

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
ME – SEMESTER I (OLD) – • EXAMINATION – SUMMER 2016

Subject Code: 711303N

Date: 18/05/2016

Subject Name: Highway Materials and Construction

Time: 02:30 pm to 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) What are the desirable properties of soil? How to determine soil properties? **07**
(b) Write following in brief:
(i) Road work in Swampy area. **03**
(ii) Surface courses **04**

Q.2 (a) What is difference between compaction and consolidation? How compaction and consolidation is measured on site in field? **07**
(b) Explain flexible pavement construction with sketch. **07**
OR
(b) Write following in brief:
(i) Aggregate blending method. **04**
(ii) Problems in highway construction in hilly area. **03**

Q.3 (a) Explain rigid pavement construction with sketch. **07**
(b) Write following in brief:
(i) Macadam construction. **04**
(ii) Highway surface treatment. **03**

OR
Q.3 (a) What are the types of geotextile materials used in highway construction? **07**
(b) Write about working of hot mix plant with lay out. **07**

Q.4 (a) What are the types of bituminous materials? **07**
(b) Explain bitumen content test with aim, equipment name and procedure in detail. **07**

OR
Q.4 (a) Explain soil cement stabilization method with design of mix. **07**
(b) Explain stripping value test with aim, procedure, chemicals required for testing. **07**

Q.5 (a) Explain subsurface drainage with sketch. **07**
(b) Write minimum value recommended for accepting the material for highway construction for following tests. **07**
1. Ductility test
2. Impact test
3. Abrasion test
4. Shape test
5. Water absorption test
6. Specific gravity test for coarse aggregate
7. Specific gravity test for bitumen

OR

- Q.5** (a) Write name of apparatus and aim of the test for following tests. **07**
1. Abrasion test
 2. Penetration test
 3. Softening point test
 4. Impact test
- (b) Explain surface drainage with need and sketch. **07**