

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – VI (NEW).EXAMINATION – WINTER 2016

Subject Code: 2160603

Date: 25/10/2016

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)** Explain the various steps needed for modernizing the railway track for running high speed trains. **07**
- (b)** Explain the factors affecting selection of an ideal bridge site. **07**
- Q.2 (a)** What is creep? Discuss the theories propounded to explain probable causes of creep. **07**
- (b)** Explain various types of spikes with a neat sketches. **07**
- OR**
- (b)** Explain the necessity of gradients. Discuss all types of gradients giving their permissible values adopted on Indian Railways. **07**
- Q.3 (a)** What are the various types of stresses induced in railway track? Explain each of them. **07**
- (b)** What is the equilibrium cant on a 2 degree curve on a broad gauge if 14 trains, 12 trains, 6 trains and 3 trains are running at speeds of 52 kmph, 57 kmph, 68 kmph, and 75 kmph respectively ? **07**
- OR**
- Q.3 (a)** Enumerate various types of track junctions in use. Explain scissor cross-over with a neat sketch. **07**
- (b)** If a 7° curve track diverges from a main curve of 4° in an opposite direction in the layout of a broad gauge yard, Calculate the super-elevation and the speed on the branch line, if the maximum speed permitted on the main line is 50 kmph. **07**
- Q.4 (a)** Explain the factors that influence the selection of site for a Railway Station. **07**
- (b)** Enlist various types of river training works and explain spurs with neat sketches. **07**
- OR**
- Q.4 (a)** Explain classification of wings walls with neat sketches. **07**
- (b)** What is 'economic span' of a bridge? Derive the expression for economic span of bridge. **07**
- Q.5 (a)** Describe the method of erection of a steel bridge truss with neat sketches. **07**
- (b)** Write a short note on: (i) Portals (ii) Problems in tunneling. **07**
- OR**
- Q.5 (a)** What is drift? Explain various types of drifts used for tunneling in rock with neat sketches. **07**
- (b)** Write a short note on Mechanical Ventilation in Tunneling. **07**
