APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY

08 PALAKKAD CLUSTER

Name: .....

Q. P. Code: **TE0822202-I** (Pages: 3) Reg. No: .....

SECOND SEMESTER M.TECH. DEGREE EXAMINATION JULY 2022

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

08CE6202 REGIONAL TRANSPORTATION PLANNING

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 Population and Employment multiplier model.	3
	Answer b or c	
b	Fit a double exponential model and logistic model for the given population data in lakhs.	6

Year	1970	1980	1990	2000	2010	2020
Population	4	5	6	7	8	9

c	The exponential growth model $A = 20e^{(0.0190826)t}$ describes the population of a city in thousands, t in years after 1980. Use this model to solve the following: i. What was the population in city in 1980? ii. What is the percentage increase in population in each year? iii. What will be the population in 2030? When will the city population reaches 90 thousand?	6

Q. No.	Module 2	Marks
2. a	Discuss the concepts of region and space.	3
	Answer b or c	
b	Classify region and illustrate the various methods to delineate the regions.	6

c	Explain the philosophy of growth pole theory in regional planning. What are the functions that growth pole has to perform with a help of an example.	6

Q. No.	Module 3	Marks
3. a	Differentiate between Urban Form and Urban Structure.	3

Answer b or c

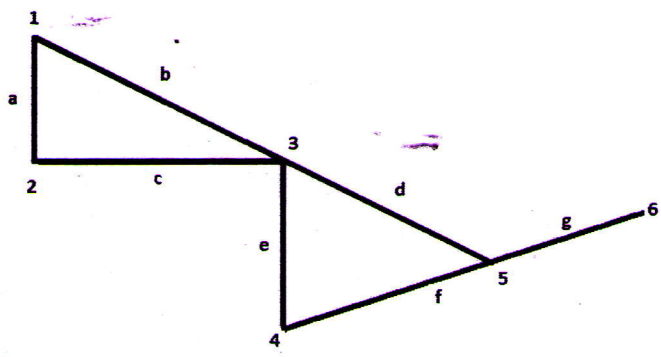
b	The interactions between transportation and land use are part of a complex framework that includes economic, political, demographic and technological changes. Justify the statement.	6
c	Given a finite amount of basic employment EP, inverse of the labour participation rate α and service ratio β, obtain the expression for total employment, total population and service employment by incremental application of economic base mechanism.	6

Q. No.	Module 4	Marks
4. a	What are the factors considered in freight transportation planning?	3

Answer b or c

b	Elaborate on the basic approaches adopted for the freight demand modelling.	6
c	Give an account on the various costs associated with freight transportation that needs to be considered during the planning exercise.	6

Q. No.	Module 5	Marks
5. a	Develop an adjacency matrix and incidence matrix for the given network	4



Answer b or c

b	Write in detail the advantages of algorithms in network analysis. Describe any one algorithm used for finding the shortest path.	**8**
c	Transit network generation is considered to be a critical component in the network building process. Give your thoughts on the statement. Also Elaborate on the measures that can be adopted for assessing the efficiency of a created network.	**8**

Module 6

Q. No.		**Marks**
6. a	Explain the role of Mohring's formula in determining the frequency of public transport services.	**4**

Answer b or c

b	Explain the transit demand estimation procedure.	**8**
c	Explain how do the alignments of the four basic types of bus routes selected during the process of network planning.	**8**