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Question Paper Code: 99112

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Professional Elective

Civil Engineering

19UCE912– REPAIR AND REHABILITATION OF STRUCTURES

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Thorough overhaul and maintenance after closing a facility is called Maintenance CO1- U
a) Shutdown b) Predictive c) Preventive d) Condition-based
2. Rehabilitation of structures may be required due to several reasons. CO1- U
a) Environmental effects b) Tensile effects
c) Compressive effects d) Range effects
3. The time elapsed from the point the machine fails to perform its function to the point it is repaired and brought into operating condition is CO1- U
(a) Down time (b) Break Down time (c) Both (a) and (b) (d) Idle time
4. Strength of concrete increase with _____ CO1- U
(a) Increase with w/c ratio (b) Increase in fineness of cement
(c) Decrease in size of aggregates (d) Decrease in curing time
5. The curing period of geopolymer concrete is CO1- U
(a) 24-48 hours (b) 30-40 hours (c) 10-20 hours (d) none of these
6. Entrainment of air also improves workability and durability. CO1- U
(a) True (b) False (c) Both (a) & (b) (d) None of the above

7. The pachometer is used to locate the _____ CO1- U
 (a) Steel reinforcement (b) Aluminium reinforcement
 (c) Tensile reinforcement (d) Surface reinforcement
8. In a dry environment, concrete strength will be loosed as much as _____ % in moist environment. CO1- U
 (a) 30 (b) 40 (c) 50 (d) 60
9. The point of application on mechanical pusher arm method of pushing shall not be less than CO1- U
 (a) 1/3 of building height (b) 1/2 of building height
 (c) 3/4 of building height (d) 2/3 of building height
10. The process of re- establishment of damaged structures is called CO1- U
 (a) Repair (b) Rehabilitation (c) Restoration (d) None of the above

PART – B (5 x 2= 10Marks)

11. What is economic appraisal of structures? CO1- U
12. Define comer separation. CO1- U
13. What are the applications of Special Concrete? CO1- U
14. List down the characteristics of coatings to concrete. CO1- U
15. Define external stressing. CO1- U

PART – C (5 x 16= 80Marks)

16. (a) Explain the factors influencing corrosion of reinforcement and also explain the importance of cover thickness. CO1 U (16)
 Or
 (b) Explain the various causes for deterioration of concrete structures. CO1- U (16)
17. (a) Explain the various corrosion protection methods. CO1- U (16)
 Or
 (b) Discuss in details about thermal properties of concrete. CO1- U (16)

18. (a) Describe the effect of Elevated Temperature in concrete structures. CO1- U (16)
- Or
- (b) What is the principal advantage of using fibre reinforced concrete? Explain the factors that affect the properties of fibre reinforced concrete. CO1- U (16)
19. (a) If doing a partial demolition yourself or a deconstruction, you may have to manually remove some drywall. If one side of your drywall has already been removed and the other side is exposed, what tool can you easily use to knock off the drywall from behind? CO4-Ana (16)
- Or
- (b) Recommend the techniques for strengthening of structural elements. CO4-Ana (16)
20. (a) With simple sketch, explain the method of improving the strength of existing columns and beams. CO1- U (16)
- Or
- (b) Explain the different methods of strengthening the concrete structures against earthquake. CO1- U (16)

