Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (R,S)(FT/PT/WP) Examinations April 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	What are the key differences between repair and rehabilitation?	(3)
2	List the types of damages that occur in masonry structures.	(3)
3	Define the term "carbonation" and explain how it affects the durability of concrete structures.	(3)
4	Discuss the challenges involved in assessing damage to a structure due to exposure to severe weather conditions.	(3)
5	Write a short note on effect of cover thickness.	(3)
6	Describe any two methods for preparing the substrate/surface for concrete application.	(3)
7	Identify the characteristics of self-compacting concrete.	(3)
8	Describe the differences between gunite and shotcrete.	(3)
9	What are the preliminary considerations before demolishing a building?	(3)
10	How does cathodic protection prevent steel reinforcement from corroding?	(3)

PART B

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

Module I

11	Discuss the types of Cracks in R.C.C buildings. Explain the causes and effects.	(14)

OR

12	Discuss the Various causes for cracks in Masonry Building.	(14)

Module II

13	a)	Explain the procedure and importance of the Carbonation Depth Measurement Test.	(6)
	b)	Design a comprehensive report on the assessment of a damaged civil engineering structure, utilizing a flow chart to analyse and evaluate the structural condition.	(8)

OR

14 a) What is the principle behind the Rebound Hammer Test? Explain the steps involved in performing a Rebound Hammer Test. (6)

b) What is the Windsor Probe Test, and how is it used to determine concrete strength? (8)

Module III

15 a) Develop a detailed and critical analysis of the quality assurance process for a building. (14)

OR

16 a) Discuss the importance of proper curing in ensuring the strength and durability of concrete. (14)

Module IV

17 a) Discuss the health and safety precautions that must be taken when handling and applying repair materials. (6)

b) Evaluate the effectiveness of different types of cement, such as expansive cement and ferro cement, for specific concrete applications. (8)

OR

18 a) Describe the use and advantages of vacuum concrete. (6)

b) Discuss the appropriate protective coatings to concrete or steel structures. (8)

Module V

19 a) Discuss any two methods of concrete crack repair and their applications in building rehabilitation. (6)

b) Discuss the importance of jacketing in concrete structures and explain the step-by-step process of reinforcing a beam-column joint using jacketing. (8)

OR

20 a) What are the different types of demolition methods? Explain any two engineering demolition technique. (6)

b) Explain in detail about the process of Epoxy injection. (8)

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