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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(SE) (Sem.-2)
INDUSTRIAL STRUCTURES
Subject Code : CE-508
M.Code : 39219

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

- Q1. Design a chimney of 66m height having external diameter of 4m throughout the height. The chimney has fire brick lining of 100mm thickness, provided upto a height of 42m above ground level, with an air gap of 100mm. The temperature of gases above surrounding air is 200°C. Take the coefficient of expansion of concrete and steel $= 11 \times 10^{-6}/^{\circ}\text{C}$. And $E_s = 2.05 \times 10^5 \text{ N/mm}^2$. Use M25 Grade Mix.
- Q2. Discuss all the three cases for the analysis of industrial building bents.
- Q3. a) State the uses and applications of bunkers and silos in power plant structures with its design features.
- b) Briefly discuss the use and function of pipe supporting structures in power plant with salient features.
- Q4. Design an overhead riveted steel rectangular flat bottom tank of capacity 70000 litres. The available width and length of plate are 1m and length up to 6 m. The staging consist of four columns, spaced 4m \times 3m and the bottom of the tank is 9.5 m above the ground level. Design also the supporting beams. Show by neat sketch the tank with staging indicating a suitable arrangement of the braces you will propose.
- Q5. The span of knee roof trusses used over an industrial building 28m long is 18m. The spacing of roof trusses is 4m. The pitch of roof truss is 1 in 4. The galvanized corrugated iron sheets are used for roof covering. The basic wind pressure is 1.50 kN/m² and there is no snow fall. The height of eaves above ground level is 8m. Propose a suitable type of roof truss. Determine the loads at the various panel points due to dead load, live load and the wind load.

Q6. Write a short note on the following :

- a) Design of contaminant structures
- b) Machine foundation

Q7. What are the methods of analysis for the design of cooling towers? Explain.

Q8. What are Pressure vessels? Where are they used? What are the design factors to be considered for designing them?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.