Mr Aakash Gupta

Roll No:.....

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- April 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. On a B.G. track, the speed by railway board's speed formula: $V_s = 4.35\ (R\text{-}67)^{0.5}$ is 1.25 times the maximum permissible speed obtained by cant formula, after allowing the maximum cant deficiency. If actual cant provided is the equilibrium cant for an average speed of 60 kmph. Calculate- (1) Radius in meter (2) Maximum speed (3) cant to be actually provided (3)

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. What is meant by crossing? What are the essential requirements of a good crossing? Discuss various types of crossings in use on Indian Railways. (3)

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

Q6. Explain the various items and procedure of maintaining a-
(i) Level Crossing
(ii) Tunnels (3)

Q7. (i) Mention the various sources of moisture in a railway track. Illustrate your answer with a neat sketch.
(ii) Explain with neat sketch, how surface and sub-surface water can be removed from a railway track. (4)

Q8. Explain the various types of signals used on a station yard with neat sketches. (3)