

**Code No: C8703**  
**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**  
**M.TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012**  
**TRAFFIC ENGINEERING**  
**(HIGHWAY ENGINEERING)**

**Time: 3hours**

**Max. Marks: 60**

**Answer any five questions**  
**All questions carry equal marks**

---

1. a) What is the prime objective and other objectives of transportation and traffic Engineering?  
b) Explain the relationship among various traffic characteristics with neat sketches and formulas?
2. a) Describe various objectives of traffic volume studies? How do you conduct and analyze the traffic volume data in various ways?  
b) A volume of 900 veh/hour is observed at an intersection approach. Find the peak rate of flow within the hour for the following peak-hour factors: 1.00, 0.90, 0.80, 0.70. Plot and comment on the results
3. a) Derive an expression for space mean speed and time mean speed? Describe various methods of conducting spot speed studies and presentation of spot speed data?  
b) The following travel times were measured for vehicles as they traversed a 2.km segment of a highway. Compute the time mean speed (TMS) and space mean speed (SMS) for this data. Why is **SMS** always lower than TMS?

Vehicle	1	2	3	4	5	6	7	8
Travel time (s)	156	144	168	155	128	136	130	148

- 4.a) Explain the concept of level of service? What are the factors affecting capacity and level of service ?  
b) Describe the procedure for computing the capacity and level of service for two lane highways and multilane highways.
5. a) Explain various types of parking facilities with neat sketches? How do you conduct parking space inventory study and analysis?  
b) Describe the Terms: Parking accumulation, parking turnover, parking Index and parking load.
6. a) Explain various reasons for occurring accidents in metropolitan cities? How do you conduct the accident studies and analysis? Suggest some measures to reduce the accidents?  
b) Explain the terms: Headways and Gaps; critical gap; gap acceptance studies
7. a) Describe various types of signals? Explain the traffic signal design by Webster's method with warrants?  
b) Explain various signal coordination methods with merits and demerits?
8. a) Describe the detrimental effects of traffic on environment.  
b) Explain the various measures to curtail environmental degradation due to traffic.