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Question Paper Code: 59121

B.E./B.Tech. DEGREE EXAMINATION, MAY 2022

Elective

Civil Engineering

15UCE921 - REPAIR AND REHABILITATION OF STRUCTURES

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Rehabilitation of structures may be required due to several reasons, one reason is CO1- R
 - (a) Environmental effects
 - (b) Tensile effects
 - (c) Compressive effects
 - (d) Range effects
2. The following is not a classification of maintenance CO1- R
 - (a) Corrective
 - (b) Timely
 - (c) Scheduled
 - (d) Preventive
3. How many types of cracks can occur in a building CO2- R
 - (a) 3
 - (b) 4
 - (c) 2
 - (d) 6
4. To control the corrosion, concrete should have CO2- R
 - (a) Low permeability
 - (b) Low thermal coefficient
 - (c) More cement content
 - (d) More coarse aggregates
5. The cement concrete from which air and excess water are removed after placing in position is called CO3- R
 - (a) Vacuum concrete
 - (b) LWC
 - (c) HSC
 - (d) PSC

6. High strength concrete is defined purely on CO3- R
 (a) Compressive strength (b) Poor strength
 (c) Tensile strength (d) Good strength
7. The corrosion of reinforced steel is because of CO4- R
 (a) Carbonation (b) Presence of salt (c) Porosity of concrete (d) All the above
8. The quality of concrete is good when the longitudinal pulse velocity is CO4- R
 (a) 2-3 km/hr (b) 3.5-4.5 km/hr (c) 3-3.5 km/hr (d) 5-5.5 km/hr
9. When exposed to fire, Concrete has very little strength left after CO5- R
 (a) 500°C (b) 300°C (c) 200°C (d) 600°C
10. Strength of concrete is proportional to CO5- R
 (a) Sand content (b) Water cement ratio
 (c) Aggregate ratio (d) Cement water ratio

PART – B (5 x 2= 10 Marks)

11. What are the facets of maintenance? CO1- R
12. List any four causes of cracks. CO2- R
13. What are the uses of polymer concrete? CO3- U
14. What are the characteristics of good coating? CO4- U
15. How do you arrest the leakages in RC structures? CO5- U

PART – C (5 x 16= 80 Marks)

16. (a) Explain in detail about the prevention and repair aspects of concrete. CO1- U (16)
 Or
 (b) Explain in detail the assessment procedure for evolutionary damages in structures with flow chart. CO1- U (16)
17. (a) Explain in detail about any four methods of corrosion protection techniques which are to be followed in concrete structures. CO2- U (16)
 Or
 (b) Explain in detail about the durability properties of concrete. CO2- U (16)

18. (a) Explain in detail about the manufacturing process of polymer concrete. CO3- U (16)
- Or
- (b) Explain in detail about the enhanced properties of FRC compared to conventional concrete. CO3- U (16)
19. (a) Explain in detail how cracks may be sealed by using epoxy resins. CO4- U (16)
- Or
- (b) Write short notes on CO4- U (16)
- (i) Shoring
- (ii) Underpinning
20. (a) Explain the different methods of strengthening the concrete structures against earthquake. CO5- U (16)
- Or
- (b) Explain about the methods of demolition of structures. CO5- U (16)

