

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**PDDC - SEMESTER- III EXAMINATION – SUMMER 2014**

**Subject Code: X30602****Date: 20-06-2014****Subject Name: Railway, Bridges and tunnels****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.

- Q.1** (a) Compare Railway transportation with Road transportation on atleast seven points. **07**  
(b) Define permanent way with sketch. List out the requirements of ideal permanent way. **07**
- Q.2** (a) Describe the advantages of Uniformity of gauges. **07**  
(b) Explain rail failures with neat sketches. **07**
- OR**
- (b) Describe in detail various types of rail joints. **07**
- Q.3** (a) What are the functions of rail sleepers? Enumerate characteristics of Good sleepers. **07**  
(b) What is railway crossing? Describe with sketches the types of crossings. **07**
- OR**
- Q.3** (a) Explain with sketches: 1. Chairs, 2. Keys **07**  
(b) What is economic span? Derive the formula for economic span **07**
- Q.4** (a) Classify the bridges in detail. **07**  
(b) Describe (1) Suspension bridges, (2) Bascule Bridges **07**
- OR**
- Q.4** (a) Enumerate Characteristics of ideal bridge site. **07**  
(b) Explain Bridge bearings. What are the functions of bearings in bridges? **07**
- Q.5** (a) Define tunnel. Explain in detail necessity and advantages of tunnel. **07**  
(b) How center line transferred to the inside of the tunnel? Explain. **07**
- OR**
- Q.5** (a) Discuss the shapes of tunnel with neat sketches. **07**  
(b) Explain forepoling method of tunneling in soft ground. **07**

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