



BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – Dip.CE-2023

Course Name – Repairs and Maintenance of Structures

Course Code - DCEPE601A

(Semester VI)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. *Choose the correct alternative from the following :*

- (i) Select the type of maintenance that focuses on restoring a structure to its original condition.
 - a) Retrofitting
 - b) Restoration
 - c) Re-strengthening
 - d) Rehabilitation
- (ii) Select the maintenance activity that improves structural capacity beyond the original design.
 - a) Repair
 - b) Restoration
 - c) Re-strengthening
 - d) Periodical maintenance
- (iii) Select the structured approach needed for maintenance execution.
 - a) Casual decision
 - b) Effective management approach
 - c) Random inspection
 - d) Verbal instruction
- (iv) Choose the correct maintenance support document.
 - a) Maintenance manual
 - b) Checklist
 - c) Schedule
 - d) All of these
- (v) Select the damage due to foundation settlement.
 - a) Uniform cracking
 - b) Diagonal cracking
 - c) No cracks
 - d) Surface cracks
- (vi) Select the NDT used to measure quality of concrete.
 - a) Rebound hammer
 - b) Ultrasonic pulse velocity
 - c) pH test
 - d) Chloride test
- (vii) Select the test used to locate reinforcement bars.
 - a) Rebound hammer
 - b) UPV
 - c) Rebar locator
 - d) Crack gauge
- (viii) Select the mortar used for masonry crack repair.
 - a) 1:6 cement mortar
 - b) 1:3 cement sand mortar

- c) Lime mortar
(ix) Choose the material used for repairing spalled RCC.
a) Cement paste
c) Lime mortar
(x) Choose the material used to control shrinkage cracks.
a) Cement
c) Lime
(xi) Choose the method used to prevent future cracking.
a) Ignoring cracks
c) Poor workmanship
(xii) Select the first stage in RCC repair process.
a) Bonding coat
c) Concrete removal
(xiii) Select the repair material used in latex concrete.
a) Cement
c) Lime
(xiv) Choose the technique used to support foundation below.
a) Shoring
c) Underpinning
(xv) Choose the method using additional beams or columns.
a) Stitching
c) Sealing
- d) Mud mortar
b) Epoxy mortar
d) Putty
b) Polypropylene fibers
d) Paint
b) Proper bonding
d) Overloading
b) Surface preparation
d) Repair application
b) Latex polymer
d) Bitumen
b) Propping
d) Jacketing
b) Supplementary members
d) Grouting

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Define building maintenance. (3)
3. Apply epoxy mortar for RCC repair works. (3)
4. Explain efflorescence in masonry walls. (3)
5. Apply jacketing technique for RCC member strengthening. (3)
6. Analyze the importance of systematic repair stages in achieving durable RCC repair works. (3)

OR

- Analyze the role of strengthening methods in controlling damage progression in RCC structures with live cracks. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. List and define repair, retrofitting, and re-strengthening. (5)
8. Apply rebound hammer and UPV tests for concrete assessment. (5)
9. Explain the purpose of dowel bars in masonry crack repair. (5)
10. Evaluate remedial measures for dampness control in masonry. (5)
11. Analyze suitability of different repair options for RCC members. (5)
12. Analyze the role of shoring and underpinning in framed structures. (5)

OR

- Analyze long-term performance of jacketing in RCC maintenance. (5)
