

Code No: RT42014C

**R13**

**Set No. 1**

**IV B.Tech II Semester Regular Examinations, April/May - 2017**  
**REPAIR AND REHABILITATION OF STRUCTURES**

**(Civil Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

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**PART-A (22 Marks)**

1. a) State any two NDT techniques used in investigation for repair works in concrete structures [4]
- b) What are the causes for failures in buildings? [3]
- c) Which are the preventive measures of cracks in concrete? [4]
- d) Write short note on impact echo methods. [4]
- e) Define grouting and explain in brief. [3]
- f) Write about preliminary investigation of any type of structure failure [4]

**PART-B (3x16 = 48 Marks)**

2. a) Explain any four causes for deterioration of concrete structures with sketches [8]
- b) Write clear note on Carbonation and Abrasion. [8]
3. a) What are the factors affecting Corrosion [8]
- b) Describe ultrasonic pulse velocity test of concrete members with sketch. [8]
4. What is the methodology for the investigation of failures in buildings and Explain any one method? [16]
5. Write clear note on the following  
a) Under pinning  
b) Jacketing [16]
6. a) Explain about different Grouting techniques for a cracked beam. [8]
- b) Explain with neat sketch how to do grouting in cracked slab. [8]
7. Write one case study of bridge failure its investigation causes and conclusion [16]



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**Set No. 2**

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**(Civil Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

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**PART-A (22 Marks)**

1. a) How deterioration occurs due to corrosion? [4]
- b) Write briefly about Rebar locator [4]
- c) Write clear note on poor construction practices. [4]
- d) What is the purpose of using admixture? [3]
- e) What do you understand about Nailing? [3]
- f) Explain any one method of distress. [4]

**PART-B (3x16 = 48 Marks)**

2. a) Explain about sulphate attack on concrete [8]
- b) What do you understand corrosion and Explain acid attack on concrete. [8]
3. a) Explain the any one NDT methods for assessing the quality of concrete [8]
- b) Explain about damages caused due to corrosion with neat sketches? [8]
4. a) Explain any four repairing techniques for damaged RCC Slab? [8]
- b) Write briefly about faulty design [8]
5. What do you understand about cracks in concrete and write different types and also explain preventive measures? [16]
6. a) How to do strengthening of RCC structural member of a old building explain. [8]
- b) What is the purpose of water proofing materials? [8]
7. What observations should be considered in case of distress and explain any one preliminary test method? [16]



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**Set No. 3**

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**REPAIR AND REHABILITATION OF STRUCTURES**

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

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**PART-A (22 Marks)**

1. a) What do you understand about pitting and Explain? [3]
- b) Write the purpose of NDT. [4]
- c) Write the equipments used to repair of cracks in concrete. [4]
- d) What is an admixture and write any four admixtures? [4]
- e) Write clear note on any one method of pull out tests. [3]
- f) What are the different types of distress? [4]

**PART-B (3x16 = 48 Marks)**

2. What do you understand about the freezing and thawing and explain them very clearly with the help of neat sketches if required? [16]
3. a) Explain the testing procedure of Rebound hammer method clearly. [8]
- b) Write the limitations of Rebound hammer test [8]
4. What do you understand about the wetting and drying methods in concrete and explain any one method? [16]
5. Explain about
  - a) Impact echo methods
  - b) Concrete behavior under corrosion[16]
6. a) Explain with neat sketch how to do jacketing and strengthening to a column. [8]
- b) Write clear note on externally bonded plates. [8]
7. What is your explanation on the case studies of dams and canals related to rehabilitation? [16]



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**Set No. 4**

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**REPAIR AND REHABILITATION OF STRUCTURES**

**(Civil Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

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**PART-A (22 Marks)**

1. a) What is your explanation on chloride ingress? [4]
- b) Write the uses of half-cell potential [4]
- c) Draw different crack patterns. [3]
- d) What are the different manmade fibres and show with sketches? [4]
- e) Write short note on corrosion activity measurements. [3]
- f) What is the purpose of pier in case of bridges? [4]

**PART-B (3x16 = 48 Marks)**

2. a) Explain about Freezing and Thawing with one example [8]
- b) Explain about alternate Wetting and Drying with one example [8]
3. Explain about the different corrosion protection methods in RC structural elements with the help of sketches if required? [16]
4. a) What do you understand about the temperature effect on deterioration of concrete in structures? [8]
- b) Write clear note on Alkali aggregate reaction on concrete? [8]
5. Explain about  
a) Acoustical emission methods  
b) chloride content  
c) Depth of carbonation [16]
6. a) What do you understand about the grouting and explain any one method? [8]
- b) Write about underpinning and under water repair. [8]
7. Write clear note the following  
a) Heritage structures- a case study  
b) Erosion damaged structures [16]