

**GUJARAT TECHNOLOGICAL UNIVERSITY****M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013****Subject code: 711303N****Date: 03-01-2014****Subject Name: Highway Materials and Construction****Time: 10.30 am – 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 are the sources of surface water for which surface drainage is required? **07**  
Discuss about treatments for embankment and cut slope protection.
- (b)** Discuss in brief about roadwork in desert, swampy and hilly area. **07**
- Q.2 (a)** Discuss factors affecting strength of soil-cement stabilization. **07**
- (b)** Discuss about desired properties of aggregate as a material for highway construction. **07**
- OR**
- (b)** Discuss about desired properties of bitumen as a material for highway construction. **07**
- Q.3 (a)** Explain use of various geotextile materials in highway construction. **07**
- (b)** Discuss need of compaction and consolidation in highway construction. **07**
- OR**
- Q.3 (a)** Enlist desirable properties of soil. Write soil classification. **07**
- (b)** Write about various methods of compaction and consolidation in brief. **07**
- Q.4 (a)** Discuss elements of embankment design for highway. **07**
- (b)** Discuss about asphaltic concrete/bituminous concrete with advantages and disadvantages. **07**
- OR**
- Q.4 (a)** Explain Marshal method of mix design with test graphs. **07**
- (b)** Explain construction of lean dry concrete subbase of highway concrete pavements. **07**
- Q.5 (a)** Write definition, objective and choice of binder for prime coat and tack coat. **07**
- (b)** Explain stripping test for highway construction material. **07**
- OR**
- Q.5 (a)** Explain viscosity test for bitumen. **07**
- (b)** What is screening and blending? Discuss in brief aggregate blending method. **07**

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