

B.Tech. Civil (Construction Management)

Term-End Examination

00100

December, 2014

**ET-522 : CONCRETE TECHNOLOGY AND
CONSTRUCTION TECHNIQUES**

Time : 3 hours

Maximum Marks : 70

Note : Answer any **five** questions. All questions carry equal marks. Support your answer with neat sketches wherever necessary.

1. (a) Explain the structure of hydrated cement with the help of a neat sketch. 7
- (b) What are admixtures ? Why do we require admixtures in any concrete-mix ? Explain any two types in detail. 7
2. (a) What is workability ? Discuss in detail, various factors affecting workability of a concrete-mix. 7
- (b) What are the different tests performed on aggregates ? Explain any two in detail. 7
3. (a) Cube strength of a concrete-mix is higher than cylindrical strength of the same concrete-mix. Explain. 6

- (b) Explain any **four** of the following terms : $4 \times 2 = 8$
- (i) Characteristic strength of concrete
 - (ii) Maximum nominal size of aggregate
 - (iii) Standard deviation
 - (iv) Water-Cement ratio
 - (v) Fineness Modulus of aggregate
4. (a) What materials are commonly used in formwork ? On what parameters does the cost of formwork depend ? 7
- (b) List the prominent applications where fibre reinforced concrete can be used. 7
5. (a) How do you determine the load bearing capacity of piles by using pile load test ? Discuss in detail. 7
- (b) Write a short note on under-reamed piles. Where and why are these used ? 7
6. (a) What methods are available for ground water control ? 4
- (b) List the various components of a well foundation, and explain their function. 7
- (c) What are the principal methods that are used for deep vibration ? 3

7. (a) Explain the statement — “For calculation of strength, effective water content is to be taken into consideration, not mixing water”. 4
- (b) Discuss the sulphate attack on concrete. 5
- (c) What steps would you take to minimise cracks in concrete work ? 5
8. (a) Which is the most widely used method for the manufacturing of aerated concrete and why ? 6
- (b) What is shotcreting or guniting ? What processes are used in shotcreting ? 8
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