B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

00744

June, 2017

BICEE-016 : TRANSPORTATION PLANNING

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Assume suitable data wherever necessary. Use of scientific calculator is allowed.*

1. (a) Describe the various urban transportation problems and issues. Explain any three challenges and limitations of the Transportation System. 7

   (b) Explain with the help of a figure about the basic components of transportation systems with their relationships. 7

2. (a) What do you understand by overall planning process ? Explain long-term planning process and short-term planning process with examples. 7

   (b) Describe the concept of zoning system, study area, trips generation and the concept OD data collection process with suitable formats. 7

3. (a) Explain the various growth factor methods used in trip distribution and write the merits and demerits of each method. 7

   (b) What are the factors influencing the trip generation ? Describe the zonal regression technique for trip generation analysis. 7

4. (a) Explain the various survey sampling techniques used in data collection process. How do you refine the data and apply various checks for the data ? 7

   (b) Explain the basic philosophy of gravity model. Describe unconstrained, production constrained and fully constrained gravity models with formulas. 7

5. (a) Describe the procedure for calibration of gravity model and also mention the significance of deterrence function in gravity model. 7

   (b) Explain trip-end modal split model and two-stage modal split models with suitable formulas and examples. 7

6. (a) List out various trip assignment techniques. Describe all or nothing assignment technique with suitable numerical example.   7

(b) Explain the concept of logit models for mode choice analysis. Compare between binary mode choice model and multinomial mode choice model with suitable formulas.   7

7. (a) Discuss demand function. Explain its utility in traffic forecasting models.   7

(b) Using Fratar Growth Factor, carry out at least two iterations of the given matrix to obtain the future travel demand table :   7

Zone no.	1	2	3	4	Growth factor
1	–	75	175	80	1·50
2	80	–	325	160	2·75
3	170	380	–	280	4·30
4	220	180	390	–	2·50