Code No: 137GJ

R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, December - 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 as sub questions.

PART – A

(25 Marks)

1.a)	List reasons for distress in structures.	[2]
b)	Discuss in brief to prevent deterioration in RC structures.	[3]
c)	List reasons for reinforcement corrosion.	[2]
d)	Explain how does a concrete structure deteriorate exposed to fire.	[3]
e)	What is the working principle of UPV?	[2]
f)	Discuss about any two damage investigation methods.	[3]
g)	What is meant by cross stitching of a crack?	[2]
h)	Explain how the repairs in underwater structures is carried out.	[3]
i)	Define structural health monitoring.	[2]
j)	Discuss about fiber optic sensors for measuring response of defect structures.	[3]

PART – B

(50 Marks)

2. Explain about the structural cracks due to loads and non structural cracks in structures. [10]

OR

3. Discuss in detail distress in structures due to Aggression by mechanical elements. Explain how the materials and workmanship affect the performance of structures. [10]

4. What are the effect of carbonation and chloride effect on reinforcement, and explain the assessment of carbonation effect in RC structures. [10]

OR

5. What are the effects of elevated temperatures on structures, how do you repair damage in structures due to elevated temperatures. [10]

6.a) Discuss about the cracks and defects found by visual inspection and sketch them.
b) Discuss about relative advantages and disadvantages of NDT of structures. [10]

OR

7. Discuss in detail about UPV test method to assess the concrete quality of concrete structures. [10]

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

OR

9. What are the techniques available for the repair of cracks in structures and discuss in detail about any three techniques. [10]

10. Discuss in brief about different dynamic field tests for the health monitoring of structures. [10]

OR

11. Explain in detail about the remote structural health monitoring. [10]

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