

B.Tech IV Year I Semester (R13) Supplementary Examinations June 2017

REHABILITATION & RETROFITTING OF STRUCTURES

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Define the terms Rehabilitation and Retrofitting of structures.
 - (b) What are the basic symptoms of distress in concrete structures?
 - (c) State the methods to improve the corrosion resistance of RC structures.
 - (d) How is Cathodic protection done to steel structures?
 - (e) List out various NDTs available for condition survey of structures.
 - (f) What is a conditional survey?
 - (g) Explain the process of shotcreting.
 - (h) Why and how underpinning is done to structures.
 - (i) What do you understand by structural health monitoring (SHM)?
 - (j) Name some common applications of Instrumentation in structures.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Summarize the causes of distress in structures and explain the preventive measures in controlling distress in reinforced concrete structures.

OR

- 3 Discuss in detail the various construction and design deficiencies which cause distress in the RCC structures.

UNIT – II

- 4 Illustrate schematically the electrochemical process involved in corrosion of steel reinforcement in Concrete and discuss about various measures to control it.

OR

- 5 Explain about:
- (a) Phenomenon of desiccation in structures.
 - (b) Fire rating of structures.

UNIT – III

- 6 What are the various tools for evaluation of distress in concrete structures?

OR

- 7 Illustrate with sketches, any two popular Non-Destructive tests carried out for the assessment of concrete strength as per IS code of standard.

UNIT – IV

- 8 Discuss about various repairs in concrete structures in detail.

OR

- 9 Explain the process of Jacketing in strengthening of beams and columns with sketches.

UNIT – V

- 10 Show schematically the components of SHM system and explain the use of smart sensing technology for structural health monitoring.

OR

- 11 Explain how Building Instrumentation is carried out using smart sensors with a simple case study.
