Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject code: 711303N **Date: 19-06-2014**

Subject Name: Highway Material and Construction

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 surface area and void concept of Material selection for Pavement Design.	**07**
	(b)	Discuss the significance of void area concept over surface area concept in terms of economy and mix Performance.	**07**
Q.2	**(a)**	List various tests on aggregates? How do they help us to study the influence of shape of aggregates on mix Performance?	**07**
	(b)	What is job mix formula? How is it Prepared and verified?	**07**
		OR	
	(b)	Justify the statement that ñ It is advisable to select a gradation with sufficient voids in the mixò	**07**
Q.3	**(a)**	Differentiate between semi dense bituminous mixes and bituminous concrete.	**07**
	(b)	List the fillers added to mix to achieve economy, reuse? How do they influence the Performance of the mix?	**07**
		OR	
Q.3	**(a)**	Differentiate between stone mastic asphalt mix and crumb rubber modified bituminous mix.	**07**
	(b)	Explain how the mixing temperature and mixing process influence the performance of mix.	**07**
Q.4	**(a)**	Explain Marshal method for Bituminous concrete mix design.	**14**
		OR	
Q.4	**(a)**	Explain how the grade, viscosity, ductility, film thickness influences the Performance of Bituminous mix?	**07**
	(b)	List and explain how various binders add mixtures influences the Performance of mix.	**07**
Q.5	**(a)**	Explain with neat sketch working of Paver and roller?	**07**
	(b)	Suggest soil stabilization Technique adopted for providing roads along coastal belt with Problematic soil like clay.	**07**
		OR	
Q.5	**(a)**	What is Hot mix Plant? Explain the working of hot mix Plant with neat sketch.	**07**
	(b)	Differentiate between 1) Abrasion and attrition. 2) Flakiness and elongation.	**07**

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