

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2022****Subject Code:3150611****Date:09-01-2023****Subject Name:Transportation Engineering****Time:10:30 AM TO 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.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Draw the typical cross-section of a highway showing all the components of it. **03**
(b) Write a short note on: PMGSY **04**
(c) Describe airport master planning process as per ICAO Recommendations. **07**

- Q.2** (a) Explain in brief: IRC **03**
(b) Distinguish between Flexible pavement and Rigid pavement. **04**
(c) Describe various engineering surveys to be carried out for location of highway alignment. **07**

OR

- (c) Define sight distance. Derive an expression for calculating the overtaking sight distance on a highway. **07**

- Q.3** (a) Explain rectangular road pattern with advantages of it. **03**
(b) Explain various factors affecting sub grade soil strength. **04**
(c) Discuss desirable properties of bitumen. Explain ductility test of bitumen. **07**

OR

- Q.3** (a) Write the advantages of uniformity of gauge throughout the nation. **03**
(b) Write short note on ESWL. **04**
(c) Explain plate load test with its limitations. **07**

- Q.4** (a) Define the terms: a. Traffic rotary b. Collision Diagram c. Cloverleaf interchange **03**
(b) Explain various types of failures in Cement concrete pavements in details. **04**
(c) Explain aggregate impact test with IRC limits. **07**

OR

- Q.4** (a) Define the terms: a. PCU b. O-D Study c. arboriculture **03**
(b) Explain the 'coning of wheels' with neat sketch. **04**
(c) Explain steps for flexible pavement design as per IRC guidelines. **07**

- Q.5** (a) Give functions of points and crossings. **03**
(b) Explain the following terms: a. Moles b. Wharf c. Jetty d. Light house **04**
(c) Explain the various design factors in road lighting. **07**

OR

- Q.5** (a) Explain the wind rose diagram concept for runway orientation. **03**
(b) Explain the following terms: a. Taxiway b. Propeller c. Rudder d. ILS **04**
(c) Draw the schematic diagram of harbour layout showing all components. **07**
