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Roll No .....

CE-4002 (CBGS)

B.E. IV Semester

Examination, May 2018

Choice Based Grading System (CBGS)

Concrete Technology

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Enumerate different admixtures and describe in detail on Chemical composition, functioning and uses in concrete. 7

   b) What are different grades of cement? Explain the procedure to determine normal consistency of cement. 7

2. a) Define the following: 7
   i) Workability
   ii) Segregation
   iii) Bleeding
   iv) Creep of concrete
   v) Shrinkage of concrete
   vi) Permeability of concrete
   vii) Micro-cracking of concrete

   b) What is slump test? How is it performed? 7

3. What is the meaning of compressive and flexural strength of concrete? How is it performed in laboratory? Describe the affect of age and water cement ratio on strength of concrete. 14

4. a) Explain the procedure of concrete mix design by IS code of practice. 7

   b) Define target strength of concrete and explain acceptance criteria for concrete. 7

5. Design M30 grade of concrete mix by IS code for following data. 14
   Cement = OPC 53 grade
   Specific gravity of cement = 3.01
   Maximum size of C.A = 20 mm
   Specific gravity of C.A = 2.78
   Fine aggregate = River sand confirming to zone II
   Specific gravity of F.A = 2.77
   Quality control = Good, Required slump = 120 mm
   Exposure = Moderate
   Minimum cement content from durability consideration = 320kg/m^3
   Maximum water cement ratio = 0.45
   Use of super plasticizer having specific gravity of 1.2 is allowed
   Assume any other data suitably

6. a) Explain in detail repair technology for concrete structures. 7

   b) Explain various NDT (Non-Destructive Testing) methods of concrete. 7

7. a) Write short notes on: 7
   i) Fiber reinforced concrete
   ii) Ferrocement concrete

   b) Write short notes on: 7
   i) Light weight concrete
   ii) Heat resistance concrete

8. a) Write short notes on: 7
   i) Ready mix concrete
   ii) Vacuum concrete

   b) Explain polymer concrete and its composition in detail. 7

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