R15

Code No: 128EB

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, July - 2019

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)	List the damages in structures.	[2]
b)	List the causes of deterioration and distress in structures.	[3]
c)	Define corrosion inhibitor.	[2]
d)	How does a concrete structure get affected by heat?	[3]
e)	List out various semi non-destructive testing methods on concrete.	[2]
f)	List the objectives of condition survey.	[3]
g)	Define underpinning method of repair.	[2]
h)	List common types of repairs in structures.	[3]
i)	Define smart structure.	[2]
j)	What do you understand by Structural health monitoring (SHM)?	[3]

PART - B

(50 Marks)

2. Explain the various construction and design deficiencies which causes distress in the RCC structures. [10]

OR

3.a) Distinguish between structural and non-structural damages in structures
b) Discuss the mechanism of damage with an example. [5+5]

4. Discuss the methods to assess the corrosion of reinforcement in concrete structures and suggest various measures to prevent it. [10]

OR

5.a) Explain in detail about damage due to elevated temperatures
b) What are the Thermal Properties of materials to be assessed before using them? [5+5]

6. Explain with sketches, any two popular Non-Destructive tests carried out for the assessment of concrete strength as per IS code of standard. [10]

OR

7. Discuss the importance of field and laboratory testing for damage assessment of structure. [10]

8. Describe the various strengthening techniques to overcome low member strength. [10]

OR

9. Explain in detail about ferro-cement jacketing and FRP jacketing for strengthening of structures. [10]

10. Discuss in detail the concept of building instrumentation using smart sensors. [10]

OR

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

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