Course Code: 23ES1T03

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

I - B. Tech I-Semester Regular/Supplementary Examinations (BR23), January - 2026

Basic Civil and Mechanical Engineering (CSE, CSE-AI&DS, AI&ML, INF)

Time: 3 hours Max. Marks: 70

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

PART–A (1 X 5 = 5M)

		Marks	CO	BL
1. a)	What are the construction materials?	(1M)	CO1	L1
b)	Write a few instruments used in Surveying.	(1M)	CO2	L1
c)	Write the types of Pavements.	(1M)	CO3	L1
d)	Write the types of measurements in Surveying	(1M)	CO2	L1
e)	What is Rain water Harvesting?	(1M)	CO3	L1
	(10 X 3 = 30M)			
2.a)	Explain about general scope of Civil Engineering in today's world.	5(M)	CO1	L2
b)	Write the ingredients used in Cement Concrete and its proportions.	5(M)	CO1	L2
	(OR)			
3.a)	Write the purpose of studying Hydraulics and Water Resources Engineering.	5(M)	CO1	L2
b)	Write few types of cement and its applications.	5(M)	CO1	L2
4.a)	Discuss about the objectives of Surveying.	5(M)	CO2	L2
b)	Explain how to do horizontal measurements using surveying instruments.	5(M)	CO2	L2
	(OR)			
5.a)	Illustrate the Formation of Soil.	10(M)	CO2	L2
6.a)	Explain about hydrological cycle with a neat sketch.	5(M)	CO3	L2
b)	Write the purpose of reservoirs.	5(M)	CO3	L2
	(OR)			
7.a)	Discuss about the need of a) Harbour b) Tunnel c) Airport	5(M)	CO3	L2
b)	Write about various drinking water quality parameters	5(M)	CO3	L2

PART–B (1 X 5 = 5M)

		Marks	CO	BL
1. a)	Provide an example of a common ferrous alloy and its application.	(1M)	1	L2
b)	Define the properties of ductility and malleability.	(1M)	1	L2
c)	Define a heat engine?	(1M)	2	L2
d)	What are the types of joining processes?	(1M)	2	L2
e)	Define degrees of freedom (DOF)?	(1M)	3	L1

(10 X 3 = 30M)

2.a)	State emerging technologies in the Automotive sector highlighting the role of mechanical engineering.	10(M)	1	L3
	(OR)			
b)	How do piezoelectric materials work, and what are their practical uses in technology?	10(M)	1	L2
3.a)	What is a refrigeration cycle? Draw its layout and explain the basic components.	10(M)	2	L3
	(OR)			
b)	Explain briefly about four-stroke SI engines with a neat labelled diagram	10(M)	2	L3
4.a)	State and explain the working principle of Steam power plant.	10(M)	3	L3/L 4
	(OR)			
b)	Explain different mechanical power transmission systems and state their advantages and disadvantages	10(M)	3	L3/L 4

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