QPC: RN20BTECH661 AR 20 Reg. No

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Seventh Semester – Regular) Examinations, November – 2023

BPCCV7020 - Transportation Engineering - II

(Civil)

Time: 3 hrs Maximum: 70 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) **(1 x 10 = 10 Marks)**

Q.1. Answer ***ALL*** questions	[CO#]	[PO#]
a. The standard dimensions of a wooden sleeper for M.G. railway track are	CO1	PO1
(i) 2.74 m × 25 cm × 13 cm (ii) 2.1 m × 25 cm × 13 cm		
(iii) 1.52 m × 15 cm × 10 cm (iv) 1.75 m × 20 cm × 12 cm		
b. Ballast packed below and around the sleepers to transfer the load from sleepers to formation, generally consists of	CO1	PO1
(i) Broken stones (ii) Gravels		
(iii) Moorum (iv) All the above		
c. The raising of outer rail over inner rail is called	CO2	PO1
(i) cant deficiency (ii) cant		
(iii) capacity of the track (iv) centre bound sleepers		
d. No of keys used in CST-9 sleepers is	CO2	PO2
(i) 1 (ii) 2		
(iii) 4 (iv) 3		
e. Two important constituents in the composition of steel used for rail are	CO3	PO1
(i) Carbon and silicon (ii) Manganese and phosphorous		
(iii) Carbon and manganese (iv) Carbon and sulphur		
f. For laying the railway track, materials required are	CO3	PO1
(i)) Rails (ii) Fish-Plates		
(iii) Fish Bolts (iv) Bearing Plates		
g. The runway orientation is made so that landing and take-off are	CO4	PO3
(i) against the wind direction (ii) along the wind direction		
(iii) perpendicular to the wind direction (iv)none of these		
h. Two single runways may be arranged so as to have	CO4	PO2
(i) L shape (ii) X SHAPE		
(iii) T shape (iv) all of these		
i. Composite sleeper index is the index of	CO1	PO1
(i)) Hardness and strength (ii) Strength and toughness		
(iii) Toughness and wear resistance (iv) Wear resistance and hardness		
j. Normally the limiting value of cant is (where G is the gauge)	CO2	PO1
(i) G/8 (ii) G/10		
(iii) G/12 (iv) G/15		

PART – B: (Short Answer Questions) **(2 x 10 = 20 Marks)**

Q.2. Answer ***ALL*** questions		[CO#]	[PO#]
a.	What is ballast? Name different types of ballast.	CO1	PO2
b.	Write about ill effects of creep.	CO1	PO2
c.	Write any three objectives of signaling.	CO2	PO1
d.	Define (i) Gradient (ii) Ruling gradient.	CO2	PO2
e.	What are sighting boards? Where to position them?	CO3	PO2
f.	What is the grade compensation?	CO3	PO2
g.	What is wind rose diagram?	CO4	PO2
h.	State and explain briefly the limitations of airport.	CO4	PO1
i.	What are different types of rail sections used in Indian railways?	CO1	PO2
j.	What are station yards? Name various types of station yards.	CO2	PO2

PART – C: (Long Answer Questions) **(10 x 4 = 40 Marks)**

Answer ***ALL*** questions		Marks	[CO#]	[PO#]
3. a.	What do you mean by rail and describe various types of rails with neat sketches?	5	CO1	PO2
b.	What are the purposes of railway sleepers?	5	CO1	PO1
	(OR)			
c.	Write down the Martin's formulae based on transition curve.	5	CO1	PO2
d.	What is a rail joint? State and explain various types of rail joints with neat sketches.	5	CO1	PO1
4. a.	State five types of signals in railways.	5	CO2	PO2
b.	What is turnout in railway track? Draw the left hand turn out of railway showing various components.	5	CO2	PO2
	(OR)			
c.	Define gradient in railway track and state the various classifications in gradients in railway track.	5	CO2	PO2
d.	Explain the working of semaphore signal in detail with sketch.	5	CO2	PO1
5. a.	What is super elevation and its function?	5	CO3	PO1
b.	What is orientation of run way? Explain briefly.	5	CO3	PO1
	(OR)			
c.	What is coning of wheels explain with neat sketch? Write its advantages.	5	CO3	PO1
d.	State the objectives of signalling. Allowing a cant deficiency of 7.5 cms. What super elevation should be provided on a 2-degree curve in BG track corresponding to speed of 100 Kmph.	5	CO3	PO1
6. a.	What are the different drawings and maps that should be prepared for the finally selected site for developing an airport?	5	CO4	PO1
b.	Distinguish between airport markings and airport lightings.	5	CO4	PO2
	(OR)			
c.	The length of runway under standard conditions is 1620 m. the airport site has elevation of 270 m. its reference temperature is 32.9 degree Celsius. if the runway is to be constructed into an effective gradient 0.20 percent. Determine the correct runway length.	5	CO4	PO1
d.	Explain why top of hill is more suitable for locating an airport than the valley site.	5	CO4	PO2

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