

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII EXAMINATION – SUMMER 2025****Subject Code:3170619****Date:27-05-2025****Subject Name: Railway and Airport Engineering****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.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

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|------------|--|-----------|
| Q.1 | (a) Define gauge of railway track. Enumerate different gauges used in India. | 03 |
| | (b) What is uniformity of gauges? Enumerate problems caused by change of gauge. | 04 |
| | (c) Describe in brief the basic requirements of a good alignment | 07 |
| Q.2 | (a) Give functions of Sleepers | 03 |
| | (b) Define: Ruling Gradient, Equilibrium Cant, Grade Compensation, Momentum Gradient. | 04 |
| | (c) Explain coning of wheels with neat sketch along with the advantages. | 07 |
| | OR | |
| | (c) Define creep of rails and explain causes of creep | 07 |
| Q.3 | (a) What is the necessity of geometric design of a railway track | 03 |
| | (b) State the requirement of good ballast material | 04 |
| | (c) What is the equilibrium cant on a 2^0 curve on a B.G track with several trains running at different speeds as under:
12 trains at a speed of 50 Kmph
10 trains at a speed of 60 Kmph
8 trains at a speed of 70 Kmph
2 trains at a speed of 80 Kmph | 07 |
| | OR | |
| Q.3 | (a) Give classification of various types of sleepers | 03 |
| | (b) State the functions of AAI (Airport Authority of India) | 04 |
| | (c) Describe component or parts of aeroplane with neat sketch | 07 |
| Q.4 | (a) Define Airport Capacity, Runway, Supersonic Aircraft | 03 |
| | (b) Give data required before site selection for Airports. | 04 |
| | (c) Describe airport master planning process as per ICAO recommendations | 07 |
| | OR | |
| Q.4 | (a) Explain Runway Orientation | 03 |
| | (b) Explain (i) Loading and Unloading Apron (ii) Holding Aprons | 04 |
| | (c) Describe the corrections to be applied to the calculated basic runway length to get its actual length. | 07 |
| Q.5 | (a) State functions of Airport drainage | 03 |
| | (b) What is terminal building? What are the facilities provided in the terminal building? | 04 |
| | (c) What do you mean by the term visual aid at airport? List the different visual aids. What is the necessity of visual aids? | 07 |
| | OR | |
| Q.5 | (a) List down major components of terminal area. | 03 |
| | (b) Explain Type –II wind Rose diagram | 04 |
| | (c) Write a short note on runway lighting | 07 |
