

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



B. Tech (Sixth Semester - Regular) Examinations, April 2025

22BCPC36001 – Transportation Engineering I

(Civil Engg.)

Time: 3 hrs

Maximum: 70 Marks

Answer ALL questions
(The figures in the right hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

	CO #	Blooms Level
a. Explain PIEV theory.	CO2	K2
b. Explain the classification of road system as per Nagpur plan.	CO1	K2
c. Describe camber with neat sketches.	CO2	K1
d. How economic activity and transportation related to each other?	CO2	K4
e. Write about scope of transportation Engineering.	CO3	K4

PART – B

(15 x 4 = 60 Marks)

Answer **ALL** the questions

	Marks	CO #	Blooms Level
a. The speed of overtaking and overtaken vehicles are 70 and 40 kmph respectively on a two-way traffic road. If the acceleration of overtaking vehicle is 0.99m/sec^2 . Calculate safe overtaking sight distance, overtaking zones, and draw neat sketches of overtaking zones.	8	CO2	K5
b. Describe Nagpur Road plan.	7	CO1	K1
(OR)			
c. Explain the desirable properties of aggregate.	8	CO4	K1
d. List all the causes of road accident and how can the road accidents be minimized ?	7	CO3	K2
3.a. Explain with aid with neat sketches the method of eliminating camber and attainment of super-elevation	8	CO2	K2
b. Explain the role of transportation for the development of rural areas in India.	7	CO1	K2
(OR)			
c. Define stopping sight distance. Differentiate between stopping sight distance and overtaking sight distance .	8	CO2	K2
d. Name the various types of traffic signs .Classify them in proper groups.	7	CO3	K2
4.a. A vertical summit curve is formed when an ascending gradient of 1 in 25 meet another ascending of 1 in 100. Find the length of the summit curve to provide the required stopping sight distance for a design speed of 80kmph.	8	CO2	K2
b. Write short notes on:	7	CO1	K1
i. PMGSY Projects			
ii. Indian Road congress			
iii. Star and grid pattern			
(OR)			
c. State the objectives of widening of pavement on horizontal curves.	8	CO2	K2

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| d. | Design the superelevation required at a horizontal curve of radius 300 m for a speed of 60 kmph . Assume suitable data | 7 | CO2 | K5 |
| 5.a. | Describe the various test for bitumen , Explain any two briefly. | 8 | CO4 | K2 |
| b. | Describe all fundamental diagrams of traffic flow . | 7 | CO3 | K2 |
- (OR)
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|----|---|---|-----|----|
| c. | Describe the objectives of transition curves with neat sketches. How its length is calculated by the method of rate of change of centrifugal acceleration | 8 | CO2 | K1 |
| d. | Draw the typical cross sections of following roads with full details . | 7 | CO4 | K1 |
- Two lane city road
4 lanes National highways
2 lanes state highway in cutting

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