B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

Sixth Semester

Civil Engineering

20CEPC602 – RAILWAYS, AIRPORTS AND HARBOR ENGINEERING

Regulations - 2020

Duration: 3 Hours   Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)
Answer ALL Questions

		Marks	K–Level	CO
1.	The narrow gauge is more useful in _____	1	K1	CO1
	(a) Mountainous and hilly regions (b) Plain areas (c) Desert region (d) Not useful			
2.	What is the value of Slope provided to the wheels?	1	K1	CO1
	(a) 1 in 30 (b) 1 in 20 (c) 1 in 40 (d) 1 in 15			
3.	Which of the following occurs when train travels at a speed greater than equilibrium speed on a curve?	1	K1	CO2
	(a) Cant deficiency (b) Cant excess (c) Cant gradient (d) Rate gradient			
4.	A per the prescribed value, what should be the maximum value of cant excess on Broad gauge?	1	K1	CO2
	(a) 65mm (b) 75mm (c) 92mm (d) 100mm			
5.	A _____ is built using artificial hills, where wagons are pushed by an engine and roll down by gravity into sidings.	1	K1	CO3
	(a) Gravitational yard (b) Hump yard (c) Flat yard (d) Turnout yard			
6.	What is the minimum specified length for a passenger platform for all gauges?	1	K1	CO3
	(a) 180 m (b) 150 m (c) 305 m (d) 200 m			
7.	_____ are also called as ramps	1	K1	CO4
	(a) Apron (b) Hanger (c) Runway (d) None of the mentioned			
8.	Which of the following angular parking yields best results?	1	K1	CO4
	(a) 30 (b) 45 (c) 60 (d) 90			
9.	Touchdown zone marking is carried out with _____colour	1	K1	CO5
	(a) Yellow (b) White (c) Black (d) Red			
10.	The purpose of _____ in a harbor is to protect it from incoming waves.	1	K1	CO6
	(a) piers (b) jetties (c) wharf (d) breakwaters			

PART - B (12 × 2 = 24 Marks)
Answer ALL Questions

		Marks	K–Level	CO
11.	What is meant by the term "sleeper density"?	2	K1	CO1
12.	Infer on "Coning of wheels" in railways.	2	K2	CO1
13.	Outline the classification of level crossings.	2	K2	CO2
14.	Why the widening of gauges is needed in the curves?	2	K1	CO2
15.	Classify the methods used for stabilization of tracks in poor soil.	2	K2	CO3
16.	Outline on surface drainage.	2	K2	CO3
17.	Extend the term ICAO and its function.	2	K2	CO4
18.	Why regional planning is to be considered in airport layout?	2	K1	CO4
19.	Compare runway and taxiway.	2	K2	CO5
20.	How do you select the site for terminal building?	2	K1	CO5
21.	What do you understand by littoral drift?	2	K1	CO6
22.	Compare jetty and wharf.	2	K2	CO6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create   **14136**

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Explain the functions and ideal requirements of permanent way with neat sketch.	11	K2	CO1
		OR			
	b)	Classify the types of track stresses in railway track in detail.	11	K2	CO1
24.	a)	A branch line of 8° curve diverges in opposite direction from a B.G main line with 5° curve. The speed of the branch line is 30kmph. Identify the super elevation and permissible speed on the main line.	11	K3	CO2
		OR			
	b) (i)	If the wheel base of a vehicle moving on a B.G. track is 6 m, the diameter of wheel is 1.5 m and the depth of flanges below the top of rail is 3.17 cm. Solve the extra width required to be provided on gauge, if the radius of the curve is 160 m.	5	K3	CO2
	(ii)	A 5° curve diverges from a 3° main curve in reverse direction in the layout of a B.G. yard. If the speed on the branch line is restricted to 35 kmph, Identify the restricted speed on the main line.	6	K3	CO2
25.	a)	Explain in detail about plate laying techniques.	11	K2	CO3
		OR			
	b)	Classify the type of railway stations and explain each one of them in detail.	11	K2	CO3
26.	a)	Explain the salient features and functions of aprons in an airport.	11	K2	CO4
		OR			
	b)	Summarize how the aircraft characteristics importance in designing of airport.	11	K2	CO4
27.	a)	Explain briefly about the Geometric design of runways.	11	K2	CO5
		OR			
	b)	Summarize the concepts of airport zoning with the help of sketches.	11	K2	CO5
28.	a)	Define CRZ and explain the formulation of CRZ in detail.	11	K2	CO6
		OR			
	b)	Summarize the various costal protection works in detail.	11	K2	CO6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create