

B.E. Civil Engineering (Model Curriculum) Semester - IV
PCCCE402 - Concrete Technology

P. Pages : 2

Time : Three Hours



GUG/S/23/13716

Max. Marks : 80

- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What are different grades of cement? Also explain main constituents of cement with limits. **8**
- b) Explain in brief water requirement for hydration of cement in brief. **4**
- c) What are BOGUE's compound? Explain their role. **4**

OR

2. a) State the different properties of aggregate and their importance in concrete. **6**
- b) How do you classify aggregates? **4**
- c) What is bulking of sand and state the procedure to find bulking of sand **6**
3. a) List out the various tests for measurement of workability. Explain any one in detail. **5**
- b) Distinguish between segregation and bleeding and explain in detail. **5**
- c) What are the factors affecting shrinkage and creep? **6**

OR

4. a) How many zones of sand available as per IS 383 and identify which zone is concert and which finest. **5**
- b) Explain batching and what are the types of batching? **6**
- c) What are factors affecting workability? **5**
5. a) Explain Abram's law of water cement ratio and discuss importance of water cement ratio in concrete. **5**
- b) Identify the factors affecting strength of concrete. **5**
- c) State the importance of curing also explain any two types of curing. **6**

OR

6. a) Explain aspect ratio and its significance. **5**
b) Explain the relation between compression and tensile strength. **5**
c) List out different NDT method? Write codes provision for NDT. **6**
7. a) What are methods of controlling sulphate attack. **6**
b) State different factors contributing cracks in concrete. **5**
c) Explain different types of admixture used in concrete. **5**

OR

8. a) What are air entraining agents? Also explain their effect on properties on concrete. **7**
b) Write a note on super plasticizer. **5**
c) What is effect of calcium chloride on concrete. **4**
9. a) Define the term “Mix Design of concrete” and explain its significance. **8**
b) What are different factors affecting concrete mix design. **8**

OR

10. Design a concrete mix design of M-25 grade Take standard deviation 5MPa. The specific gravity of coarse aggregate and fine aggregate are 2.75 and 2.60 respectively. The bulk density of coarse aggregate is 1610 kg / cum. **16**
Assume any data whenever required.
Specific gravity of cement = 3.10
Water absorption of CA = 0.80% & FA = 1.10%
