Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER IV (OLD) – • EXAMINATION – SUMMER 2016

Subject Code: 741301 **Date:04/05/2016**

Subject Name: Advances in Transportation Engineering

Time:10:30 am to 01:00 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)**	What do you understand by Intelligent Transportation System (ITS)? How is it useful in transportation network operations?	**07**
	b)	Explain by drawing sketch: public transportation management system by satellite.	**07**
Q 2	**a)**	Explain in detail "Electronic payments, toll collection and fare collection".	**07**
	b)	Describe in detail the Advanced Traveler information systems.	**07**
		OR	
	b)	Compare the suitability and applicability of various fibre materials commonly used in fibre reinforce concrete? What way the length, diameter, proportions and dispersion of fibre affect the quality of fibre-reinforced concrete?	**07**
Q 3	**a)**	Explain with example the application of ITS in Travel demand management.	**07**
	b)	What is Smart Highway? How will affect road safety?	**07**
		OR	
Q 3	**a)**	What is Smart vehicle? How will it affect the road user?	**07**
	b)	Describe adaptive traffic control system with examples.	**07**
Q 4	**a)**	Why anti-stripping additives are necessary in bituminous paving mixes? What are their functions and requirements?	**07**
	b)	How will ITS affect the road pricing? Explain any example related to the above for Indian scenario.	**07**
		OR	
Q 4	**a)**	Differentiate between: High strength concrete and High performance concrete. Where they are generally used? Why?	**07**
	b)	Where do you suggest 'Micro surfacing'? Explain it application and benefits.	**07**
Q 5	**a)**	Which are the recyclable-waste materials can be successfully used highway construction? Explain any one of them in details with respect to its specifications and applications.	**07**
	b)	Explain clearly difference between Multi-grade bitumen and Modified bitumen binder. Which properties are mostly affected when crumb-rubber is added to 80/100 bitumen?	**07**
		OR	
Q 5	**a)**	What are advantages of Porous asphalt-mix? How it is produced and tested as per IS specifications?	**07**
	b)	What is super pave system? Why is it innovative? Can super pave be used for both base and surface mixes? List the steps in the super pave mix design	**07**

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