Reg. No. : | | | | | | | | | | |

Question Paper Code: 55P65

M.E. DEGREE EXAMINATION, NOV 2017

Elective

Structural Engineering

15PSE513 – DESIGN OF INDUSTRIAL STRUCTURES

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. IS Code for industrial ventilation.

   (a) IS : 3103 - 1975 (b) IS : 1646-1961 (c) IS : 3103 - 1977 (d) IS : 1646-1962

2. The Machine foundations are designed considering

   (a) Dynamic Forces (b) Kinematic Forces
   (c) Static forces (d) Both (b) and (c)

3. Which of the following is not a power plant organization in India.

   (a) NSCL (b) NHPC (c) NPCL (d) NTPC

4. The type of cooling towers with maximum heat transfer from air to water is

   (a) Natural Draft (b) Mechanical Draft
   (c) Electrical Draft (d) Both (a)and (b)

5. The foundations are designed considering

   (a) shocks and vibrations (b) vibrations
   (c) shocks (d) neither a (or) b

PART B - (5 x 3 = 15 Marks)

6. Mention the sources of noise in Industries.

7. Sketch the reinforcements in nibs with large loads.

8. What are nuclear containment structures?

9. Write short notes on testing of towers.

10. What are the stresses subjected to RCC Chimney?

PART C - (5 x 16 = 80 Marks)

11. (a) Plan a layout for a cement industry which should satisfy all the requirements. (16)

Or

(b) Explain the Protection against noise and Vibration in Industrial Buildings. (16)

12. (a) Design a RCC corbel to carry a factored load of 500 *kN* at a distance 200 *mm* from the face of a 300 x 300 RCC Column. Use M35 concrete and Fe 415 steel. (16)

Or

(b) Design a gantry girder for a yarn packing industry for the following data:

Crane capacity = 250 kN; Weight of crane (excluding crab) = 200 kN

Weight of crab girder = 50 kN; Mini. Hook approach = 1.2m

Wheel base distance = 3.5 m; C/C Spacing of Columns = 16 m

C/C Spacing of gantry rail = 16 m; Self-weight of rail section = 300 N/m

Depth of rail section = 75 mm; Take fy = 250 N/mm2, E = 2 x 105 N/mm^2 (16)

13. (a) Discuss the factors to be borne in mind while designing nuclear containment structures. (16)

Or

(b) Explain about the construction methodologies and related aspects of power plant structures. (16)

14. (a) Sketch the elevations of different types of transmission line towers. State the assumptions made in the analysis and discuss about the loading conditions to be considered in the design. (16)

Or

(b) Explain the detail the testing of power transmission line towers. (16)

15. (a) Enumerate the steps in the design of tower foundations and explain their silent features. (16)

Or

(b) Write a short note on Masts and Trestles. (16)