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Question Paper Code: 59121

B.E./B.Tech. DEGREE EXAMINATION, NOV 2019

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. Act of preserving a structure to an acceptable standard is called CO1- R
(a) maintenance (b) repair
(c) rehabilitation (d) inspection
2. The following is not a classification of maintenance CO1- R
(a) Corrective (b) Timely (c) Scheduled (d) Preventive
3. The crack which is occur due to reduction in the volume of concrete is called CO2- R
(a) hairline cracks (b) plastic shrinkage (c) scaling cracks (d) map cracks
cracks
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. is a type of concrete that is made by reacting aluminate and silicate bearing materials with a caustic activator. CO3- R
- (a) polymer concrete (b) self compacting concrete
(c) geopolymers concrete (d) none of these
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
- km/h
- (a) 3.5 - 4.5 (b) 2-3 (c) 3-3.5 (d) 4-5
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. consist of restoring the section of an existing membrane by encasing it in a new concrete.. CO5- R
- (a) jacketing (b) grouting
(c) blanketing (d) stitching

PART – B (5 x 2= 10 Marks)

11. Mention the causes of deterioration CO1- R
12. List any four causes of cracks. CO2- R
13. What is effect of cover thickness in concrete? CO3- U
14. What are the characteristics of good coating? CO4- U
15. Name the techniques of demolition used in construction project CO5- U

PART – C (5 x 16= 80 Marks)

16. (a) Discuss the procedure of assessment for evaluating a damaged structure bringing out the vital components at each stage. CO1- U (16)
- Or
- (b) Describe about the inspection to be carried out during and after construction structure CO1- U (16)
17. (a) Why quality assurance for structure is needed? Explain the components of quality assurance for building. CO2- U (16)
- Or
- (b) Explain in detail about the durability properties of concrete. CO2- U (16)

18. (a) Enumerate the properties and uses of polymer concrete and fibre reinforced 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 how cracks may be sealed by using epoxy injection resin. CO4- U (16)
- Or
- (b) Explain in detail about various corrosion protection techniques. CO4- U (16)
20. (a) Discuss in detail about repair and rehabilitate a structure distressed due to fire with case study. CO5- U (16)
- Or
- (b) Summarize the various methods of engineered demolition of structures with applicability and discuss any two of the methods in detail. CO5- U (16)

