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Question Paper Code : X 86179

M.E./M.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Elective
Infrastructure Engineering and Management
ST 5001 – MAINTENANCE AND REHABILITATION OF STRUCTURES
(Common to M.E. Structural Engineering)
(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What is meant by abrasion ?
2. List out the types of Disintegration in structures.
3. What do you understand about uneven thermal load in structures ?
4. Discuss about the Alkali-carbonate rock reaction.
5. Discuss about curling effect in structures.
6. Discuss the effect of hygroscopic salt in structures.
7. Explain the benefits of using binder materials for concrete repairs.
8. What is meant by lamellar tearing ?
9. How the enlargement of structures improves the stringent of structures and why ?
10. Discuss overlays in repairs.

PART – B

(5×13=65 Marks)

11. a) Discuss the cause of aggressive chemicals in structures. Explain any two types of chemical effect in structures.

(OR)

- b) Explain in detail about visual and exploratory investigation of building damages.



12. a) Write in detail about foundation movements. Explain the techniques to repair such failures in buildings.

(OR)

b) Write short note about :

i) Acid attack

(4)

ii) Alkali-silica reaction and

(5)

iii) Sulfate attack.

(4)

13. a) Explain the step by step procedure for membrane treated roof.

(OR)

b) Discuss about chemical coating in surface treatment. Distinguish between flexible coating and rigid coating.

14. a) What are the factors affecting the steel structure ? Explain any two causes which affect the steel bridge structure.

(OR)

b) Explain briefly about influence of biotical treatments. State its uses in repairing techniques.

15. a) Explain the plating techniques in buildings. Discuss the salient features of plating system. List out the materials used for plating techniques.

(OR)

b) Discuss the diagnose and evaluation procedure of load capacity of footing.

PART – C

(1×15=15 Marks)

16. a) Write short note about effect of following :

i) Action of Mineral Oils

(4)

ii) Action of Organic Acids

(4)

iii) Vegetables and Animal Oils and Fats

(4)

iv) Nominal Cover to Reinforcement.

(3)

(OR)

b) Explain in detail about Direct and indirect approaches to injection in concrete structures.
