Register Number: ……..

B.E DEGREE EXAMINATIONS: NOV/DEC 2012

Seventh Semester

CIVIL ENGINEERING

CEE217: Industrial Structures

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The vertical walls of the silo are subjected to

   a) direct compression alone
   b) direction tension alone
   c) only to lateral pressure
   d) both direct compression and lateral pressure

2. A bin is called as a silo if

   a) if the depth of a bin is greater than twice the breadth
   b) if the depth of a bin is greater than 1.5 times the breadth
   c) if the depth of a bin is greater than three times the breadth
   d) if the plane of rupture meets the surface of material , before it strikes the opposite sides of bin.

3. The recommended values of illumination for iron and steel works industry for mould preparation, rolling and wire mills mill motor rooms is

   a) 200 lux
   b) 150 lux
   c) 100 lux
   d) 300 lux

4. When the buildings are wide as in the case of most of the single storeyed factory buildings, the type of ventilation recommended is
   a) Natural ventilation
   b) artificial ventilation
   c) cross ventilation
   d) Roof ventilation

5. The frame which is designed to resist bending moments and shear forces in its plane is called

   a) Portal frame
   b) unbraced frame
   c) plane truss
   d) space truss

6. The volume of air space per person in an auditorium should be more than

   a) 10 cum
   b) 7 cum
   c) 6 cum
   d) 5 cum

7. When the purlins are placed in between the truss joints the rafter is subjected to

   a) bending
   b) axial force
   c) tension
   d) bending and axial force

8. In shell roofs

a) the full cross section is subjected to uniform direct stresses

b) subjected to uniform bending stresses

c) subjected to uniform torsional stresses

d) subjected to linearly varying direct stresses

9. Which method of prefabrication is suitable for larger fabrication of the members?

a) Plant prefabrication b) Site prefabrication

c) Plant and site prefabrication d) Cast-in-situ fabrication

10. The process of assembling the precast elements in the final position as per drawings is called

a) Hoisting b) Assembling

c) Erection d) Demoulding

PART B (10 x 2 = 20 Marks)

11. What are the classification of industrial buildings

12. What are the major departments in a steel plant

13. What is meant by cross ventilation in industrial buildings

14. What are the fire safety requirements in an industrial building

15. List the structural components of a bunker.

16. What are the components of crane system ?

17. What is meant by self supporting chimney

18. What are the different methods of analysis of folded plates

19. What is the principle of prefabrication

20. List any two types of prefabricated structural elements

PART C (5 x 14 = 70 Marks)

21. a) What the general requirements for the following industries?
(i) Cement industry
(ii) Steel plants (7)

(7)

(OR)

b) Draw the layout of any one type of industrial buildings and what are the components of the industrial buildings?

22. a) Explain the ventilation and lighting requirements and provisions for industrial buildings with neat sketches.

(OR)

b) What are the fire safety requirements for different type of industries as per the factories act.

23. a) Design a bunker to store 300KN of coal, for the following data:
Unit weight of coal = 8340 N/m^2. Angle of repose = 30^o. The stored coal is to be surcharged at its angle of repose (Dimensions of the bunker and design of side walls only).

(OR)

b) A shed is to be provided with a hand operated 5t crane facility. The details of the building and the crane girder are :
Longitudinal spacing of column = 6m
Centre to centre distance of gantry girders = 12 m
Wheel spacing = 3m
Edge distance = 1m
Weight of crane girder = 40 KN
Weight of trolley car = 10 KN
Find out the design moment and shear force for the girder.

24. a) Explain the principles of design of folded plate

(OR)

b) Design a self supporting steel chimney for a height of 50m above foundation with diameter of cylindrical portion 2.5m. Take thickness of lining as 100mm and wind pressure is 1500 N/m^2.

25. a) Explain about the prestressed precast roofing members with neat sketches

(OR)

b) (i) List the principles of prefabrication. (7)

(ii) What are the functional requirements for precast concrete units? (7)

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