

Total No. of Questions : 8]

SEAT No. :

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**P3666**

**[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  $100 \times 100\text{mm} \times 10 \times 10\text{g}$  and 4 layers of chicken mesh.

$13 \times 13\text{mm} \times 24 \times 24\text{g}$  (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 partition wall 30mm thick of size  $5\text{m} \times 2\text{m}$ . [10]

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

Weld mesh →  $150\text{mm} \times 150\text{mm} \times 12 \times 12\text{g}$

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

$13 \times 13\text{mm} \times 24 \times 24\text{g}$

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 'Ferrocete 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]

