

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER M.TECH DEGREE EXAMINATION, DECEMBER 2016

Civil Engineering**(Structural Engineering and Construction Management)****04 CE 7413- MAINTENANCE AND REHABILITATION OF STRUCTURES**

Max. Marks : 60

Duration: 3 Hours

PART-A

Answer all questions

Each question carries **3** marks

1. Define quality? What is the need for quality assurance in concrete construction?
2. What is cathodic protection?
3. Define maintenance, Repair and Rehabilitation.
4. What is expansive cement?
5. What you mean by shoring and underpinning?
6. Write advantages and applications of foamed concrete.
7. What is Jacketing? Which are the different jacketing methods?
8. What do you understand by the term overlay? Describe different types of overlays used in repair work?

(8 x 3 = 24 marks)

PART-BEach question carries **6** marks

9. Write a note on
 - i) Quality assurance for concrete construction
 - ii) Permeability of concrete

OR

10. How does concrete get affected by heat? Write in detail about thermal properties of concrete.

11. List the various kinds of cracks in concrete? How can we control cracks in concrete structures?

OR

12. Write a note on mechanism of corrosion with figure. Explain in detail about any two corrosion protection methods.

13. Explain in detail about the assessment procedure for evaluating a damaged structure with the help of a flow chart

OR

14. What is the difference between repair and maintenance? Write a note on Facets of maintenance.

15. What are the desired properties of repair materials? Explain in detail with examples

OR

16. What are the advantages of sulphur infiltrated concrete over conventional concrete? Write the procedure for manufacturing sulphur infiltrated concrete.

17. Explain how cracks can be sealed using epoxy injection?

OR

18. What is the difference between wet process and dry process of shotcreting? Write the stages involved in dry mix process with the help of a neat sketch.

19. List different crack repair techniques. Explain routing and sealing with the help of neat sketches.

OR

20. How do you improve the load carrying capacity of columns? Explain in detail.

(6 x 6 = 36 marks)