

12224

11122

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *compulsory*.
(2) Illustrate your answer with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data, if necessary.

Marks

1. a) Attempt any **THREE** of the following: **12**
- (i) Give the objectives of maintenance and repairs of structures.
- (ii) Write the meaning of:
- (1) Rehabilitation
(2) Strengthening
- (iii) Give the example of :
- (1) Annual repair
(2) Emergency repair
(3) Periodical maintenance
(4) Minor repairs
- (iv) State the four damages due to flood.

P.T.O.

b) Attempt any ONE of the following:

6

- (i) Give three causes of dilapidation and the procedure of rehabilitation due to dilapidation.
- (ii) State equipments used for investigation of damages due to:
 - (1) Earthquake
 - (2) Fire
 - (3) Flood

Write three damages caused due to earthquake.

2. Attempt any FOUR of the following:

16

- a) Explain the procedure shot-creting.
- b) When and why following material for repair are used:
 - (i) Epoxy resin
 - (ii) Gypsum cement mortar
- c) Write two causes of Dampness in walls and give remedies on it.
- d) Explain with sketch the procedure of making bond between old and new brick work.
- e) What is reinforced brick work? Why it is necessary?
- f) What is efflorescence? What precautions to be taken to avoid it?

3. Attempt any **FOUR** of the following: 16
- a) Suggest two ways to overcome cracks developed in foundation.
 - b) Explain Jacketing method of strengthening of foundation with sketch.
 - c) Write two causes of settlement of foundation and give remedial measure on it.
 - d) Explain with sketch the water proofing method of basement of building.
 - e) Write four points to be consider during physical examination of common defects.
4. a) Attempt any **FOUR** of the following: 12
- (i) Write important four concept to be considered during repair of RCC structures.
 - (ii) Explain role of following in increasing fire resistivity of RCC member:
 - (1) Cover
 - (2) Quality of steel
 - (iii) Explain the method of repair to RCC structures damaged due to fire. List two material to be used as fire resistance in building.
 - (iv) What is NDT? Why now a days it is mostly used?
- b) Attempt any **ONE** of the following: 6
- (i) Explain working of rebound hammer test with sketch.
 - (ii) Write the step by step procedure of evaluation for age of building.

- 5. Attempt any FOUR of the following: 16**
- a) Write the provision made in NBC for following:
 - (i) Fire safety of building.
 - (ii) Leakage proof of terrace slab
 - b) Suggest strengthening method for:
 - (i) Load bearing wall
 - (ii) Cantilevers
 - c) Draw the sketch (labelled) showing strengthening of foundation damage due to earthquake.
 - d) Explain any one method of strengthening of column with sketch.
 - e) How damaged RCC beams can be retrofite? Illustrate with sketch.
- 6. Attempt any FOUR of the following: 16**
- a) Write the examination method for following in old building:
 - (i) Corrosion of reinforcement.
 - (ii) Spalling of concrete from column and write reason for it.
 - b) Write the two causes of leakage in pipe joints and give remedies on it.
 - c) Write the importance of maintenance of following lifelines.
 - (i) Electric supply
 - (ii) Drainage line
 - d) Prepare a notice to be published in a Newspaper, inviting tender for repairing a single storied masonry building with RCC slab. Assume necessary details for such repairs.
 - e) How to find cost in use of existing building?
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