

# 12224

**15116**

**3 Hours / 100 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. a) **Attempt any THREE of the following:** **12**
- (i) Differentiate with four points between strengthening and retrofitting.
  - (ii) Explain damage due to earthquake.
  - (iii) List any four materials used for repairs and characteristics of each material.
  - (iv) State causes of dampness in wall.
- b) **Attempt any ONE of the following:** **06**
- (i) Explain with sketches types of settlement and give remedies for each.
  - (ii) Explain nature of damage due to fire.

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- 2. Attempt any FOUR of the following:** **16**
- a) Give detailed classification of maintenance.
  - b) Explain concept of repairs of RCC structures.
  - c) Explain fire resistance of concrete.
  - d) List any four methods of advance damage detection and give characteristics of any one.
  - e) Explain with sketch strengthening of concrete beams.
- 3. Attempt any FOUR of the following:** **16**
- a) Explain with sketch strengthening of RCC slab.
  - b) How will you determine approximate age of a building?
  - c) Explain maintenance of sewerage system.
  - d) Describe any four clauses of tender of repairs.
  - e) Explain maintenance of culverts.
  - f) How will you determine cost in use of building?
- 4. a) Attempt any THREE of the following:** **12**
- (i) Explain with sketch any two repair methods of foundation of RCC and load bearing structure.
  - (ii) Explain Rebound hammer test.
  - (iii) State any four methods of repairs to structure damaged due to fire.
  - (iv) How will you examine common defects in old RCC structure?

b) Attempt any ONE of the following:

06

- (i) Explain with sketch jacketing technique of RCC column and state its advantages over other techniques.
- (ii) Explain with sketch any one method of basement water proofing.

5. Attempt any FOUR of the following:

16

- a) How will you examine existing foundation of a building?
- b) What are the effects of cracks on wall?
- c) List the basic instruments used for investigation of building regarding its strength.
- d) State any four new strengthening methods of building.
- e) What is the effect of fire on concrete and steel? Explain in brief.
- f) Compare with four points destructive tests with nondestructive tests.

6. Attempt any FOUR of the following:

16

- a) Explain methodical approach to repairs of building.
  - b) State any four causes of dilapidation of structure.
  - c) Explain method of shot-creting used for repairs.
  - d) How will you maintain bond between old masonry and new masonry?
  - e) List any eight defects in Asphalt road.
  - f) Prepare a tender notice for repairs of 100 bed RCC hostel building situated at urban place.
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