University of Mumbai

Program: **B.E Civil Engineering T.E Civil Sem V R16**

Curriculum Scheme: Rev - 2016

Examination: TE Semester: V

Course Code: CEC 505 and Course Name: Transportation Engineering - I

Time: 2-hour Max. Marks: 80

Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	Express highways are added in road plan
Option A:	Nagpur
Option B:	Bombay
Option C:	Nasik
Option D:	Delhi
2.	The east west corridor of National highway connects which of the following cities?
Option A:	Delhi-Bombay
Option B:	Bombay-Madras
Option C:	Kolkata-Vadodara
Option D:	Porbandar- Silichar
3.	If the difference in elevation of an edge of the pavement 9 m wide and its crown is 15 cm, the camber of the pavement, is
Option A:	1 in 60
Option B:	1 in 45
Option C:	1 in 30
Option D:	1 in 15
4.	A truck weighing 2500 kg is moving through a curve of radius 100 meters on a road with a speed of 50 kmph. the amount of centrifugal force developed will be = kg
Option A:	491.59
Option B:	562.31
Option C:	378.24
Option D:	233.85
5.	Head light sight distance for a one way road is considered equal to
Option A:	Overtaking sight distance
Option B:	Stopping sight distance
Option C:	Intermediate sight distance
Option D:	Compromising sight distance
6.	A junction so designed that traffic streams are divided to enable them to pass over or under each other is called
Option A:	Grade separator

Option B:	Bypass road
Option C:	Loop road
Option D:	Arterial road
7.	The weaving manoeuvres is a type of
Option A:	Merging
Option B:	Diverging
Option C:	Crossing
Option D:	Pedestrianism
8.	The 5 minute count at a traffic junction is 15 find the hourly count?
Option A:	50
Option B:	100
Option C:	120
Option D:	180
9.	The highest CBR number is required for
Option A:	Grade
Option B:	Sub grade
Option C:	Sub base
Option D:	Base
10.	The ductility value of bitumen for suitability in road construction should not be less than
Option A:	30 cm
Option B:	40 cm
Option C:	50 cm
Option D:	60 cm

Option 1

Q2	**Solve any Four out of Six** **5 marks each**
A	Discuss on various surveys related to highways.
B	For a 7 m wide road having curve of radius 200 m, if the length of wheel base is 6.5 m, find the extra widening required for the design speed of 65 kmph.
C	Find out the stopping sight distance required for a single lane 2-way road on a leveled ground, if the design speed is 50 kmph. Also calculate SSD when gradient is 5%.
D	What are conflict points? How can you reduce the conflict points?

E	If number of load repetitions expected by 80 kN standard axle is 1000, 160 kN is 100 & 40 kN is 10000, find equivalent axle load.
F	Determine characteristic deflection for the following readings taken on a road having traffic 1800 cvpd. 1.48, 1.62, 1.40, 1.28, 1.32, 1.71, 1.63, 1.22, 1.13, 1.53.

Q3	**Solve any Four out of Six** **5 marks each**
A	What do you mean by structural & functional evaluation of pavement? Enlist the equipment's for the same.
B	Compute the radius of relative stiffness for 15 cm thick CC pavement having modulus of elasticity as 2.1×10^5 kg/cm^2 and $\mu = 0.15$. Calculate the value with 'p' as 0.375 kg/cm^2 and as 0.9375 kg/cm^2.
C	Draw and show all the pavement layers for flexible & rigid pavement with their function.
D	Write note on use of Geosynthetics in highways
E	Write note on Passenger Car Unit (PCU)
F	Design Superelevation for a curve having radius 500 m & speed is 100 kmph. Also find the amount of superelevation to be given if it is a 2-lane road.

Q4	**Solve any Four out of Six** **5 marks each**
A	Using sleeper density of M+5, find the number of sleepers required for a 10 km long railway line. Assume length of rail as 12.8 meter.
B	Explain function of Ballast and discuss on various Ballast materials.
C	Find the increase in runway length if the airport is shifted from a location of 150 meters R.L to 400 meters R.L.
D	What are the factors affecting site selection of an Airport?
E	Discuss on advantages and disadvantages of different modes of transportation
F	Explain various types of Breakwater.