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Brainware University
Barasat, Kolkata -700125

Term End Examination 2025-2026
Programme – Dip.CE-2023
Course Name – Advanced Construction Technology
Course Code - DCEPE501C
(Semester V)

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 one property of carbon fibre.

a) High tensile strength b) Heavyweight
c) High thermal conductivity d) Corrosion prone

(ii) Select the role of micro-silica in concrete.

a) Acts as aggregate b) Improves density and strength
c) Reduces bonding d) Increases porosity

(iii) Select one use of HDPE pipes in civil engineering.

a) Electrical wiring b) Underground water supply
c) Roof waterproofing d) Flooring

(iv) Choose adhesives for fixing ACP panels on a high-rise façade.

a) Epoxy resin b) Mud plaster
c) Polyurethane foam d) Lime mortar

(v) Select Ready Mix Concrete (RMC).

a) Concrete mixed on-site b) Concrete mixed at a central plant
c) Dry concrete powder d) Concrete mixed only for pavements

(vi) Select one use of concrete vibrators.

a) Increases air voids b) Removes trapped air
c) Reduces strength d) Produces micro-cracks

(vii) Select the benefit of geosynthetics for embankment construction.

a) Adds weight b) Prevents soil erosion and settlement
c) Reduces soil density d) Improves water permeability

(viii) Select one advantage of prefabrication in multi-storey buildings.

a) Needs large on-site labour force b) Faster and more controlled construction
c) Reduces transport requirements d) Needs heavy excavation

(ix) Select the application of pre-stressed concrete in bridges.

a) Provides lightweight deck b) Carries higher loads over longer spans

c) Reduces construction cost
d) Increases cracking

(x) Select the function of a belt conveyor.

a) Moves material horizontally
b) Mixes concrete
c) Compacts soil
d) Cuts reinforcement bars

(xi) Select one type of hoist used in multi-storey building construction.

a) Rope hoist
b) Needle vibrator
c) Transit mixer
d) Tamping rod

(xii) Select the function of a scraper in highway projects.

a) Cuts and spreads soil
b) Drills holes in rocks
c) Compacts soil layers
d) Mixes cement

(xiii) Choose a guniting technique for repairing old concrete walls.

a) Compacting concrete with rollers
b) Spraying dry concrete mix onto surface
c) Vibrating wet concrete
d) Cutting steel bars

(xiv) Apply selection of pneumatic rollers for compacting cohesive soil.

a) Best suited for loose granular soil
b) Provides kneading action for cohesive soil
c) Used only for concrete slabs
d) Mixes cement and sand

(xv) Choose the cause of bentonite slurry method for deep drilling operations.

a) Supports borehole walls and cools drill
b) Improves concrete bonding
c) Used for surface curing
d) Increases soil porosity

Group-B

(Short Answer Type Questions) 3 x 5=15

2. List two uses of steel fibres in construction. (3)
3. Define micro-silica and its purpose in concrete. (3)
4. Explain Cause of FRP is used in modern construction. (3)
5. Write waterproofing materials for a roof terrace. (3)
6. Justify the importance of selecting appropriate hoisting equipment. (3)

OR

Assess the operational challenges of hand-operated cranes. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. List and describe major properties of carbon and steel fibres. (5)
8. Explain how transit mixers function and their role in ready-mix concrete supply. (5)
9. Write a construction method for a bridge in a flood-prone area. (5)
10. Compare different equipment for lifting precast elements in high-rise buildings. (5)
11. Evaluate the basic working principles and applications of tower cranes. (5)
12. Predict the hoisting equipment strategy in construction of a G+5 building in congested urban areas. (5)

OR

Consider the principle of counterbalance in truck-mounted cranes for safe operation. (5)

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