

Diploma in Civil Engineering

Term-End Examination

December, 2010

BCE-044 : CONCRETE TECHNOLOGY

Time : 2 hours

Maximum Marks : 70

Note : Answer any five questions including question number 1 which is compulsory.

1. (a) Answer any two of the following in brief (2 - 3 lines only) $2 \times 2 = 4$
- (i) What is the function of ribs present on steel?
 - (ii) What is meant by soundness of cement?
 - (iii) What is meant by buttering of the mixer?
- (b) Fill in the blanks (any four): $4 \times 1\frac{1}{2} = 6$
- (i) One bag of cement equals _____ litres.
 - (ii) Concrete is weak in _____.
 - (iii) The effect of bulking of sand should be considered in _____ batching.
 - (iv) Flow test is used to measure _____ of concrete.
 - (v) CTM is used to measure _____ of concrete.

- (c) Select the correct option (*any four*): $4 \times 1 = 4$
- (i) Table vibrator is mostly adopted in (laboratory/field).
 - (ii) Bleeding of concrete is a (desirable/not desirable) property.
 - (iii) Consistency of cement is determined by (vicat/Le-chatelier) apparatus.
 - (iv) Compaction (increases/decreases) the density of concrete.
 - (v) Final setting time of OPC is (400 minute/ 600 minute)
2. (a) Differentiate between the items of *any two* of the following: $2 \times 4 = 8$
- (i) Expansion joint and contraction joint.
 - (ii) Hot weather and cold weather concreting.
 - (iii) Accelerators and Retarders.
- (b) Define the following (*any two*): $2 \times 3 = 6$
- (i) Yield of concrete.
 - (ii) Curing of concrete.
 - (iii) Soundness of cement.
3. (a) Explain manufacturing process of cement. 8
- (b) Enlist laboratory tests on cement. $2 + 4 = 6$
Explain *any one*.
4. (a) Enlist various aggregate tests. $2 + 6 = 8$
Explain *any one*.
- (b) Describe Abram's water-cement ratio law 6
with a neat sketch.

5. (a) Enlist the methods to determine workability. Explain *any one*. $2+6=8$
- (b) Discuss different methods of transportation of concrete. 6
6. (a) Define formwork. What are the advantages of steel formwork? $2+6=8$
- (b) Explain with a sketch the bucket placing method of underwater concreting. 6
7. Write short notes on *any four* of the following:
- (a) Pre-stressed concrete. $4 \times 3\frac{1}{2} = 14$
- (b) RMC.
- (c) Mix-design.
- (d) Colcrete.
- (e) Non-fitting type concrete mixer.
- (f) Light weight concrete.
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