

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019****Subject Code:2160603****Date:16/05/2019****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.

- Q.1** (a) Enlist the component parts of a permanent way. **03**
 (b) Explain the conning of wheels with neat sketch. **04**
 (c) Discuss the systems of Railways in brief. **07**
- Q.2** (a) Draw a sketch of turnout and explain its components. **03**
 (b) Describe the various measures to be taken for preventing railway accidents. **04**
 (c) Define cant deficiency. What would be the permissible speed on the curve? If on a 8 degree M.G. track, the average speed of different trains is 50 kmph and allowable cant deficiency is half that of maximum cant deficiency. **07**
- OR**
- (c) Define super-elevation. A 5 degree curve diverges from a main curve of 4 degree in an opposite direction in the layout of a broad gauge yard. If the speed on the main curve is restricted to 56 kmph, determine the speed restriction on the branch line. Assume permissible cant deficiency as 7.5 cm. **07**
- Q.3** (a) Draw sketch of pandrol clip and fish plate. Suggest need of both. **03**
 (b) Discuss specification of Track ballast. **04**
 (c) Define the creep of rail & state the effects of creep. **07**
- OR**
- Q.3** (a) Find out the expression for sleeper density for a B.G. Track if 19 sleepers are used under a rail length. **03**
 (b) Write a short note on 'Diamond Interchange' with the sketch. **04**
 (c) What do you understand by mountain railways? Describe in brief the various types of alignments used for mountain railways. **07**
- Q.4** (a) Enlist the factors which you keep in mind during the selection of an appropriate site for the bridge as an engineer. **03**
 (b) Discuss components of bridges with neat sketch. **04**
 (c) Write types and function of bearing. Explain rocker and roller bearing. **07**
- OR**
- Q.4** (a) Write a short note on Economic Span of the bridge. **03**
 (b) Write a short note on Suspension bridge. **04**
 (c) What are the objectives of signaling and interlocking in railway? Discuss with sketches of different types of signals used in railway. **07**
- Q.5** (a) Give advantages of the shaft. **03**
 (b) Write safety precautions in tunnel construction. **04**
 (c) Under which circumstances do you prefer Tunneling? Classify the tunnels according to their shape and size. Explain with sketch any two of them. **07**
- OR**
- Q.5** (a) Draw sketch of different shapes of the tunnel. **03**
 (b) Explain cut water & ease water. **04**
 (c) Explain various methods of tunnel ventilation. **07**
