Code No: **RT42014C** **R13** **Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

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
*****

PART–A *(22 Marks)*

1. a) Write different types of Cracks in concrete. [4]
   b) What is NDT? [3]
   c) Write the Causes of Failures. [4]
   d) Write the purpose of Admixtures. [4]
   e) What is Grouting? [3]
   f) What is Distress? [4]

PART–B *(3x16 = 48 Marks)*

2. a) Write the reaction of Sulphates in concrete structures. [8]
   b) Explain about permeability test on concrete. [8]

3. Explain about
   (i) RCC behavior under corrosion
   (ii) Corrosion activity measurement [16]

4. a) State four reasons due to which structural cracks appear in walls of buildings. [8]
   b) Discuss on Penetration Resistance Method. [8]

5. a) Differentiate between repair and Rehabilitation. [8]
   b) Explain one Rehabilitation technique for slab with one example. [8]

6. a) What is shotcrete? What are the two types of process in Shotcrete? [8]
   b) Explain about under pinning and under water repair. [8]

7. Explain the technique of adding external reinforcement for strengthening with neat sketch. [16]

Code No: **RT42014C** **R13** **Set No. 2**

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

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
*****

PART–A *(22 Marks)*

1. a) What is Pitting? [4]
   b) What is UPV? [3]
   c) What are the types of failures? [4]
   d) What are the types of admixtures? [4]
   e) Write different types of Repair Techniques. [3]
   f) Write the different methods of Investigation of structures. [4]

PART–B *(3x16 = 48 Marks)*

2. Write a note on Alkali Aggregate Reaction. Discuss the factors promoting this reaction and suggest the methods for controlling the same. [16]

3. State four NDT techniques used in investigation for repair works in concrete Structures. Explain briefly. [16]

4. How do you repair a structure distressed due to corrosion? Describe in detail. [16]

5. a) Classify different types of Fly ash with properties and reaction mechanism. [8]
   b) Discuss on Corrosion of Steel Reinforcement. [8]

6. a) What are the stages in dry mix process in shotcrete? [8]
   b) Explain Jacketing technique for column. [8]

7. a) Explain any one method of repairs in RCC slab. [8]
   b) How do you repair a structure distressed due to corrosion? Describe in detail. [8]

Code No: **RT42014C** **R13** **Set No. 3**

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

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
*****

PART–A *(22 Marks)*

1. a) Write on sulphate attack. [4]
   b) Write the purpose of corrosion meter. [3]
   c) Discuss on poor construction practices. [4]
   d) Write briefly on impact echo methods. [4]
   e) Write different equipments used for repairs. [3]
   f) What are the different preliminary test methods? [4]

PART–B *(3x16 = 48 Marks)*

2. a) Discuss on carbonation. [8]
   b) Explain about temperature and their causes in concrete. [8]

3. a) Discuss cell potential and resistivity. [8]
   b) Explain about mapping of data. [8]

4. How do you evaluate repair, and rehabilitate a structure distressed due to fire and marine exposure? [16]

5. State the any four non conventional materials required for repairs. Describe the characteristics of any one. [16]

6. a) Give a brief note on shoring and underpinning in demolition. [8]
   b) Discuss on underwater concreting. [8]

7. Describe the steps in the assessment procedure for evaluate damages in a structure and to carry out rehabilitation work. [16]

Code No: **RT42014C** **R13** **Set No. 4**

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

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
*****

PART–A *(22 Marks)*

1. a) Write on Chloride attack. [4]
   b) Write the importance of Rebar locator. [3]
   c) How can you rectify Fire damage? [4]
   d) Discuss on moisture effects in concrete. [4]
   e) How to do under water repair? [3]
   f) Define rehabilitation. [4]

PART–B *(3x16 = 48 Marks)*

2. Explain about the Physical processes of deterioration like Freezing and Thawing. [16]

3. a) Explain about PULL-OFF TEST. [8]
   b) Explain with neat sketch about UPV. [8]

4. Explain with one case study about Poor quality of material and Poor Construction practices. [16]

5. a) With chemical equation explain the mechanism of Corrosion. [8]
   b) What are the techniques required for repairing cracks. [8]

6. Explain the methods of with types and applications.
   (i) Shortcreting
   (ii) Gunite [16]

7. Describe about the inspection to be carried out during and after the construction of structure. [16]