



BRAINWARE UNIVERSITY

Term End Examination 2021 - 22
Programme – Diploma in Civil Engineering
Course Name – Transportation Engineering I
Course Code - DCE403
(Semester IV)

Time allotted : 1 Hrs.15 Min.

Full Marks : 60

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question)

1 x 60=60

Choose the correct alternative from the following :

- (1) Select the correct statement.
- | | |
|--|--|
| a) Nagpur road plan formulae take into account the towns with very large population. | b) Nagpur road plan has a target road length of 32 km per 100 square km. |
| c) Second 20-year plan has provided 1600 km of expressways out of the proposed National highway. | d) Second 20-year plan allowed deduction of length of railway track in the area while calculating the length of roads. |
- (2) The sequence of four stages of survey in a highway alignment is.
- | | |
|--|--|
| a) reconnaissance, map study, preliminary survey and detailed survey | b) map study, preliminary survey, reconnaissance and detailed survey |
| c) map study, reconnaissance, preliminary survey and detailed survey | d) preliminary survey, map study, reconnaissance and detailed survey |
- (3) The stopping sight distance depends upon?
- | | |
|----------------------------------|---------------------|
| a) total reaction time of driver | b) speed of vehicle |
| c) efficiency of brakes | d) all of these |
- (4) When the path travelled along the road surface is more than the circumferential movement of the wheels due to rotation, then it results in
- | | |
|-------------|--------------|
| a) slipping | b) skidding |
| c) turning | d) revolving |
- (5) Coefficient of friction is less when the pavement surface is-
- | | |
|----------|--------|
| a) rough | b) dry |
|----------|--------|

- a) spot maps
c) condition diagram
- b) pie charts
d) collision diagram
- (29) With increase in speed of the traffic stream, the minimum spacing of vehicles
- a) increases
c) first decreases and then increases after reaching a minimum value at optimum speed
- b) decreases
d) first increases and then decreases after reaching a maximum value at optimum speed
- (30) Which of the following is known as design capacity ?
- a) basic capacity
c) possible capacity
- b) theoretical capacity
d) practical capacity
- (31) With increase in speed of the traffic stream, the maximum capacity of the lane-
- a) increases
c) first increases and then decreases after reaching a maximum value at optimum speed
- b) decreases
d) first decreases and then increases after reaching a minimum value at optimum speed
- (32) If the stopping distance and average length of a vehicle are 18 m and 6 m respectively, then the theoretical maximum capacity of a traffic lane at a speed of 10 m/sec is-
- a) 1500 vehicles per hour
c) 2500 vehicles per hour
- b) 2000 vehicles per hour
d) 3000 vehicles per hour
- (33) Scientific planning of transportation system and mass transit facilities in cities should be based on
- a) spot speed data
c) traffic volume data
- b) origin and destination data
d) accident data
- (34) When the speed of traffic flow becomes zero, then-
- a) traffic density attains maximum value whereas traffic volume becomes zero
c) traffic density and traffic volume both become zero
- b) traffic density and traffic volume both attain maximum value
d) traffic density becomes zero whereas traffic volume attains maximum value
- (35) Which of the following is indicated by a warning sign ?
- a) level crossing
c) end of speed limit
- b) no parking
d) overtaking prohibited
- (36) The provision of traffic signals at intersections-
- a) reduces right angled and rear end collisions
c) reduces right angled collisions but may increase rear end collisions
- b) increases right angled and rear end collisions
d) reduces rear end collisions but may increase right angled collisions
- (37) Select the incorrect statement.-
- a) Stop or red time of a signal is the sum of go and clearance intervals for the cross flow.
c) Clearance time is generally 3 to 5 seconds.
- b) Go or green time of a signal is the sum of stop and clearance intervals for the cross flow.
d) The cycle length is normally 40 to 60 seconds for two phase signals.
- (38) The particular places where pedestrians are to cross the pavement are properly marked by the pavement marking known as-
- a) stop lines
b) turn markings

- c) crosswalk lines
d) lane lines
- (39) When two equally important roads cross roughly at right angles, the suitable shape of central island is-
- a) circular
b) elliptical
c) tangent
d) turbine
- (40) A traffic rotary is justified where-
- a) number of intersecting roads is between 4 and 7
b) space is limited and costly
c) when traffic volume is less than 500 vehicles per hour
d) when traffic volume is more than 5000 vehicles per hour
- (41) Maximum number of vehicles can be parked with-
- a) parallel parking
b) 30° angle parking
c) 45° angle parking
d) 90° angle parking
- (42) As per IRC recommendations, the average level of illumination on important roads carrying fast traffic is-
- a) 10 lux
b) 15 lux
c) 20 lux
d) 30 lux
- (43) The direct interchange ramp involves-
- a) diverging to the right side and merging from left
b) diverging to the left side and merging from right
c) diverging to the right side and merging from right
d) diverging to the left side and merging from left
- (44) Which of the following tests measures the toughness of road aggregates ?
- a) crushing strength test
b) abrasion test
c) impact test
d) shape test
- (45) In CBR test the value of CBR is calculated at-
- a) 2.5 mm penetration only
b) 5.0 mm penetration only
c) 7.5 mm penetration only
d) both 2.5~mm and 5.0 mm penetrations
- (46) The maximum allowable Los Angeles abrasion value for high quality surface course is-
- a) 0.1
b) 0.2
c) 0.3
d) 0.45
- (47) Percentage of free carbon in bitumen is-
- a) more than that in tar
b) less than that in tar
c) equal to that in tar
d) None of these
- (48) The maximum limit of water absorption for aggregate suitable for road construction is-
- a) 0.004
b) 0.006
c) 0.008
d) 0.01
- (49) Penetration test on bitumen is used for determining its-
- a) grade
b) viscosity
c) ductility
d) temperature susceptibility
- (50) Bitumen of grade 80/100 means-

- a) its penetration value is 8 mm
 c) its penetration value is 8 to 10 mm
- b) its penetration value is 10 mm
 d) its penetration value is 8 to 10 cm
- (51) RC-2, MC-2 and SC-2 correspond to-
- a) same viscosity
 c) viscosity in decreasing order from RC-2 to SC-2
- b) viscosity in increasing order from RC-2 to SC-2
 d) none of these
- (52) Softening point of bitumen to be used for road construction at a place where maximum temperature is 40°C should be-
- a) less than 40°C
 c) equal to 40°C
- b) greater than 40°C
 d) none of these
- (53) For rapid curing cutbacks, the oil used is-
- a) gasoline
 c) light diesel
- b) kerosene oil
 d) heavy diesel
- (54) The method of design of flexible pavement as recommended by IRC is-
- a) group index method
 c) Westergaard method
- b) CBR method
 d) Benkelman beam method
- (55) The number of repetitions, which the pavement thickness designed for a given wheel load should be able to support during the life of pavement is-
- a) 1000
 c) 100000
- b) 10000
 d) 1000000
- (56) If the group index value of subgrade is between 5 and 9, then the subgrade is treated as-
- a) good
 c) poor
- b) fair
 d) very poor
- (57) Rigidity factor for a tyre pressure greater than 7 kg/cm^2 is-
- a) equal to 1
 c) greater than 1
- b) less than 1
 d) zero
- (58) The critical combination of stresses for corner region in cement concrete roads is-
- a) load stress + warping stress + frictional stress
 c) load stress + warping stress
- b) load stress + warping stress + frictional stress
 d) load stress + frictional stress
- (59) The maximum spacing of contraction joints in rigid pavements is-
- a) 2.5 m
 c) 4.5 m
- b) 3.5 m
 d) 5.5 m
- (60) The function of an expansion joint in rigid pavements is to-
- a) relieve warping stresses
 c) resist stresses due to expansion
- b) relieve shrinkage stresses
 d) allow free expansion