

22602

23242

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 answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) 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) State any two differentiations between the maintenance and repair.
 - b) Define the term maintenance and its two importance.
 - c) Define the term distress and dampness.
 - d) Enlist any four Grout materials.
 - e) Enlist the factors responsible for thermal movement.
 - f) State any four causes of failure of RCC elements.
 - g) State any four importance of Structural Audit.

P.T.O.

2. Attempt any THREE of the following: 12

- a) Differentiate any four points between Routine maintenance and Periodical maintenance.
- b) Define the following terms.
 - i) Retrofitting
 - ii) Restrengthening
 - iii) Rehabilitation
 - iv) Restortion
- c) Suggest any two materials used as anticorrosion coating. Explain in detail any one of them.
- d) Enlist any four Non-destructive testing methods with its suitability.

3. Attempt any THREE of the following: 12

- a) Write the importance of systematic approaches for detection of damages.
- b) Enlist the four situations when joint sealant materials are suggested and state any two joint sealant materials.
- c) Explain any four causes of formation of cracks also draw sketches the tension and shear cracks.
- d) Enlist the four important steps involved in structural audit.

- 4. Attempt any THREE of the following:** **12**
- a) Explain any four advantages and disadvantages of Half-cell potentiometer testing method.
 - b) Name the type of failure if the surface of bricks is coming off the surface of brick wall. Also suggest suitable method of repair.
 - c) Name the two situations where jacketing is done and where collars are provided. And also describe where shotcreting is done.
 - d) Enlist any four test used in case of structural audit along with properties identified by them.
 - e) State any four factors influencing the material selection for maintenance and repairs.
- 5. Attempt any TWO of the following:** **12**
- a) Explain each three water proofing roof materials and surface coating materials for concrete protection with its suitability.
 - b) Explain with neat sketch the stitching method of repairs of RCC beam when it is cracked with excessive bending moment.
 - c) Describe stepwise procedure of replacing the bars in RCC slab which is corroded half the diameter and repair the failure.
- 6. Attempt any TWO of the following:** **12**
- a) Describe situations where surface coating materials of concrete are used with its reasons. Also state any four additional materials.
 - b) i) Differentiate major and minor cracks in case of masonry work.
ii) List suitable methods of repair of live cracks.
 - c) State any twelve important information collect through visual inspection of structure.
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