

Code No: 118EB

**R13**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech IV Year II Semester Examinations, May - 2017**

**REHABILITATION AND RETROFITTING OF STRUCTURES**

**(Civil Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions

**PART - A**

**(25 Marks)**

- 1.a) What is the effect of deterioration of structures. [2]
- b) Write down the classification of distress in structures. [3]
- c) List out the various causes for the corrosion of steel reinforcement. [2]
- d) Explain the phenomena of desiccation. [3]
- e) What is the necessity of damage assessment of any structure? [2]
- f) What are the various symptoms of distress in structures? [3]
- g) What is autogenous healing? [2]
- h) What are the various crack repair methods? [3]
- i) List out the various sensors used for the health monitoring of a structure. [2]
- j) What are the objectives of monitoring the health of a structure? [3]

**PART - B**

**(50 Marks)**

- 2.a) Explain the various causes of distress in reinforced concrete structures. [5+5]
- b) Explain the various types of damages of structures.

**OR**

- 3.a) Explain the mechanism of damage to the structures.
- b) Explain the various steps to be adopted to prevent distress in structures. [5+5]

- 4.a) Explain the mechanism of corrosion of steel reinforcement.
- b) Describe the fire rating of the components of an RCC building. [5+5]

**OR**

- 5.a) Describe the various methods of prevention of corrosion of steel reinforcement.
- b) Explain the various parameters influencing the damage of structures due to fire. [5+5]

- 6.a) Explain the various methods of diagnosis of distress in structures.
- b) Explain the procedure for the damage assessment of structures. [5+5]

**OR**

7. Explain the application of Rebound Hammer test and Ultrasonic Pulse Velocity test for the damage assessment of structures. [10]

AG AG AG AG AG AG /

8. Explain the various methods of repair of underwater structures. [10]

OR

9. Explain the different methods of strengthening of reinforced concrete beams. [10]

10. Explain the role of different types of sensors in health monitoring of structures [10]

OR

11. Explain the instrumentation of a building in connection with monitoring the health of structures. [10]

AG AG AG ---ooOoo--- AG AG AG A

AG AG AG AG AG AG AG A

AG AG AG AG AG AG AG A

AG AG AG AG AG AG AG A

AG AG AG AG AG AG AG A

AG AG AG AG AG AG AG A