

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VI (NEW) EXAMINATION – WINTER 2021****Subject Code:2160603****Date:30/11/2021****Subject Name:Railway, Bridge & Tunnel 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) Enlist component parts of a permanent way. **03**
 (b) Enlist different gauges in Indian Railways. Explain necessity of uniformity of gauges in any country. **04**
 (c) Compare different types of sleepers based on different criteria. **07**
- Q.2** (a) Write a short note on conning of wheels. **03**
 (b) Define creep of rail & state the effects of creep. **04**
 (c) Explain various measures to be taken for preventing railway accidents. **07**
- OR**
- (c) Write a short note on Suspension bridge. **07**
- Q.3** (a) Enlist different types of yards and explain any one in brief. **03**
 (b) Draw a neat sketch of turnout and explain its components. **04**
 (c) Describe different types of signals used in railway with sketches. **07**
- OR**
- Q.3** (a) Describe specification of track ballast. **03**
 (b) Explain grade compensation on curves. **04**
 (c) Define gradient. Enlist and explain various types of gradients. **07**
- Q.4** (a) Enlist the factors influencing the selection of bridge site. **03**
 (b) Explain components of bridge with neat sketch. **04**
 (c) Write types and function of bridge bearing. Explain rocker and roller bearing. **07**
- OR**
- Q.4** (a) Define: Afflux, Scour depth, Economic span. **03**
 (b) Describe maintenance of bridges in brief. **04**
 (c) Explain classification of bridge based on different criteria. **07**
- Q.5** (a) Enlist advantages of tunneling. **03**
 (b) Classify the tunnel based on purposes. **04**
 (c) Explain needle beam method. **07**
- OR**
- Q.5** (a) Enlist advantages of shaft. **03**
 (b) Describe drainage system in tunnel construction. **04**
 (c) Explain various methods of tunnel ventilation. **07**
