Code: CE7T1

IV B.Tech - I Semester – Regular/Supplementary Examinations
October - 2019

ADVANCED STRUCTURAL ENGINEERING
(CIVIL ENGINEERING)

Use of relevant I.S. codes and IRC standards is permitted.
Data not given and found necessary may be assumed suitably.

Duration: 3 hours   Max. Marks: 70

PART – A

Answer *all* the questions.   All questions carry equal marks

11 x 2 = 22 M

1. a) Write the classification of bridges?
   b) What is an effective linear water way?
   c) What is a deck on a bridge?
   d) Name the IRC loads considered for the design of bridges.
   e) Explain when you will adopt Courbon's method.
   f) List out the factors that must be considered while designing a RCC water tank.
   g) List out the methods available for the analysis of circular water tank.
   h) Specify the impact factor considered for design of the gantry girder.

i) List the various effects of cranes to be considered under imposed loads in the design of gantry girder.

j) Mention the use of towers?

k) Name the loads considered for analysis of tower.

PART – B

Answer any *THREE* questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Explain the different types of live loads considered in the design of RCC bridges.   8 M

   b) Describe the various investigations of major bridges.   8 M

3. Design a T beam bridge for the following data.   16 M
   Clear width of roadway=25m
   Effective span=18m
   Live load - class AA vehicle
   Thickness of wearing coat=100mm
   Use M20 grade concrete and Fe 415 steel

4. Design a circular water tank with flexible base for the capacity of 2,00,000 liters resting on the ground. The depth of water is to be 4 m, including a free board of 0.25 m. Use M-20 concrete and Fe-415 grade steel. Sketch the reinforcement details.

16 M

5. Design a simply supported gantry girder to carry an electrically operated overhead travelling crane, with following data: 16 M

Crane capacity=250 KN

Self weight of the crane girder excluding trolley=200KN

Span of the gantry girder=6.5m

Span of the crane girder=16m

Self weight of the trolley=50KN

Minimum hook approach=1.0m

Distance between wheels=3.5m

Self weight of the rails=0.3KN/m

6. a) Explain the IS code method to determine the wind loads on the tower.   8 M

b) Give basic structural configurations of towers?   8 M