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

Question Paper Code: 52638

M.E. DEGREE EXAMINATION, NOV 2016

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. What is the allowable vertical deflection for electrically operated crane up to 500 *kN* capacity.

   (a) Span/500 (b) Span/750
   (c) Span/400 (d) Span/1000

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

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

4. Diameter of flared portion of a steel chimney is

   (a) 4/5D (b) 1.25D (c) 3/4D (d) 2.5D

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. On what basis Industrial structures are classified?

7. Explain corbel and its advantages.

8. Explain the requirement of power plants.

9. What do you understand by broken wire condition?

10. State the general requirements of a machine foundation.

PART C - (5 x 16 = 80 Marks)

11. (a) What are the factors that govern the choice of roofs for industrial buildings? (16)

Or

(b) Explain about the classification of lightning? What are the points to be considered for providing natural lighting and ventilation. (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 corbel for a 250 *mm* square column to support a vertical ultimate load of 400 *kN* with its line of action 170 *mm* from the face of the column. Assume M20 grade of concrete and Fe 415 steel. (16)

13. (a) Draw the typical layout of nuclear power plant structures. (16)

Or

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

14. (a) What are the loads to be considered in the design of transmission line towers. (16)

Or

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

15. (a) Explain in detail different types of machine foundation. (16)

Or

(b) Sketch and discuss in detail the various types of foundations used for towers. (16)