Code: 13A01709 **R13**

B.Tech IV Year I Semester (R13) Regular Examinations November/December 2016

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 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 causes 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:

(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.

*****