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Question Paper Code: BST214



INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)

M.Tech II Semester End Examinations (Supplementary) - January, 2018

Regulation: IARE-R16

REHABILITATION AND RETROFITTING OF STRUCTURES
(Structural Engineering)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

1. (a) What is Rehabilitation? Under what circumstances a building requires rehabilitation? Explain. [7M]
(b) Explain the various causes for deterioration of concrete structures. Explain sulphate attack leading to deterioration of concrete. [7M]
2. (a) Explain about the various techniques to repair and rehabilitate a structure after its partial distress. [7M]
(b) Discuss in detail the various factors responsible for deterioration of structures. [7M]

UNIT – II

3. (a) Explain the mechanism of corrosion of steel in concrete with neat sketch. [7M]
(b) What is meant by bleeding of concrete? How does it affect the concrete structures? [7M]
4. (a) What are the factors that influence the strength of concrete? Briefly discuss the effect of w/c ratio and workability on strength of concrete? [7M]
(b) Explain the different ways of controlling the corrosion of steel in concrete. Explain any two methods. [7M]

UNIT – III

5. (a) Explain Rebound hammer test conducted on concrete. List advantages and disadvantages of using it. [7M]
(b) What are the various testing systems used in assessment of distress in concrete? [7M]
6. (a) What is Profometer? What are its uses in conducting tests on concrete? [7M]
(b) Explain the various NDT conducted during rehabilitation. What are their importances? [7M]

UNIT – IV

7. (a) List the various materials used for repair of concrete against leakage. What are their requirements? [7M]
(b) Explain strengthening and stiffening of beams and girders of a structure. [7M]
8. (a) Explain the process of crack injection and crack stitching with neat sketch. [7M]
(b) What is the function of externally bonded mild steel plates? [7M]

UNIT – V

9. (a) Explain the passive structural health monitoring of structures. [7M]
(b) Explain the uses of sensors in structural health monitoring system. [7M]
10. (a) Explain various smart materials and its application in structural health monitoring system. [7M]
(b) Explain the advantages of structural health monitoring of structures. [7M]

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