

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME SEMESTER-1 EXAMINATION – WINTER • 2014

Subject Code: 741301N

Date: 26-11-2014

Subject Name: Advances in Transportation Engineering

Time: 02:30 pm - 05:00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Explain the difference between Penetration grade & viscous grade bitumen. Which one is currently considered for pavement design? Why? **07**

(b) Explain the working of automatic toll collection system? Discuss its advantages & limitations. **07**

Q.2 (a) What are admixtures? List different types of admixtures and their influence on performance of bituminous Pavement. **07**

(b) Explain the working principle & significance of Radar speedometer in traffic flow analysis. **07**

OR

(b) Write an explanatory note on Super Pavement concept. **07**

Q.3 (a) Explain with neat sketch the procedure for determining the viscosity grade of bitumen? **07**

(b) What is traffic actuated signals? Where could they be provided? How will they function? **07**

OR

Q.3 (a) What is Area traffic control system? Explain its working. **07**

(b) What is Falling weight deflectometer test? How it contributes in examining & evaluating the conditions of various Pavement layers. **07**

Q.4 (a) Explain how nano technology is likely to contribute in mitigating Vehicular pollutants like CO & NO_x in tunnels? **07**

(b) Explain the contribution of GPS & GIS on Performance of various public Transportation systems. **07**

OR

Q.4 (a) Write a note on Automated highways. **07**

(b) What is automatic ticketing system? Explain its working & importance. **07**

Q.5 (a) List and explain the tests on bitumen to evaluate the visco elastic behavior & aging Phenomenon of bitumen & asphalts. **07**

(b) Explain how carbon & silica nano tubes could contribute to the design success of exceptionally large span suspension bridges. **07**

OR

Q.5 (a) What is Traveler information system? Explain its usefulness? **07**

(b) Compare conventional railway & maglev in terms of working, travel time efficiency & cost. **07**
