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Brainware University
398, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125



BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – Dip.CE-2024

Course Name – Transportation Engineering

Course Code - DCE40114

(Semester IV)

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 most important benefit of roads in India.
 - a) Seasonal use
 - b) Door-to-door service
 - c) High cost
 - d) Slow speed
- (ii) Select the characteristic of road transport.
 - a) Fixed route
 - b) Flexible route
 - c) High capacity
 - d) Very low cost
- (iii) Select the road connecting villages to towns.
 - a) NH
 - b) SH
 - c) MDR
 - d) ODR
- (iv) Select the road connecting district headquarters.
 - a) NH
 - b) SH
 - c) MDR
 - d) VR
- (v) Select the vehicle considered for geometric design.
 - a) Actual vehicle
 - b) Design vehicle
 - c) Heavy vehicle
 - d) Passenger car
- (vi) Select the full form of PCU.
 - a) Passenger Car Unit
 - b) Public Car Unit
 - c) Private Car Unit
 - d) Peak Car Unit
- (vii) Select the test used to determine angularity of aggregates.
 - a) Angularity number test
 - b) Abrasion test
 - c) Impact test
 - d) Crushing test
- (viii) Select the method used to prevent creep of rail.
 - a) Lubrication
 - b) Anchors and anti-creepers
 - c) Expansion joint
 - d) Painting

- (ix) Select the type of wear caused at rail head.
- | | |
|------------------|------------------|
| a) End wear | b) Side wear |
| c) Vertical wear | d) Diagonal wear |
- (x) Choose the disadvantage of wooden sleepers.
- | | |
|---------------|------------------|
| a) Cheap | b) Light |
| c) Short life | d) Easy handling |
- (xi) Select the inclination given to wheel tread.
- | | |
|--------------------|--------------------|
| a) Tilting of rail | b) Coning of wheel |
| c) Super elevation | d) Gradient |
- (xii) Select the device used to divert trains from one track to another.
- | | |
|---------------------|---------------------|
| a) Crossover | b) Turnout |
| c) Diamond crossing | d) Scissor crossing |
- (xiii) Select the main purpose of railway station.
- | | |
|---------------------|---------------------------------|
| a) Maintenance | b) Passenger and goods handling |
| c) Track inspection | d) Train storage |
- (xiv) Choose the function of key man.
- | | |
|----------------|-------------------------------|
| a) Planning | b) Inspection of track length |
| c) Supervision | d) Reporting only |
- (xv) Choose the limit of super elevation depends on.
- | | |
|----------|-----------------|
| a) Speed | b) Radius |
| c) Gauge | d) All of these |

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Group-B

(Short Answer Type Questions)

3 x 5=15

2. Illustrate different modes of transportation. (3)
3. Explain the need for camber and illustrate the different types of camber recommended by IRC. (3)
4. Define flexible pavement and state any two types. (3)
5. Write the procedure of elongation index test on aggregates. (3)
6. Calculate the value of safe OSD for a highway with design speed of 100 kmph. (3)

OR

A design speed of road is 60 kmph, assuming the driver reaction time of 2.5 sec, coefficient of friction of pavement surface as 0.35. Calculate the required SSD for 2 way traffic on single lane road. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Classify and illustrate different types of sight distance as recommended by IRC. (5)
8. State and describe the various types of road materials used in pavement construction. (5)
9. State the causes of creep of rails and describe the methods of its prevention. (5)
10. Distinguish between Broad Gauge and Meter Gauge with respect to suitability and performance. (5)
11. Calculate the length of a summit curve when the algebraic difference of gradients is 4%. Stopping sight distance required = 120 m. (5)
12. Distinguish between passenger yard and goods yard. (5)

OR

Distinguish between diamond crossing and scissor crossing.

(5)

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