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Question Paper Code: 42962

M.E. DEGREE EXAMINATION, NOVEMBER 2015

Elective

STRUCTURAL ENGINEERING

14PSE502 – MAINTENANCE AND REHABILITATION OF STRUCTURES

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

(Use of Mix design and tables may be permitted)

PART A - (5 x 1 = 5 Marks)

1. The process of restoring something that is damaged or deteriorated or broken condition called as
(a) Repair (b) Maintenance (c) Rehabilitation (d) All the above
2. A maintenance done after the defects or damage is called
- (a) Remedial maintenance (b) Routine maintenance
(c) Special maintenance (d) Emergency maintenance
3. The purpose of providing DPC in building is.
(a) to prevent the entry of moisture (b) to allow the entry of moisture
(c) to give asthetic appearance (d) none of the above

4. To protect reinforcement from corrosion in moderate exposure condition the main cover should be
- (a) 80 mm (b) 60 mm (c) 30 mm (d) 25 mm
5. The technique applied to the building of new work underneath an existing structure without disturbing its stability is
- (a) Shoring (b) Underpinning (c) Repair (d) Guniting

PART - B (5 x 3 = 15 Marks)

6. List down any four economical repair methods available in the market.
7. What is mean by permeability?
8. Define shoring.
9. Give the significance of FRP.
10. State any two applications of demolition.

PART - C (5 x 16 = 80 Marks)

11. (a) Describe the assessment procedure for evaluating a damaged structure. (16)
- Or
- (b) (i) Explain the maintenance of structures. (10)
- (ii) List the various causes of deterioration. (6)
12. (a) Explain briefly the cracks developed in the structures due to construction overloads, externally applied loads and design errors. (16)
- Or
- (b) (i) List the effects of cover thickness and cracking. (8)
- (ii) Write short note on “corrosion effects on concrete”. (8)
13. (a) (i) Brief the various reasons for ineffective Damp Proof Course. (8)
- (ii) Give the causes for the leakage of concrete. What are the remedial measures to be taken? (8)

Or

- (b) A Masonry building which was damaged due to moisture movement from the ground. Give the diagnosis of causes and measures to retrofit the structures. (16)

14. (a) With a flow chart explain the assessment procedure for evaluating a damaged structure. (16)

Or

- (b) Write short note on the following:

(i) Strengthening using steel plates. (8)

(ii) Stabilization techniques for repair. (8)

15. (a) Explain with neat sketches about the jacketing techniques for the repair of seismically affected beam - column joint in the building. (16)

Or

(b) (i) Write a note on post stressing (8)

(ii) Write a note on under pinning (8)
