

22602

24225

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answer with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following:** **10**
- a) Define the terms of repair and retro fitting.
 - b) State any four objectives of building maintenance.
 - c) State any four sources of damages in the building.
 - d) State any four properties of Grout material used.
 - e) List any four causes of crack formation in wall.
 - f) State types of crack in R.C.C. element.
 - g) State any four purpose of structural audit.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain in brief the term preventing maintenance and remedial maintenance.
 - b) State any four advantages and four limitation of maintenance and repair.
 - c) Write step by step procedure of rebound hammer test with neat sketch.
 - d) Write step by step procedure of half cell potentiometer test with neat sketch.
- 3. Attempt any THREE of the following:** **12**
- a) State any eight factors that influencing material selection for maintenance and repair work.
 - b) State any four different types of material used for along with any two properties of each material.
 - c) State any four types of material used in water proofing along with any two properties of each.
 - d) Explain characteristics of ideal anti-corrosive material.
- 4. Attempt any THREE of the following:** **12**
- a) Write step by step procedure of Ultrasonic pulse velocity with neat sketch.
 - b) Explain various causes of wall cracks and show their probable location with neat sketch.
 - c) Prepare the format include eight items with respect to structural audit for complain reported by user of buildings.
 - d) Explain characteristics of ideal surface coating material.
 - e) Explain any two method of improving bearing capacity of foundation.

5. Attempt any TWO of the following: 12

- a) Explain water proofing technique for Roof slab by using brick bat coba with suitable sketch.
- b) Write step by step procedure to repair R.C.C. column using method jacketing, rebaring and collaring with neat sketch.
- c) Explain in short the four stages to be carried out while repair the process of corroded R.C.C. element.

6. Attempt any TWO of the following: 12

- a) A brick wall has developed diagonal and other vertical crack then illustrate the suitable repair method using MS-U shaped dowel bars with sketch.
 - b) Write an overview on rules and regulation for structural engineer with respect to periodic audit, qualification eligibility and licensing to the structural engineer 1, 2, 3.
 - c) Explain step by step procedure followed in structural auditing.
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