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**Question Paper Code: 99112**

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

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. Which of the following is not a classification of maintenance CO1- U  
(a) Corrective maintenance                      (b) Timely maintenance  
(c) Scheduled maintenance                      (d) Preventive maintenance
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. Define defect in a structure. CO1- U
12. Explain the importance of “coefficient of thermal expansion” with respect to strength of concrete. CO1- U
13. What is the preventive measure to be adapted to make the structure stable against marine exposure? CO1- U
14. Enlist the disadvantages of FRP. CO1- U
15. State the prevention method taken during demolition. 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) Explain in detail about the properties and advantages of geopolymer concrete. CO1- U (16)
- Or
- (b) Discuss the use of concrete chemicals used to enhance the performance of concrete. Explain the type of polymer concrete composites with their advantages. 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) Brief and Explain various techniques that used to evaluate the building without damaging it. CO1- U (16)
- Or
- (b) Enumerate the considerations before doing a demolition process. CO1- U (16)

