QP Code: SN23BTECH217 Reg. No | | | | | | | | | | AY 23

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)

B. Tech (Fifth Semester - Regular) Examinations, November 2025

23BCVPC35003-Transportation Engineering-II

(CIVIL)

Time: 3 hrs Maximum: 60 Marks

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions

		CO #	Blooms Level
a.	What is rail creep and how is it measured?	CO1	K1
b.	List any four functions of ballast	CO2	K1
c.	What is superelevation and why is it necessary?	CO3	K1
d.	Mention two advantages of color light signaling over semaphore signaling	CO4	K1
e.	Define runway orientation	CO5	K1

PART – B **(10 x 5 = 50 Marks)**

<u>Answer ***ALL*** the questions</u>

		Marks	CO #	Blooms Level
2. a.	What are the advantages and disadvantages of various railway gauges used in India?	5	CO1	K1
b.	Discuss the causes and remedies for wear, creep, and rail failure in track components.	5	CO1	K2
	(OR)			
c.	Explain the need for rail joints and describe their different types with diagrams.	5	CO1	K2
d.	What are the various types of stresses induced in a rail and how are they computed?	5	CO1	K1
3.a.	Discuss the classification of sleepers and determine sleeper density for a broad-gauge track.	5	CO2	K2
b.	Explain the advantages and limitations of Pre-stressed Concrete Sleepers (PSC).	5	CO2	K3
	(OR)			
c.	Compare the suitability of different ballast materials used in Indian Railways.	5	CO2	K2
d.	Discuss the failures commonly observed in ballast and suggest preventive measures.	5	CO2	K2
4.a.	Describe cant deficiency and its permissible limits as per Indian Railways.	5	CO3	K3
b.	Explain various types of railway gradients and methods of grade compensation.	5	CO3	K3
	(OR)			
c.	Discuss the various types of track crossings and their configurations.	10	CO3	K3
5.a.	Explain the purpose of interlocking in Indian Railway operations.	5	CO4	K4
b.	Discuss the various methods of interlocking adopted in modern railways.	5	CO4	K2
	(OR)			
c.	Discuss the safety features integrated into signaling and interlocking systems.	5	CO4	K4
d.	Explain automatic block signaling and route relay interlocking with diagrams.	5	CO4	K3
6.a.	Explain the criteria for airport site selection with special emphasis on topography and wind.	10	CO5	K3
	(OR)			
b.	Discuss the design and orientation principles for runways, taxiways, and aprons.	5	CO5	K3
c.	List and explain the various visual aids used for airport marking and lighting systems.	5	CO5	K3

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