydrolysis?
4. What is landfill?
5. What is Reuse?

II. Answer ALL questions of the following **10x2Marks=20 Marks**

1. Classify the solid waste based on sources.
2. Define composite sample.
3. What is meant by mechanical collection of solid wastes?
4. Provide two reasons to justify the need for transfer stations?
5. List out the physical and chemical parameters considered for energy recovery from MSW
6. What is volume reduction?
7. List the various gases generated in sanitary landfill?
8. List the stages involved in composting process.
9. What is the significance of recycling?
10. Define Source reduction.

PART-B

Answer ALL questions of the following **5x10 Marks= 50Marks**

1. Explain the sources and types of solid wastes in a community.

OR

2. a)What are the factors influencing solid waste generation
   b) Write down the public health and aesthetics?

3. Explain in detail the factors affecting the design requirements of Transfer Station.

OR

4. Explain the types of Transfer Station.
5. Explain the incineration method with air emissions and its control in detail?

OR

6. Explain the process and classification of Bio-gasification process.
7. a) What is the difference between an engineered landfill and an open dump site.
   b) With the help of a neat sketch describe the operational components of a landfill and state their functions.

OR

8. a) What problems of waste disposal have been created due to urbanization and industrialization?
   b) What are the different methods of solid waste disposal? Explain any one in detail.
9. a) Briefly outline the important factors that must be considered in the storage, labeling ad handling of hazardous waste.
   b) Discuss the role of NGOs in effective solid waste management.

OR

10. a) Explain the mandatory requirements and other salient features of the Municipal Solid Waste (Management and handling) Rules in India.
    b) Write short notes on waste avoidance/ waste prevention.