BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: MUP   SEMESTER : I
BRANCH: ARCH   SESSION : MO/19

SUBJECT: AR602 TRANSPORTATION PLANNING

TIME: 3 HOURS   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)   Explain the various types of Urban roads or road systems.   [5]
Q.1(b)   What is land use transport integration? What are the benefits of land use transport integration?   [5]

Q.2(a)   What are the major surveys carried out in a transport planning study? Explain.   [5]
Q.2(b)   What are the various study area delineations that are used for urban transport studies? Explain them.   [5]

Q.3(a)   The productions from zone 1, 2 and 3 are 98, 106, 122 and attractions to zone 1,2 and 3 are 102,   [5]
         118, 106.The frictional coefficient between the zones are as follows:

	1	2	3
1	1.0	0.69	0.31
2	0.69	1.0	0.44
3	0.31	0.44	1.0

Determine the number of trips between each zone using the gravity model formula and the data given above.

Q.3(b)   The calibrated utility function for travel in a medium-sized city by automobile, bus and light rail is   [5]
$$U = a - 0.002 X_1 - 0.05 X_2$$
where X_1 is the cost of travel, X_2 is the travel time. Calculate the modal split for the given values.

Mode	a	X_1	X_2
Automobile	-0.30	130	25
Bus	-0.35	75	35
Light rail	-0.40	90	40

If a parking fee of Rs.10 per trip is imposed, what would be the split to the other two modes?

Q.4   For the following producing and consuming zones and their respective goods transport charges, find   [10]
         out the optimum logistic solution and minimum cost using Vogel's method:

Producing Zones	Producing amount	Consumption Zones	Consumption amount
A	500	G	300
B	480	H	750
C	360	I	460
D	400	J	250
E	290	K	270

The frictional coefficient between the zones are as follows:

	G	H	I	J	K
A	15	8	20	7	5
B	2	8	7	16	12
C	8	12	16	21	14
D	20	25	3	31	38
E	5	10	13	19	20

Q.5(a)   What are various methods or policies adopted by a city towards sustainable transportation? Consider   [5]
         any case study.
Q.5(b)   What is Transit Oriented Development? What are the various components and the benefits of TOD?   [5]

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