APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER

Q. P. Code : TD1181 **(Pages: 3)** **Name:** .....

Reg. No:.....

FIRST SEMESTER M.TECH. DEGREE EXAMINATION DECEMBER 2018

Branch: Civil Engineering **Specialization: Transportation Engineering**

08CE6205 URBAN TRANSPORTATION

Time:3 hours **Max.marks: 60**

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
1.a	Explain the features by which an urban travel can be characterised	3
	Answer b or c	
b	Explain how the transportation planning process can be taken up in the system engineering frame work. Compare systems approach and cyclic approach in the transportation planning process	6
c	List the priority wise transportation problems that you would like to solve in any medium size urban area.	6

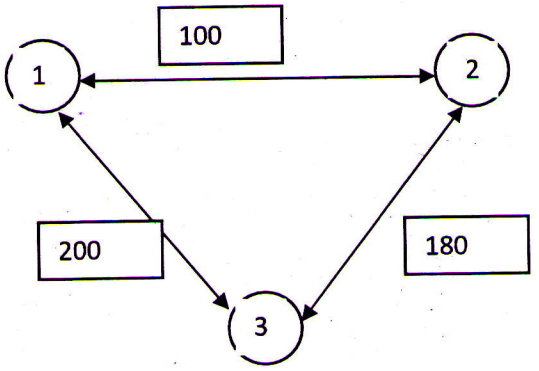
Q.no.	Module 2	Marks
2.a	How do you differentiate between direct models and sequential models	3
	Answer b or c	
b	How is the sample size determined for the conduct of the OD studies? What is the expansion factor and how is this calculated for home interview survey?	6
c	The following observations were taken for average daily car trips per dwelling (yi)and average cars owned per dwelling unit (xi). fit an equation of the form $y_i=a+bx_i$ for the given data and carry out the statistical tests of significance for the chosen 95 percent degree of confidence.	6

y_i	1.24	1.31	1.56	0.53	1.47	0.49	1.04	1.72	0.86	1.6	1.47	0.39	1.15	0.8	1.8
x_i	0.75	0.78	0.84	0.68	0.8	0.65	0.76	0.84	0.71	0.82	0.8	0.6	0.75	0.7	0.89

Q.no.	Module 3	Marks
3.a	What is meant by trip balancing	3

Answer b or c

b The base year trips between the zones 1, 2, and 3 for the year 1995 are provided in the network shown below. Compute the future trip distribution for the horizon year if growth factors for the zones are 2, 2.5 and 1.8 respectively. **6**



c Derive an expression for obtaining trip distribution by the theory of intervening opportunity. How can you obtain the parameter of the model? **6**

Q.no.	Module 4	Marks
4.a	Distinguish between mode abstract and mode specific models	3

Answer b or c

b What are the various factors that control the selection of mode in an urban settlement. **6**

c Total number of trips from zone i to zone j is 4200. Currently all trips are made by car. Government has two alternatives – to introduce a bus or a train. The travel characteristics and respective coefficients are given in table. Decide the best alternative in terms of trips carried. **6**

	t_{ij}^{v}	t_{ij}^{walk}	t_{ij}^{t}	F_{ij}	φ_{ij}
Coefficient	0.06	0.05	0.07	0.2	0.2
Car	25	-	-	22	5
Bus	29	7	4	8	-
Train	17	15	5	6	-

Q.no.	Module 5	Marks
5.a	How do diversion curves used in route assignment analysis	4

Answer b or c

b	What are the different methods of traffic assignment? Explain the capacity restrained traffic assignment stating its advantages and disadvantages.	8
c	For the given network data and O-D data find the assigned traffic volumes on various arcs an links by all or nothing assignment.	8

Origin	Destination Zones			
	1	2	3	4
1	0	500	750	350
2	275	0	1050	475
3	650	1870	0	950
4	1250	350	2050	0

Link No.	Node from	Node to	Travel time minutes
1	1	2	11
2	2	1	10
3	2	3	7
4	3	2	5
5	3	4	6
6	4	3	10
7	4	1	8
8	1	4	7

Q.no.	Module 6	Marks
6.a	Describe any of the transportation planning software used in industry	4

Answer b or c

b	Describe various manual procedures used for traffic estimation in corridor analysis.	8
c	Distinguish between raster and vector data representation in GIS and how these representations are used in Transportation engineering.	8