A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 59121

B.E./B.Tech. DEGREE EXAMINATION, APRIL 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. 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) $500^{o}C$ (b) $300^{o}C$ (c) $200^{o}C$ (d) $600^{o}C$

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 propertie 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 (i) Shoring (ii) Underpinning	CO4- U	(16)
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)

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