Total No. of Questions : 8]

SEAT No. :

P3666

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[4959]-1026
B.E. (Civil Engineering)
FERROCEMENT TECHNOLOGY
(End Sem.) (2012 Pattern) (Elective-IV) (Semester-II) (Open Elective)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 & Q7 or Q8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Write prescriptions where indicated and in the use of drugs their doses should be given.***

Q1) a) Discuss 'raw materials' & 'tools' required for Ferrocement construction. **[6]**

b) Discuss 'three stage behavior of ferrocement in tension'. **[6]**

c) Discuss strength through shape for structural elements. **[6]**

OR

Q2) a) Discuss 'Ferrocement as substitute for conventional building materials'. **[6]**

b) Discuss the methods of mortar application while constructing the ferrocement elements. **[6]**

c) What are the various recommendations made by ACI for designing a ferrocement structure. **[6]**

Q3) a) Write note on building components using ferrocement, discuss 'ferrocrete floors' in detail. **[8]**

b) Determine the quantities for a ferrocement hemisphere dome.

The dome thickness is 40mm and base diameter as 8m with central height 2m skeletal steel - 8mm dia bars, 400 mm c/c circumferentially and 500 mm c/c radially at the base.

P.T.O.

The mesh reinforcement consisting of 2 layers of weldmesh, one on each face of size 100 × 100mm × 10 × 10g and 4 layers of chicken mesh.

13 × 13mm × 24 × 24g (two on each face) being tied tightly over the skeleton and impregnated with cement mortar of 1:2 mix by volume. **[10]**

OR

Q4) a) Explain earthquake resistant properties of ferrocement. **[8]**

b) Determine quantities of material required for a ferrocement partion wall 30mm thick of size 5m × 2m. **[10]**

Skeletal steel → 8mm dia, 500mm c/c in both direction.

Weld mesh → 150mm × 150mm × 12 × 12g

Chicken mesh → 2 layers, (one layer on each face)

13 × 13mm × 24 × 24g

rich cement mortar 1:3 mix by volume.

Q5) a) What are the advantages of ferrocement for using it for water retaining structures. **[5]**

b) Discuss various types of tanks, those can be constructed using ferrocement. **[6]**

c) Explain components of ferrocement retaining wall. **[6]**

OR

Q6) a) Enlist various types of retaining walls and explain counterfort retaining wall. **[6]**

b) Write note on 'Ferrocrete Water proofing'. **[5]**

c) Discuss Ferrocement septic tanks. **[6]**

Q7) a) Discuss various types of large size structures and their purpose. **[6]**

b) Write note on design of ferrocement transmission line poles. **[5]**

c) Enlist various ferrocement structures those can be cast using precast technique. **[6]**

OR

Q8) a) Explain factors which influence the choice of casting between precast and cast-in-situ method. **[6]**

b) Write note on Ferrocement Domes. **[6]**

c) Discuss use of ferrocement for hydraulic structures. **[5]**

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