

## University of Mumbai

Program: Civil Engineering

Curriculum Scheme: Rev 2019

Class: TE Semester VI

Course Code: CEDLO6017 and Course Name: DLOC Traffic Engg & Management

### SAMPLE QUESTION BANK

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1	Design of road intersections is a part of _____
	Highway engineering
	Railway engineering
	Traffic engineering
	Harbour engineering
	ANSWER:C
2	Which of the following is not an intersection at grade?
	Un-channelized
	Channelized
	Rotary
	Different level intersections
	ANSWER:D
3	An intersection that is provided for different levels of road is called _____
	Intersection at grade
	Grade separated intersections
	Channelized intersection
	Rotary intersection
	ANSWER:B
4	If the angle of merging is low, then the relative speed will be _____
	Low
	High
	Medium
	Depends on width of pavement
	ANSWER:A
5	Which of the following is not a requirement for the intersection at grade?
	Area of conflict should be large
	Adequate visibility
	Avoiding sudden change of path
	Sufficient radius should be provided
	ANSWER:A

6	The procedure of adopting medians and traffic island in an un-channelized intersection is called _____
	Dividing
	Crossing
	Channelizing
	Designing
	ANSWER:C
7	The most complex type of intersections for traffic operation is _____
	Un-channelized
	Channelized
	Rotary
	Grade separated
	ANSWER:A
8	The best type of interchange can be provided with _____
	Rotary
	Diamond
	Partial cloverleaf
	Full cloverleaf
	ANSWER:D
9	A grade intersection may be provided if the PCU exceeds _____
	5000
	6000
	7000
	10000
	ANSWER:D
10	Parking facilities may be classified into how many types?
	One
	Two
	Three
	Four
	ANSWER:B
11	Mention the type of parking in which the vehicles are parked along the kerb?
	Kerb parking
	Off-street parking
	Parallel parking
	Angle parking
	ANSWER:A

12	Mention the type of parking facility is convenient for all types of users?
	Kerb parking
	Off-street parking
	Parallel parking
	90 degree parking
	ANSWER:D
13	The intial stage of the parking lot is _____
	Entrance
	Acceptance
	Storage
	Delivery
	ANSWER:A
14	The parking facility in which elevators are required to change to a different level is called _____
	Parking lot
	Multi storeyed building
	Clover leaf junction
	Ramp
	ANSWER:B
15	The most inconvenient method for Vechile parking is _____
	30 degree parking
	45 degree parking
	90 degree parking
	Parallel parking
	ANSWER:A
16	Mention the main cause of accidents in urban areas?
	Improper planning
	Extra wide roads
	Additional thickness of the pavement
	Traffic congestion
	ANSWER:A
17	The road traffic consists of ----- types of traffic?
	Vehicle traffic
	Pedestrian traffic
	Vehicular and pedestrian traffic
	No traffic
	ANSWER:C

18	Mention the most vulnerable part of the traffic?
	Traffic jam
	Vehicles
	Pedestrians
	Cattle
	ANSWER:C
19	Mention the first step in the accident study?
	Accident data collection
	Accident investigation
	Accident data analysis
	Accident reconstruction
	ANSWER:A
20	Mention the following information does not require an accident data collection report?
	Identification of spots at which unusually high number of accident happen
	Development of a method that allows identification of risks before accidents occur
	Comprehensive functional assessment of critical accident location to identify the causes of accidents
	Development of parking areas
	ANSWER:D
21	Which of the following parameters given below is not required in accident data collection?
	Registration number
	Details of road geometry
	Financial losses suffered due to property damage
	Sight distance
	ANSWER:D
22	Which of the following are the methods of reporting in accident studies?
	Motorist accident report
	Car accident report
	Road accident report
	Highway accident report
	ANSWER:A
23	Mention the purpose of Accident data analysis?
	To find possible causes of accident-related to driver, vehicle, and roadway
	To evaluate existing design
	To compute the financial losses incurred
	To collect data regarding parking demand
	ANSWER:A

24	Why is it important to compute accident rates?
	Because it reflects accident involvement by type of highway
	Because it reflects accident involvement by type of drivers
	Because it reflects accident involvement by type of pedestrians
	Because it reflects accident involvement by type of design conditions
	ANSWER:A
25	If the amber time at a signal is 3 sec and the green signal time is 25sec, find the red signal time?
	A) 22sec
	B) 21sec
	C) 28sec
	D) 29sec
	ANSWER: C
26	Which of the traffic signal method is based on saturation flow?
	A) Trial cycle method
	B) Webster method
	C) IRC method
	D) Approximate method
	ANSWER: B
27	On a 2 phase road, the saturation flow on road A is 1000 and normal flow is 250, whereas on road B the saturation flow is 1500 and normal flow is 500, the total red time is 10 sec, find optimum cycle length.
	A) 35sec
	B) 36sec
	C) 37sec
	D) 38sec
	ANSWER: C
28	For how many days the traffic count should be taken for rural roads as per IRC.
	A) 14
	B) 30
	C) 1
	D) 7
	ANSWER: D
29	Which type of traffic volume presentation of data shows volume along various routes using bands proportional to traffic volume carried?
	A) Traffic flow maps
	B) Intersection flow diagram
	C) Trend charts
	D) Traffic composition
	ANSWER: A

30	To reduce the conflict points which method is preferable?
	A) Restricting the entry in one side
	B) Widening of the roads
	C) Use of traffic signals
	D) Diverting the traffic
	ANSWER: C

### 5 Marks Questions

1	Explain various traffic studies and discuss detail method to carry-out those studies.
2	Write a note on parking, I'll effects of parking
3	Explain the application of statistics in traffic engineering
4	What are Warrants for traffic signals
5	The sport speed at a particular location are normally distributed with mean value 51.7 kmph standard deviation of 8.3 kmph what is the probability that a) Speed exceed 65kmph b) Speed lies between 40 to 70 kmph c) What is 85 <sup>th</sup> % speed
6	Explain the levels of intersection control
7	Explain Critical gap and follow-up time and also discuss on
8	Discuss on Area Traffic Control
9	What is capacity what are its type what factor affecting practical capacity
10	Write a short note on road safety audit
11	Write a short note on properties of highway lighting
12	Describe Fatal Crash and Non-Fatal Crash
13	Explain methods to find PCU
14	Discuss on QKV graph
15	Explain Intelligent Transportation System (ITS)

### 10 Marks Questions

1	IF Average headway of a traffic stream is 2 sec, find Jam density & optimum speed. Assume length of vehicle as 5 meter. Draw QKV curve.
2	Assuming linear v.k relation, determine V.K & QK equation of mean free speed is 96.56 kmph at near zero density corresponding Jam density is 6.09 m plot QKV curve also find Speed & density for flow of 1000 veh/hr
3	Capacity of 2 lane road is 2000 veh/hr and headway at jam is 6.25 m. If traffic flow of 1200 veh/hr is stopped at red signal find rate of queue growth in m/sec. Also find length of queue after 100 sec
4	A 2 lane traffic system with capacity of 2000 veh/hr is taken for repair of traffic flow is 1500 veh/hr on for section find mean speed at bottle neck. Assume headway of 8 m at jam condition & max capacity of bottleneck.

5	Design 2 phase signal using Webster's method were only straight traffic is permitted'																																											
	<table border="1" data-bbox="327 286 1257 562"> <thead> <tr> <th></th> <th>N</th> <th>S</th> <th>E</th> <th>W</th> </tr> </thead> <tbody> <tr> <td><b>DESIGN FLOW</b></td> <td>800</td> <td>400</td> <td>750</td> <td>1000</td> </tr> <tr> <td><b>SATURATED FLOW</b></td> <td>2400</td> <td>2000</td> <td>3000</td> <td>3000</td> </tr> </tbody> </table> <table border="1" data-bbox="363 678 1243 958"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">Age group of drivers</th> <th rowspan="2">Total</th> </tr> <tr> <th>18-30</th> <th>30-50</th> <th>Above 50</th> </tr> </thead> <tbody> <tr> <td><b>total greivous injury major injury</b></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>12</td> <td>8</td> <td>16</td> <td>36</td> </tr> <tr> <td></td> <td>25</td> <td>14</td> <td>41</td> <td>80</td> </tr> <tr> <td></td> <td>48</td> <td>35</td> <td>70</td> <td>153</td> </tr> </tbody> </table>		N	S	E	W	<b>DESIGN FLOW</b>	800	400	750	1000	<b>SATURATED FLOW</b>	2400	2000	3000	3000		Age group of drivers			Total	18-30	30-50	Above 50	<b>total greivous injury major injury</b>						12	8	16	36		25	14	41	80		48	35	70	153
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6	Discuss on methods of parking survey & explain any one method with suitable examples.																																											
7	Design Highway lighting for state highway of 3 lanes on each side.																																											
8	Discuss on role of Intelligent Traffic system in developing efficient movement in a city.																																											
9	Find if there is any relation between accident & driver age.																																											
10	At an uncontrolled T-junction, past experience indicates probability of vehicle arriving on-side road during 15sec interval & turning right into main is 1:5 Find probability that in period of 1min, there will be 0,1,2,3 or 4 vehicle arriving and turning right																																											
11	<p>On a highway no.of vehicle arriving from 1 direction in successive 10sec interval was counted. Find the probability of rate of arrival using Poisson's Distribution.</p> <table border="1" data-bbox="536 1532 975 1935"> <thead> <tr> <th>Interval</th> <th>Frequenc y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>11</td> </tr> <tr> <td>1</td> <td>28</td> </tr> <tr> <td>2</td> <td>30</td> </tr> <tr> <td>3</td> <td>18</td> </tr> <tr> <td>4</td> <td>8</td> </tr> <tr> <td>5</td> <td>4</td> </tr> <tr> <td>6</td> <td>1</td> </tr> <tr> <td>7 &amp; above</td> <td>0</td> </tr> </tbody> </table>	Interval	Frequenc y	0	11	1	28	2	30	3	18	4	8	5	4	6	1	7 & above	0																									
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12 Using Simple regression, find the number of accidents expected in 2016.

Year	No.of vehicle (x)	No.of accident (y)
2012	205	68
2013	223	74
2014	248	78
2015	257	83
2016	261	?

13 Find the accumulation, total parking load, average occupancy and efficiency of the parking lot.

Time	IN	Out
5	3	2
10	2	4
15	4	2
20	5	4
25	7	3
30	8	2
35	2	7
40	4	2
45	6	4
50	4	1
55	3	3
60	2	5

14 Find the flow in both directions

Trip	Direction	Journey time	Delay	overtaking	overtaken	Vehicle in opposite direction
1	N-S	6'32''	1'40''	4	7	268
2	S-N	7'14''	1'50''	5	3	186
3	N-S	6'50''	1'30''	5	3	280
4	S-N	7'40''	2'0''	2	1	200
5	N-S	6'10''	1'10''	3	5	250
6	S-N	8'0''	2'22''	2	2	170
7	N-S	6'28''	1'40''	2	5	290
8	S-N	7'30''	1'40''	3	2	160

15 Derive the QKV equation.