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Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019

## Rehabilitation and Retrofitting of Structures

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Explain the following terms: (08 Marks)
- i) Repair
  - ii) Rehabilitation
  - iii) Strengthening
  - iv) Retrofitting
- b. What are the causes of distress and deterioration of concrete? (08 Marks)

OR

- 2 a. How do you carry out physical inspection of distressed concrete structures? (08 Marks)
- b. What is durability of concrete? How do the following affect the durability of concrete: (08 Marks)
- i) Carbonation
  - ii) Alkali aggregate reaction

### Module-2

- 3 a. List the steps involved in evaluation of structures and explain the different aspect of detailed investigation. (10 Marks)
- b. What are the non destructive test conducted to assess the existing strength of concrete structures? Explain any one. (06 Marks)

OR

- 4 a. Give the classification of tests and different tests that comes under each category to assess existing distress of structures. (12 Marks)
- b. What are the different situations that call for investigation of structures? (04 Marks)

### Module-3

- 5 a. Explain the durability factors for humid environment with freezing and frost action. (04 Marks)
- b. Explain in detail regarding mechanism of temperature variation in concrete and their remedial measures. (08 Marks)
- c. Explain different types of cracks. (04 Marks)

OR

- 6 a. Explain the importance of concrete cover in RCC structures. (05 Marks)
- b. What are the factors to be considered by the designer at the construction site? (05 Marks)
- c. What preventive measure will ensure protection against corrosion in New Structures? (06 Marks)



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**Module-4**

- 7 a. Define maintenance. Explain the importance of maintenance. (08 Marks)  
b. Discuss the rehabilitation techniques that are adopted for structural elements. (08 Marks)

OR

- 8 a. Explain in detail restoration of column by method of Jacketing. (10 Marks)  
b. When do you Retrofit Structures? (06 Marks)

**Module-5**

- 9 a. What are the Ideal properties of Repair material? (06 Marks)  
b. Explain the following: (10 Marks)  
i) Epoxy injection  
ii) Repair mortars

OR

- 10 a. Explain the procedure for Repairing Cracks in masonry structures. (06 Marks)  
b. Classify and explain the use of different Techniques for Repair. (10 Marks)

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