



**B.E DEGREE EXAMINATIONS: MAY 2018**

(Regulation 2015)

Fourth Semester

**CIVIL ENGINEERING**

U15CEPE01: Concrete Technology

**COURSE OUTCOMES**

- CO1:** Test the properties of various Ingredients of concrete  
**CO2:** Conduct tests for fresh and hardened properties of concrete  
**CO3:** Design the concrete mix for the required strength  
**CO4:** Assess the durability properties of concrete.  
**CO5:** Suggest suitable admixture for concrete with special properties  
**CO6:** Suggest special type of concrete for the given requirement

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-  
PART A (10 x 1 = 10 Marks)**

1.

CO3 [K<sub>1</sub>]

List I	List II
A. Mass concrete for foundation	i. 1:3:6
B. Mass concrete in superstructures	ii. 1:5:10
C. Normal RCC Works	iii. 1:1:2
D. Heavily loaded Columns and Long span Arches	iv. 1:1.5:3

- |    |     |    |     |     |
|----|-----|----|-----|-----|
|    | A   | B  | C   | D   |
| a) | ii  | i  | iv  | iii |
| b) | iii | iv | ii  | i   |
| c) | ii  | iv | iii | i   |
| d) | iii | i  | ii  | iv  |

2. When water is added to cement?

CO1 [K<sub>1</sub>]

- |                              |                             |
|------------------------------|-----------------------------|
| a) Impurities are washed out | b) Heat is absorbed         |
| c) Heat is generated         | d) Chemical reactions start |





**Answer any FIVE Questions:-**

**PART C (5 x 14 = 70 Marks)**

**(Answer not more than 300 words)**

**Q.No. 21 is Compulsory**

21. Design a concrete mix for the construction of an elevated water tank. Design the mix with the following stipulations using IS method: CO3 [K3]  
Characteristic strength of concrete: 25 N/mm<sup>2</sup>  
Maximum size of aggregate (angular): 20mm  
Degree of workability: 0.9 Compaction Factor  
Degree of Quality control: Good  
Specific Gravity Cement: 3.15, Fine Aggregate:2.64, Coarse Aggregate:2.72  
Assume any other data required
22. List any three characteristics of concrete aggregate and discuss their influence on both the properties of fresh and hardened concrete. CO1 [K2]
23. a) List the different types of shrinkage. Discuss in detail each. (7) CO4 [K2]  
b) Explain in detail about statistical quality control of concrete. (7) CO3 [K2]
24. Write notes on i) fire resistance of concrete ii) resistance to abrasion and wear. CO4 [K2]
25. Write about the use of chemical admixtures in concrete. Explain in detail about workability agents and corrosion inhibitors. CO5 [K2]
26. Explain in detail about the materials used for producing i) Light weight concrete and ii) Bacterial concrete. Also discuss their applications. CO6 [K2]
27. Explain the manufacture, types, properties and applications of Polymer concrete. CO6 [K2]

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