

**GUJARAT TECHNOLOGICAL UNIVERSITY****PDDC - SEMESTER – IV • EXAMINATION – WINTER 2012****Subject code: X40602****Date: 27/12/2012****Subject Name: Concrete Technology****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Describe any one method of manufacturing of cement. **07**  
(b) Write procedure to test cement for following : **07**  
(i) Setting time, (ii) compressive strength
- Q.2** (a) Differentiate between **07**  
(i) Quick setting cement and Rapid hardening cement  
(ii) Sulphate resisting cement and super sulphate cement  
(iii) Ordinary Portland cement and Portland pozzolana cement  
(b) Describe functions of following compound in cement **07**  
(i) Tri-calcium silicate (ii) Di-calcium silicate (iii) Tetra calcium alumino ferrate  
**OR**  
(b) What do you understand by grading of aggregate? Explain different types of grading and their effect on properties of concrete? **07**
- Q.3** (a) Write the desired properties of water to be used in concrete. Why sea water cannot be used in concrete? **07**  
(b) Write ten percent fine test for aggregate and its significance. **07**  
**OR**
- Q.3** (a) Discuss various factors affecting workability of concrete. **07**  
(b) What do you understand by water absorption, water adsorption and surface moisture? Explain their effect on concrete manufacturing and how are they accounted in mix design. **07**
- Q.4** (a) What do understand by rebound number? How it is determined? Write factors affecting rebound number. **07**  
(b) Why does a concrete cracks? Describe various types of cracks and various method of repairing of cracks. **07**  
**OR**
- Q.4** (a) Give steps of ACI mix design method of concrete. **07**  
(b) What is pumped concrete? Where it is used? Write the factors affecting pumpability of concrete. **07**
- Q.5** Write short note on following (any four) **14**  
(a) Hot weather concreting (b) Ferrocement (c) Fiber reinforced concrete  
(d) Heavy weight concrete (e) Bulking of sand (f) Jacketing  
(g) Additives in cement (h) Carbonation of concrete

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