Student Exam No_____

GANPAT UNIVERSITY

B.TECH- SEMESTER-VIII CIVIL ENGINEERING

REGULAR EXAMINATION MAY/JUNE- 2013

SUBJECT: C: 805- TRANSPORTATION ENGINEERING --II

Time: 3 Hours   Max Marks: 70

Instructions: - (1) Answer to the two sections must be written in separate answer books.

(2) Figures to the right indicate full marks.

(3) Assume suitable data if required.

SECTION - I

Que 1		Answer the following Questions.
	(A)	Discuss the role of transportation in the economic and social activities of the country.	(6)
	(B)	Explain the levels of urban transport planning?	(6)

OR

Que1		Answer the following Questions.
	(A)	What are the drawbacks of transportation engineering?	(6)
	(B)	Describes the advantages and disadvantages of category analysis techniques.	(6)

Que 2		Answer the following Questions
	(A)	Enlist methods of trip distribution and explain comments of growth factor methods.	(4)
	(B)	Three zones A, B, C are shown with interchanges between A and B=20, between B and C=30 and between C and A=40. These are non-directional interchanges. Growth factors of 2.5, 3 and 1.5 are forecasts for the zones A, B and C respectively. Using the fratar method computes the zonal interchanges in the forecast year.	(7)
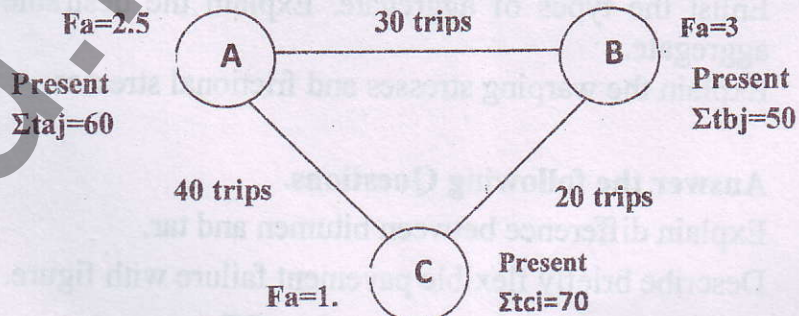
OR

Que 2		Answer the following Questions
	(A)	Enumerate methods of route Assignment. Describes the Detroit model.	(5)
	(B)	What do you understand by mean traffic volume study? Why we need traffic volume study?	(6)

Que 3		**Answer the following questions.**	
	(A)	Discuss the classification of transportation systems.	(6)
	(B)	The table shows data for vehicle trips per day, as related to income and persons in a household, for one zone of the study area. Develop the trip generation equations and show which of the three model is more reliable and why?	(6)

Income (Thousands of units)	Persons in Household	Trips per day
50	3	2
100	5	2
150	7	4
200	6	4
250	8	6

Using the single variables and then in combination following three equations can be developed:

    (i) $y = a_1 + b_1 x_1$

    (ii) $y = a_2 + b_2 x_2$

y = Trips per day, x_1 = income, x_2 = persons in household

SECTION – II

Que 4		**Answer the following Questions.**	
	(A)	Explain the necessity and object of highway planning.	(6)
	(B)	Explain ESWL and the concept in the determination of the equivalent wheel load.	(6)

OR

Que 4		**Answer the following Questions.**	
	(A)	Enlist the types of aggregate. Explain the desirable properties of road aggregate.	(6)
	(B)	Explain the warping stresses and frictional stresses.	(6)

Que 5		**Answer the following Questions.**	
	(A)	Explain difference between bitumen and tar.	(5)
	(B)	Describe briefly flexible pavement failure with figure.	(6)

OR

Que 5		**Answer the following Questions.**	
	(A)	Write short note on:	(5)
		(a) Flexible overlay over flexible pavement.	
		(b) Rigid overlay over rigid pavement.	

(B)   Calculate the warping stresses at interior, edge and corner for a concrete **(6)** pavement of thickness 20 cm with transverse joints at 4.5 m spacing. The width of slab is 3.5 m. For concrete $E = 3 \times 10^5$ kg/cm^2 and $\mu = 0.15$, K value for subgrade = 5 kg/cm^3. Temperature differential is 0.9 C per cm. Assume thermal coefficient for concrete as 10×10^{-6} per °C.

Que 6   **Answer the following Questions.**

(A)   Define soil and explain the desirable properties of soil. **(6)**

(B)   Determine the spacing between contraction joints for 3.5meter slab width **(6)** having thickness of 20 cm and f = 1.5, for the following two cases:
(i) for plain cement concrete, allowable Sc = 0.8 kg/m^2
(ii) For reinforcement cement concrete, 1.0 cm dia. bars at 0.30 m spacing.

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