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Reg No.: _____

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree Regular Examination June 2023 (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 Suggest any three methods for controlling cracks in buildings (3)
- 2 With a neat sketch, explain out-of-plane failure of masonry walls and mention how to prevent it? (3)
- 3 How does the ultrasonic pulse velocity (UPV) value relate to the quality of concrete? Illustrate the relation using the range of values for UPV. (3)
- 4 Carbonation depth test is useful for ascertaining the corrosion resistance of concrete. Justify the statement. (3)
- 5 Explain the thermal properties of concrete. (3)
- 6 What is the effect of thickness of concrete cover on durability of concrete (3)
- 7 Differentiate between self-compacting concrete and self-healing concrete. (3)
- 8 What is polymer concrete? (3)
- 9 Explain with a neat sketch, how stitching of cracks is carried out (3)
- 10 What is the purpose of corrosion inhibitors? Give an example for corrosion inhibitor. (3)

PART B

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

Module I

- 11 Explain the various types of cracks in R C building. (14)

OR

- 12 Give a detailed account of the causes of damage in masonry structures (14)

Module II

- 13 Explain the detailed procedure for core sampling and testing of existing concrete structures. (14)

OR

- 14 List the various corrosion potential assessment tests. Explain any two in detail. (14)

Module III

- 15 Explain rapid chloride permeability test, water permeability test, sorptivity test and oxygen permeability test for ascertaining the durability of concrete (14)

OR

- 16 a) Surface preparation is inevitable before any repair work. Explain how it is done for concrete surfaces. (8)
- b) Explain the various aspects and components of quality assurance of concrete construction (6)

Module IV

- 17 a) Write detailed notes of (14)
- (1) Expansive cement (3 marks)
 - (2) Vacuum concrete (4 marks)
 - (3) sulphur infiltrated concrete (4 marks)
 - (4) FRP sheets (3 marks)

OR

- 18 a) Explain (8)
- (1) Preventive maintenance
 - (2) Remedial maintenance
 - (3) Routine maintenance
 - (4) Special maintenance
- b) Elucidate the methodology for selecting the repair materials. (6)

Module V

- 19 a) Explain the rehabilitation procedure for foundation (8)
- b) What is overlay? What is its purpose? (6)

OR

- 20 a) How will you carry out routine maintenance to prevent leakage of roof? (7)
- b) Explain implosion by delayed detonation technique (7)
