

Code: 23ES1101

I B.Tech - I Semester – Supplementary Examinations – MAY 2025

BASIC CIVIL & MECHANICAL ENGINEERING
(Common for EEE, ECE, CSE)

Duration: 3 hours

Max. Marks: 70

- Note: 1. This question paper contains two Parts: Part-A and Part-B.
 2. Each Part contains:
- 5 short answer questions. Each Question carries 1 Mark and
 - 3 essay questions with an internal choice from each unit. Each question carries 10 marks.
3. All parts of Question paper must be answered in one place.

PART – A

1.a)	What are the different types of Bricks (based on materials)?
1.b)	What is Prefabrication?
1.c)	Define Linear Measurement.
1.d)	Classify the Aggregates based on the Size.
1.e)	What is Reservoir?

			Max. Marks
UNIT-I			
2	a)	Explain briefly about the Geo-Technical Engineering.	5 M
	b)	List out the types of Cement and their Applications.	5 M
OR			
3	a)	Explain any two basic tests for Coarse Aggregates.	5 M
	b)	Differentiate between the dry process and wet process of cement.	5 M

UNIT-II			
4	a)	What is surveying and write its objectives? Also list the different surveying methods to measure horizontal and vertical measurements.	5 M
	b)	Write the procedure for the conversion of Reduced Bearing to Whole Circle Bearing. Convert the following readings from RB to WCB: i) N14 ⁰ E, ii) S45 ⁰ W, iii) N60 ⁰ W, iv) S10 ⁰ E, v) S28 ⁰ W.	5 M
OR			
5	a)	Explain the plotting procedure for chain surveying.	5 M
	b)	Discuss the about Contours and contour mapping.	5 M
UNIT-III			
6	a)	Outline the purpose of studying Transportation Engineering.	5 M
	b)	Write a note on Hydrology and explain about rain water harvesting.	5 M
OR			
7	a)	Explain briefly the types of Roads. Also, Explain the cross-section of the Road with a neat sketch.	5 M
	b)	Explain the purpose of Reservoirs.	5 M

PART – B

1.f)	What are ceramics?
1.g)	What is the function of refrigerant?
1.h)	What are smart materials?
1.i)	What is the function of moderator in nuclear power plant?
1.j)	Define gear drives.

			Max. Marks
UNIT-I			
8	a)	Explain the role of Mechanical Engineering in Energy sector.	5 M
	b)	Explain about composite materials with examples.	5 M
OR			
9	a)	Classify engineering materials with advantages, disadvantages, applications and suitable examples.	7 M
	b)	Differentiate between ferrous and non ferrous materials.	3 M
UNIT-II			
10	a)	Explain about sand casting process with neat sketch.	7 M
	b)	Discuss the advantages and disadvantages of a SI engines over CI Engines.	3 M
OR			
11	a)	Explain the construction and working principle of Boiler.	6 M
	b)	Differentiate between 2-S and 4-S engines.	4 M

UNIT-III			
12	a)	Discuss i) Gear drive and its applications ii) Belt drives and its applications	4 M
	b)	What are the various configurations of Robot? Discuss them in detail.	6 M
OR			
13	a)	Explain about nuclear power plant with neat sketch.	5 M
	b)	What are the components of a robot? Explain them briefly.	5 M