

**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)**

III - B.Tech II-Semester Regular Examinations (BR23), MAY - 2026

HIGHWAY ENGINEERING (CIVIL)

Time: 3 hours

Max. Marks: 70

*Question Paper consists of Part-A and Part-B
Answer ALL the question in Part-A and Part-B*

PART-A (10X2 = 20M)

	Marks	CO	BL
1. a) State the necessity of Highway Planning.	(2M)	CO1	L2
b) What is Rural Road Development Plan – Vision 2025?	(2M)	CO1	L2
c) Define Transition Curve and state its purpose.	(2M)	CO2	L2
d) What are the design controls and criteria for geometric design of highways?	(2M)	CO2	L2
e) Define Level of Service (LOS) and its concept.	(2M)	CO3	L2
f) What is a Condition Diagram and Collision Diagram?	(2M)	CO3	L2
g) List the desirable properties of Stone Aggregates for road construction.	(2M)	CO4	L1
h) What are Bituminous paving mixes? State their requirements.	(2M)	CO4	L1
i) List the functions and requirements of different components of a pavement.	(2M)	CO5	L2
j) What is Roller Compacted Concrete Pavement? State its advantages.	(2M)	CO5	L1

PART-B (5X10 = 50M)

2a. Explain Road Development Vision 2021 and Rural Road Development Plan – Vision 2025.	10(M)	CO1	L2
(OR)			
3a. Explain the factors affecting Highway Alignment in detail.	5(M)		
b. Describe the classification of roads in India with neat sketches.	5(M)	CO1	L2
4a. Discuss the Design of Vertical Alignment including Gradients and Vertical Curves.	10(M)	CO2	L4
(OR)			
5a. Design the Super Elevation and Extra Widening for a given highway problem.	10(M)	CO2	L3
6a. Explain the design of Rotary and Channelized Intersections with neat sketches.	10(M)	CO3	L3
(OR)			
7a. Discuss the causes of Road Accidents and explain the preventive measures.	10(M)	CO3	L2
8a. Evaluate the subgrade soil strength using CBR and Modulus of Subgrade Reaction with examples.	10(M)	CO4	L5
(OR)			
9a. Describe the Marshall Method of Mix Design for Bituminous paving mixes.	10(M)	CO4	L3
10a. Explain the design of Rigid Pavement using IRC method considering all stresses.	10(M)	CO5	L3
(OR)			
11a. Describe the Burmister method and Mechanistic method for Flexible Pavement design.	10(M)	CO5	L2
