Seat No.:				Enrolment No		

GUJARAT TECHNOLOGICAL UNIVERSITY M.E -Ist SEMESTER-EXAMINATION - JULY- 2012 Subject code: 711303N Date: 09/07/2012 **Subject Name: Highway Materials and Construction** Time: 2:30 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. (a) Enlist the soil classification systems and discuss the IS method of soil 07 0.1 classification. Sub grade soil material was tested in laboratory and following results 07 **(b)** were obtained. Liquid limit = 76 % Plastic limit = 54 % Soil finer than 75 μ are = 70 % Calculate the GI and classify the soil by HRB system of classification. 0.2 (a) List the methods of soil stabilization. Explain stabilization of Desert 07 **(b)** Discuss the principles and scope of soil – cement stabilization. 07 **(b)** Write principles of good drainage in hilly road. 07 Q.3 (a) Classify the aggregates according to different criteria and state desired 07 properties for road construction. (b) Explain aggregate crushing value test and mention the significance of 07 the test result. OR (a) Discuss the desirable properties of bitumen. Compare Tar and Bitumen. 0.3 07 (b) List the tests for quality check of Bitumen and explain ductility test. 07 0.4 Write the required properties of bitumen mix used for road pavement. 07 (a) Explain "Marshal Stability Test" and it's significance in bitumen mix 07 **(b)** design. OR (a) Enlist the different methods of road construction. Discuss their 07 0.4 advantages and limitations. **(b)** Write short note on. 07 (i) Surface dressing

(i) Surface dressing
(ii) Interface treatment

Q.5 (a) Discuss the importance of drainage in highway engineering.
(b) Explain with sketch the "Catch Water Drain" in highway.

OR

Q.5 (a) State and explain various ways of road construction in Swampy area.
(b) How are land slides caused in hill roads and how can they be prevented?

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