

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

08 PALAKKAD CLUSTER

Q.P.code :TA2181

(pages: 3)

Name:

Reg No:

SECOND SEMESTER M.TECH. DEGREE EXAMINATION APRIL 2018

CIVIL (Transportation Engineering)

08CE6202

REGIONAL TRANSPORTATION PLANNING

Time:3 hours

Max.marks: 60

Answer all six questions. Part 'a' of each main question is compulsory.

Answer either part 'b' or part 'c' of each main question

Q.no.	Module 1	Marks
1. a	Mention the various demographic models generally indicating their basic model forms.	3

Answer b or c

- | | | |
|---|--|---|
| b | Derive the formula for final distribution of residential population in multiregional case: $P = (I - HS)^{-1}HE^P$ | 6 |
| c | For a two region area it is planned to increase the levels of production jobs by $E_1^P=3000$ and $E_2^P=2000$. On the basis of existing commuting pattern, it is known that among the people who work in the first region, 20% live in the same region and 30 % of the workers of the second region live in the same region. The work force ratios are equal to 0.35 for the first region and 0.25 for the second region. All residents require an equivalent of 0.25 service jobs. The residents of the first region have tended in the past to go to the service facilities in the first region itself and 50% of the residents of the second region go to the first region for accessing the service facilities. What are the respective projected effects of the additional service jobs in the two regions in terms of total residential population and creation of service jobs, assuming that the past patterns continue? | |

Q.no	Module 2	Marks
2. a)	What do you understand by range and threshold of a good? Discuss its implication with respect to the size of settlement.	3

Answer b or c

- | | | |
|---|---|---|
| b | Explain various methods of delineation of a region. | 6 |
|---|---|---|

- c Explain the philosophy of growth pole theory in regional planning. What are the functions that growth pole has to perform? 6

Q.no.	Module 3	Marks
3.a		3

List out any three types of modern era land use transportation models along with their salient features

Answer b or c

- b Explain the differences between Lowry and Garin land use transportation models. List out the potential sources of change that could be proposed to the Garin Lowry model to make the model dynamic. 6
- c By means of flow chart explain any of the Lowry derivative land use transport model. List the assumptions made. 6

Q.no.	Module 4	Marks
4.a	Standard four step transportation planning is inappropriate for goods transportation planning. Comment on the reasons and propose alternate way of planning.	3

Answer b or c

- b Explain LOGIT model and its applications in freight transportation planning 6
- c The following relationship were estimated through regression analysis between the number of home based work trips (T) and total population (P), household income (HInc), vehicle ownership (VO) and household size (HS) 6

$$T = 50 + 0.48P \quad Se = 210, R^2 = 0.95, t = 3.4$$

$$T = 308 - 1.09HInc \quad Se = 244, R^2 = 0.96, t = 2.9$$

$$T = 52 + 0.85HInc + 1.15VO \quad Se = 105, R^2 = 0.97, t = 2.0, 2.2$$

$$T = -105 + 0.38P + 0.98HInc + 0.45HS \quad Se = 155, R^2 = 0.987, t = 3.7, 1.5$$

Correlation matrix between the variables was found missing. In its absence, and on the basis of general norms, examine which relationship can be used to predict the number of home based work trips. Assume t-statistics at 95% confidence level as 1.96

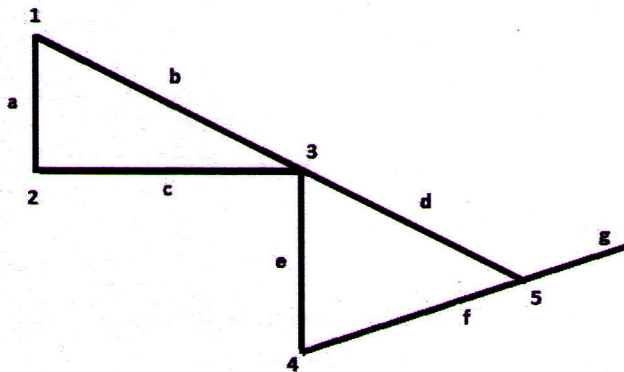
Q.no.

Module 5

Marks

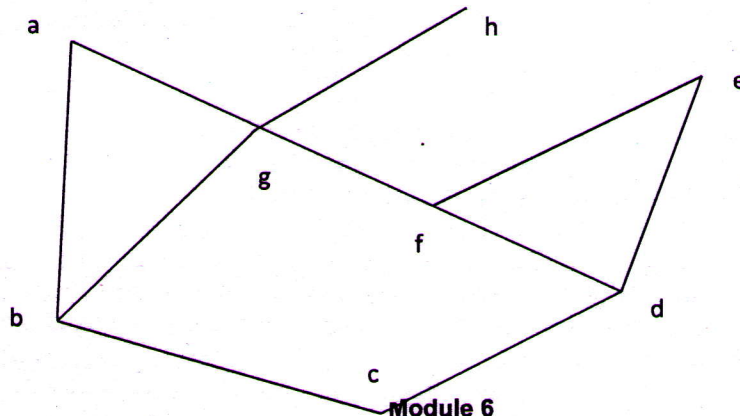
5.a Find the cyclomatic number of the given graph (Fig 1)

4



Answer b or c

- b Write in brief about various measures used for transportation network analysis 8
- c Which measure is used for finding the centrality of a node? Find the node which is most central for the given network. 8



Q.no.

Module 6

Marks

6.a Distinguish between corridor route, residential route, activity route and transfer route.

4

Answer b or c

- b Explain various activities involved in public transportation planning 8
- c Explain step by step procedure of predicting transit usage 8