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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

B.Tech Degree S8 (S,FE) (FT/WP) Examinations September 2026 (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 | Explain repair, retrofit and rehabilitation of structures. | (3) |
| 2 | Distinguish between structural and non-structural cracks. | (3) |
| 3 | Explain visual inspection. | (3) |
| 4 | Define Carbonation. How is carbonation depth measured? | (3) |
| 5 | List the thermal properties of concrete. | (3) |
| 6 | Explain the causes of reinforcement corrosion. | (3) |
| 7 | Explain geopolymer concrete. | (3) |
| 8 | Define ferrocement. List the advantages of ferrocement. | (3) |
| 9 | What is cathodic protection? | (3) |
| 10 | Explain the jacketing used in strengthening of structures. | (3) |

### PART B

***Answer any one full question from each module, each carries 14 marks.***

#### Module I

| | | | |
|---|---|---|---|
| 11 | | Discuss the various types of cracks in reinforced concrete buildings, their causes and remedial measures. | (14) |

**OR**

| | | | |
|---|---|---|---|
| 12 | | Explain the need for maintenance and strengthening of structures. Explain any four types of maintenance. | (14) |

#### Module II

| | | | |
|---|---|---|---|
| 13 | a) | Explain the procedure for inspection and assessment of damaged concrete structures. | (6) |
| | b) | Discuss semi-destructive testing methods for concrete strength evaluation. | (8) |

**OR**

| | | | |
|---|---|---|---|
| 14 | | Describe various non-destructive testing methods used in concrete structures. | (14) |

#### Module III

| | | | |
|---|---|---|---|
| 15 | a) | Discuss corrosion of reinforcement and the importance of cover thickness. | (6) |
| | b) | Describe substrate preparation techniques adopted before repair works. | (8) |

**OR**

| | | | |
|---|---|---|---|
| 16 | a) | Discuss quality assurance procedures for concrete construction. | (6) |
| | b) | Explain the factors affecting strength and durability of concrete. | (8) |

**Module IV**

| | | | |
|---|---|---|---|
| 17 | a) | Discuss various grouting materials and their applications. | (6) |
| | b) | Differentiate between high-strength concrete and high-performance concrete with suitable examples. | (8) |

**OR**

| | | | |
|---|---|---|---|
| 18 | a) | Discuss the health and safety measures to be followed during the handling and application of repair materials. | (6) |
| | b) | Explain Self-Compacting Concrete (SCC) and describe the methods used to determine its workability. | (8) |

**Module V**

| | | | |
|---|---|---|---|
| 19 | | Explain the various crack repair techniques used in concrete structures. | (14) |

**OR**

| | | | |
|---|---|---|---|
| 20 | | Explain the engineered demolition techniques used for structures with suitable sketches. | (14) |

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