

Q. No.	Answer any two of the following (Within 300 words each)	Marks	CO	BT Level
4 (a)	Resolve the problem of computing superelevation and maximum permissible speed for a 2° BG transitioned curve on a high-speed route with a maximum sanctioned speed of 110 kmph. The speed for calculating the equilibrium super elevation as decided is 80kmph and the booked speed of goods train is 50kmph.	7	CO 3	BT 3
4 (b)	Making use of provided superelevation 50mm and transition length 60m, calculate the maximum permissible speed on a 1° curve on a Rajdhani route with a maximum sanctioned speed of 130km/hr. Take note that the transition length of the curve cannot be increased due to the proximity of the yard.	7	CO 3	BT 3
4 (c)	Utilizing the theory of hauling power of the locomotive, calculate the maximum permissible load that a BG locomotive with three pairs of driving wheels bearing an axle load of 22 tonnes each can pull on a straight level track at a speed of 80km/hr. Also calculate the reduction in speed if the train has to run on a rising gradient of 1 in 200. What would be further reduction in speed if the train has to negotiate a 4° curve on the rising gradient? Assume coefficient of friction as 0.2.	7	CO 3	BT 3

Q. No.	Answer any two of the following (Within 300 words each)	Marks	CO	BT Level
5 (a)	Explain the concept of Head wind & Cross wind component with reference to runway orientation.	7	CO 2	BT 2
5 (b)	For the hottest month of the year at the proposed airport site, the mean of the average daily temperature is 37°C and the mean of the maximum daily temperature is 48°C. Applying the corrections to basic runway length, calculate the airport reference temperature. If the site is at mean sea -level with a level ground, compute the actual runway length to be provided.	7	CO 3	BT 3
5 (c)	What is an exit taxiway? Demonstrate the different factors to be considered for location of exit taxiways.	2+5	CO 1 CO 2	BT 1 BT 2

Course Outcomes	Marks Allotted	Percentage
CO1	14	Approx 56%
CO2	40	
CO3	28	Approx 29%
CO4	15	Approx 15%