

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (R,S) Exam April 2025 (2019 Scheme)

**Course Code: CET456****Course Name: REPAIR AND REHABILITATION OF BUILDINGS****Max. Marks: 100****Duration: 3 Hours****PART A***Answer all questions, each carries 3 marks.*

Marks

- | | | |
|----|--|-----|
| 1 | List any three differences between maintenance and rehabilitation of structures. | (3) |
| 2 | Explain any three causes of cracks in building. | (3) |
| 3 | Define the load test method of evaluating the strength of existing structure. | (3) |
| 4 | Define Visual inspection of building. | (3) |
| 5 | How does cover thickness impact the durability of reinforced concrete? | (3) |
| 6 | What are the four key thermal properties of concrete? | (3) |
| 7 | Recall the importance of shoring in strengthening. | (3) |
| 8 | Explain the salient features of polymer concrete. | (3) |
| 9 | Explain the difference between active and dormant cracks. | (3) |
| 10 | List out any three applications of FRP? | (3) |

PART B*Answer any one full question from each module, each carries 14 marks.***Module I**

- | | | |
|----|---|-----|
| 11 | a) Explain the various causes for deterioration of concrete structures. | (6) |
| | b) Explain any six types of cracks found in reinforced concrete structures? | (8) |

OR

- | | | |
|----|---|-----|
| 12 | a) What are the general measures for preventing cracks in masonry structures? | (6) |
| | b) How does maintenance contribute to the longevity and functionality of structures, and what are the key classifications of maintenance based on their purpose and implementation? | (8) |

Module II

- | | | |
|----|--|-----|
| 13 | a) What is the significance of the carbonation test in evaluating concrete durability? | (6) |
| | b) Describe the steps in the assessment procedure for evaluate damages in a structure. | (8) |

OR

- 14 a) Explain the chloride penetration test and its role in assessing concrete permeability. (6)
b) Describe any two Non-Destructive Testing (NDT) methods used to assess the strength of concrete and list the advantages and limitations of each method. (8)

Module III

- 15 a) What are the common construction errors that affect the durability of concrete and suggest ways to prevent them. (6)
b) Discuss the importance of quality assurance in concrete construction and its impact on the durability of structures. (8)

OR

- 16 a) How do chemical attacks influence the serviceability of concrete structures, and what protective measures can be implemented? (6)
b) Discuss the impact of cracking on the corrosion of reinforcement in concrete structures and suggest preventive strategies. (8)

Module IV

- 17 a) Explain Polymer Concrete (PC) in detail. How polymerization is achieved in polymer concrete. (6)
b) Explain the any four workability test methods of Self compacting concrete. (8)

OR

- 18 a) Explain the significance of health and safety precautions in handling repair materials. (6)
b) Compare and contrast High strength concrete and High-performance concrete. How do these innovative materials enhance structural performance? (8)

Module V

- 19 a) What are the different methods for corrosion protection in reinforced concrete structures? (6)
b) How a column can be retrofitted in an RC structure? Explain two methods of column jacketing. (8)

OR

- 20 a) Explain any three-engineering demolition technique. (6)
b) Explain any Four crack repair techniques in RCC building. (8)
