

316309

25226

3 Hours / 70 Marks

Seat No.

--	--	--	--	--	--	--	--

-
- 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) Define the terms related to maintenance:
 - i) repair
 - ii) re-strengthening.
 - b) List four factors affecting the investigation of damages in the building.
 - c) Write two properties of grout material.
 - d) State the types of adhesives used in repairing work.
 - e) State four types of cracks based on nature of progress of crack.
 - f) State four repairing methods for minor & medium cracks in masonry wall.
 - g) Write four types of cracks in RCC column.

P.T.O.

- 2. Attempt any THREE of the following : 12**
- a) State any four advantages and four limitation of maintenance and repair.
 - b) Describe approaches involved for the effective management of maintenance work.
 - c) Write purpose of maintenance manual to be used for maintenance and repair work, and prepare a format for the same.
 - d) Explain the essential properties of polymer modified cementitious mortars.
- 3. Attempt any THREE of the following : 12**
- a) Explain the objectives of structural audit and the Government Rules and Regulations for conducting a structural audit.
 - b) Enlist any eight Non-destructive testing methods useful for concrete with its purpose.
 - c) Explain the procedure of Carbonation Test Method by drilling hole in concrete.
 - d) Explain step by step procedure followed in structural auditing of a building.
- 4. Attempt any THREE of the following : 12**
- a) Describe the uses of following material in short.
 - i) Poly isobutylene (PIB) Sheeting
 - ii) Glass Fiber Reinforced Plastics (GRP)
 - iii) Bitumen emulsion
 - iv) Latex cement coating.
 - b) State causes of crack formation in masonry wall. Explain any one with sketch.
 - c) Explain stages of repairing in a Masonry structure.
 - d) Explain four causes of dampness in roof slab.
 - e) Explain the lime concrete terracing treatment for the repair of dampness in roof slab.

5. Attempt any TWO of the following : 12

- a) Write the experimental procedure to determine strength and quality of concrete in an existing building using ultrasonic pulse velocity test.
- b) Describe any two of the following joint sealants materials.
 - i) Oleo Resinous Mastics
 - ii) Bitumen based Sealant
 - iii) Acrylic resin sealant.
- c) Explain the grouting method for repairing of masonry structures.

6. Attempt any TWO of the following : 12

- a) State any three repairing methods for major cracks and explain any one of them.
 - b) Explain water proofing technique for Roof slab by using Brick Bat Coba with suitable sketch.
 - c) Explain the grooving and sealing method used for the repairing cracks in RCC structures.
-