

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2022****Subject Code:3170619****Date:12-01-2023****Subject Name:Railway and Airport 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) Discuss the importance of Railway in brief. **03**  
(b) Write the basic requirements of an ideal alignment. **04**  
(c) Describe airplane component parts by drawing sketch. **07**
- Q.2** (a) Write the advantages of regional planning. **03**  
(b) Explain the coning of wheels with neat sketch. **04**  
(c) Define creep of rail & state the effect of creep. **07**
- OR**
- (c) Explain the factors affecting selection of railway gauge. **07**
- Q.3** (a) Write the function of director general of civil aviation. **03**  
(b) What are the different characteristics of an aircraft which affect planning and design of an airport? **04**  
(c) Write short note on visual aids & runway lighting. **07**
- OR**
- Q.3** (a) What do you understand by loading gauge? **03**  
(b) Write the function & requirements of ballast. **04**  
(c) What are the functions of rails? Explain the various types of rails. **07**
- Q.4** (a) Write the objective of providing super-elevation. **03**  
(b) What are the passenger requirements of terminal building? **04**  
(c) Find the design length of runway required if the length of runway at sea level under standard condition at zero gradient is 1500m. The airport site is at an elevation of 800m. The reference temperature is 20°C. Proposed runway permits ascending gradient of 0.5%. **07**
- OR**
- Q.4** (a) What is the importance of airport grading? **03**  
(b) What is approach zone? Draw a typical sketch showing height limitation in approach zone for safety of the aircraft. **04**  
(c) Write short note on ICAO & AAI. **07**
- Q.5** (a) Give classification of railway accidents. **03**  
(b) Give the requirements of station yard. **04**  
(c) Briefly explain the semaphore signals and colored light signal. **07**
- OR**
- Q.5** (a) What are the functions of points & crossing? **03**  
(b) Explain scissors crossover. **04**  
(c) Define interlocking. Explain essential regulations of interlocking in Indian railways. **07**

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