

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- October 2019

B.Tech VI Semester

COURSE CODE: 10B11CE614

MAX. MARKS: 25

COURSE NAME: Transportation Engineering

COURSE CREDITS: 04

MAX. TIME: 1.5 Hrs

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1. (i) Find the steepest gradient on a 3° curve for a B.G. line with a ruling gradient of 1 in 200.

(ii) A 2° curve on a high speed B.G. section, has maximum sanctioned speed of 125 km/h. Equilibrium speed is 85 km/h and speed of goods train on the section is 55 km/h. Calculate superelevation, maximum permissible speed and transition length. (3)

Q2. (i) Derive the relationship between radius and versine of a curve of railway track.

(ii) Derive the relationship between superelevation, gauge, speed and radius of the curve of railway track. (6)

Q3. Explain with neat-sketches various types of transition curves. A vehicle moving on a B.G. track has a wheel base of 4.724 m. Diameter of the wheel is 1524 mm. Flanges project 32 mm below top of rail, radius of curvature is 168 m. Determine the extra width required on gauge. (3)

Q4. Explain with neat sketch- point and splice rail, straight cut switch, flangeway clearance, throw of switch. (4)

Q5. Write short notes on- (i) Types of spikes, (ii) Types of bolts, (iii) Types of Blocks (3)

Q6. Explain the following terms- Hump yards and sand hump. (3)

Q7. What is the difference between "Through packing" and "Scissor packing"? Describe the method of "through packing" of track and name the important tools used. (3)