

(55%) 1. Define the following terms.

- 1) Channelization
- 2) Paratransit
- 3) Level of Service
- 4) Cordon Counts
- 5) Dilemma Zone
- 6) Design Vehicles
- 7) Shock Wave
- 8) Critical Movement
- 9) Ramp Metering
- 10) Tangent Runout
- 11) Flexible Pavement

(15%) 2. The sequential demand-forecasting models and the so-called *combined* models are two different approaches often used in transportation planning. Please give your comments on advantages and disadvantages of the two kinds of models.

(20%) 3. The origin-destination trip matrix is a basic input to the traffic equilibrium model and usually obtained through large-scale home interviews. A city government, due to budget constraint, is unable to carry out such costly home interviews but attempts to develop a cheaper way (mathematical model) to derive the O-D trip matrix using the available traffic data such as link flows. As a transportation engineer, you are assigned to handle this task. Please state the framework of your model and, possibly, the associated solution algorithms.

(10%) 4. The prevailing traffic signals are often criticized with the incapability of showing how much green times left for the right of way drivers. It is therefore easy to cause some unconscious violations of traffic rules such as intersection clearance. How would you remedy this problem by redesigning a more powerful traffic signal device?