

6E6038

Roll No. : 15ECTCE024

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B. Tech. (Sem. VI) (Main & Back) Examination, April-May 2018
Civil Engineering
6CE6.3A Repair & Rehabilitation of Structures

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 26

Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL . 2. NIL

UNIT - I

- 1 (a) Explain F&T deterioration in detail. What is the minimum saturation of concrete for F&T action ? What are the various preventive measures against F&T action ? 8
- (b) Explain the following :
- (i) Carbonation
 - (ii) Chloride ingress
 - (iii) Alkali aggregate reaction
 - (iv) Sulphate attack. 8

OR

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[P.T.O.

- 1
- (a) What are the different types of cracks in concrete ? Explain with neat sketches the preventive measures of cracks. 8
- (b) What is sulphate attack in concrete and what precautions are used to prevent sulphate attack. 8

UNIT - II

- 2
- (a) Describe importance of NDT in building material assessment. 8
- (b) Explain the relationship of ultrasound wave velocity and strength of hardened concrete. 8

OR

- 2
- (a) Explain the procedure of Rebound Hammer test and draw a neat sketch. 8
- (b) Explain the following :
(i) Half cell potential method.
(ii) Corrosion meter. 8

UNIT - III

- 3
- (a) What are the properties of repair materials and their importance ? 8
- (b) What do you mean by Ferrocement ? Explain its construction techniques. 8

OR

- 3
- (a) Explain FRP in detail. 8
- (b) Explain different type of polymers used for repair. 8

UNIT - IV

- 4 (a) What do you mean by jacketing ? Describe jacketing for column and beam. 8
- (b) Explain shotcrete in detail. 8

OR

- 4 Write a short note on :
- (i) Grouting
 - (ii) Under water repair
 - (iii) Externally bonded plates.

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UNIT - V

- 5 (a) Explain causes of distress and deterioration. 8
- (b) A case study of rehabilitation of dam. 8

OR

- 5 Write a short note on :
- (i) Mapping of data
 - (ii) Primary test methods
 - (iii) Pull out test method
 - (iv) Pulse velocity test method

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