KUMARAGURU
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Register Number:……..

B.E. DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2009)

Seventh Semester

CIVIL ENGINEERING

CEE220: Repair and Rehabilitation of Structures

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The first key of investigation in the assessment of a damaged structure is

   a) visual inspection b) diagnosis

   c) estimation of loads d) evaluation of strength

2. The apparatus used for permeability test is

   a) Lechatlier apparatus b) Figg's apparatus

   c) Slump cone apparatus d) Begs deformeter

3. Concrete to be used in contact with alkaline soil or alkaline water should have

   a) high water cement ratio b) rich mix

   c) high alumina content d) low water cement ratio

4. A conical shaped hole in the surface of concrete with a portion of coarse aggregate particle exposed is called

   a) pop outs b) honey comb

   c) crazing d) D-cracking

5. The polymer latex acts in a concrete as a

   a) water reducer b) strength reducer

   c) binding reducer d) permeability reducer

6. Damp proofing can be achieved by the use of a

   a) air entrained cement b) coloured cement

   c) hydrophobic cement d) high alumina cement

7. The inherent ability of concrete to heal cracks with in itself is termed as (a) (b) (c) (d)

a) stiffening b) softening

c) autogenous d) accelerated healing

8. ---------- is a mortar mixture with a very low water cement ratio

a) repacked b) replaced

c) dry pack d) gunite

9. An economical and effective demolition technique is

a) hydro demolition b) explosive demolition

c) blasting demolition d) chemical demolition

10. Bulging of tile floors called as (a) (b) (c) (d)

a) dampness b) dusting

c) crowing d) peeling

PART B (10 x 2 = 20 Marks)

11. List any four non destructive testing methods.

12. Define maintenance of a structure.

13. What are the factors that influence the durability of concrete?

14. What is meant by pitting corrosion?

15. What is meant by ferrocement?

16. Define the terms gunite and shotcrete.

17. How do you repair dormant cracks?

18. What are the objectives followed in repair procedure?

19. List the sequence of dismantling.

20. List any four methods of demolition of a structure.

PART C (5 x 14 = 70 Marks)

21. a) Explain the assessment procedure for evaluating damages in a structure.

(OR)

b) Briefly explain the causes of deterioration of a structure.

22. a) What are the factors influencing corrosion of steel reinforcement? Explain the damages in RC structures due to corrosion of reinforcement.

(OR)

b) (i) Explain clearly about the mechanisms of freezing and thawing in concrete. (7)

(ii) Briefly explain about the causes and effects of sulphate attack in concrete. (7)

23. a) (i) Explain the classification of repair materials. (7)

(ii) Briefly explain the role of epoxies and latexes as repair materials. (7)

(OR)

b) How do you strengthen various structural elements? Explain with neat sketches.

24. a) What are the different types of plates/ laminates used for strengthening of structural elements? Discuss the different strengthening techniques and their relative merits.

(OR)

b) (i) Briefly explain about the retrofitting of fire damaged structure. (7)

(ii) Write short notes on corrosion protection techniques. (7)

25. a) Explain the safety precautions to be taken prior to dismantling and during dismantling.

(OR)

b) Discuss the blasting demolition and hydro-demolition techniques.

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