

# 22602

**23124**

**3 Hours / 70 Marks**

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (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 term repair and retrofitting.
- b) State any two objectives of maintenance.
- c) State the causes of distress in structure.
- d) Enlist materials used in mortar repair work.
- e) Enlist methods of preventing Dampness in structure.
- f) State types of cracks in RCC element.
- g) State any four purpose of structural Audit.

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- 2. Attempt any THREE of the following :** **12**
- a) Explain the term preventive maintenance and special maintenance.
  - b) Describe an approach of effective maintenance management along with flow diagram.
  - c) State advantages and disadvantages of NDT.
  - d) Define the concept of steel bar corrosion and how does the corrosion process takes place ?
- 3. Attempt any THREE of the following :** **12**
- a) State any eight factors affecting on the selection of materials for repair work.
  - b) Explain characteristics of ideal anti-corrosive material.
  - c) Suggest any two materials necessary to repair following :-
    - i) Dampness of RCC slab.
    - ii) Minor cracks in exterior wall.
    - iii) Water tank surface protection.
    - iv) Corrosion on Reinforcement
  - d) State any four types of materials used in waterproofing along with any two properties of each.
- 4. Attempt any THREE of the following :** **12**
- a) Write step by step procedure to know the quality of concrete using Rebound Hammer test with neat sketch.
  - b) Explain various causes of wall cracks and show their probable location with neat sketch.
  - c) State importance of structural audit for the structure.
  - d) Enlist surface coating materials for concrete protection and explain them.
  - e) Explain any two methods of improving bearing capacity of foundations.

- 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 RCC column using method jacketing and collaring with neat sketch.
  - c) State any four methods used for repair of corroded RCC elements and explain any one of them.
- 6. Attempt any TWO of the following :** **12**
- a) Differentiate between guniting and shot crete method using following points.
    - i) Mixing method
    - ii) Working method
    - iii) Quality
    - iv) Strength and workmanship
    - v) Application
    - vi) Wastage and Economy.
  - b) Explain step by step procedure followed in structural auditing.
  - c) Prepare the general format of RCC building for structural audit.
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