

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – I • EXAMINATION – WINTER 2012****Subject code: 711903N****Date: 12-01-2013****Subject Name: Highway Materials & Testing****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) Define the following: **07**
Mat asphalt, cape seal, sheet asphalt, stone mastic asphalt, performance graded, ambient grinding and cellular concrete.
- (b) State to explain the procedure of determining bitumen content by centrifuge extractor test. **07**

- Q.2** (a) Explain briefly emulsion polymerization. State the merits and demerits of it. **07**
- (b) State the basic objective, principle and procedure of determining specific gravity of bitumen. **07**

OR

- (b) State the criteria's of choice of polymer modified bitumen and state the broad range of temperature requirements at different stages of road construction. **07**

- Q.3** (a) Write a short note on stress absorbing membrane using modified binder. **07**
- (b) State the test procedure of estimation of deleterious material. **07**

OR

- Q.3** (a) What are the causes of stripping of bitumen and state the grades of antistripping agent (Derbo range) for hot mix and for repairs. **07**
- (b) State the different tests on aggregates with their objectives and significance. **07**

- Q.4** (a) What is SFRC mix? State the range of parameters for SFRC mixes encountered in practice. **07**
- (b) Write a shot note on dry lean concrete. **07**

OR

- Q.4** (a) State to explain the technical properties of SFRC mix design. **07**
- (b) State the design procedure of IRC concrete mix design. **07**

- Q.5** (a) State to explain the properties of marshall mix design. **07**
- (b) Explain the procedure used in the design of a concrete mix using road note no. 4 methods. **07**

OR

- Q.5** (a) State to explain the graphical methods for proportioning, blending or combining various aggregates. **07**
- (b) Explain briefly desirable properties of bituminous mix design. **07**
