

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 "It is advisable to select a gradation with sufficient voids in the mix" **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**
