

Code: 23ES1201

**I B.Tech - II Semester – Supplementary Examinations  
DECEMBER 2024**

**BASIC CIVIL & MECHANICAL ENGINEERING  
(Common for CE, ME, IT, AIML, DS)**

Duration: 3 hours

Max. Marks: 70

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- 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.
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**PART – A**

1.a)	Enlist the roles in Civil Engineering.
1.b)	What is role of steel in concrete?
1.c)	State the principles of surveying.
1.d)	List types of highways.
1.e)	Differentiate Dam and Reservoir.

					Max. Marks
<b>UNIT-I</b>					
2	a)	Explain in detail the safety in Civil Engineering.			5 M
	b)	List the disciplines of Civil Engineering and explain Transportation and Structural Engineering.			5 M
<b>OR</b>					
3	a)	Explain the manufacture process of brick.			5 M

	b)	Give the differences between water resource engineering and Environmental Engineering.	5 M
<b>UNIT-II</b>			
4	a)	Explain the characteristics of Contour Mapping.	5 M
	b)	What are methods of horizontal measurements in surveying? Explain in any one in detail.	5 M
<b>OR</b>			
5	a)	Explain the objectives of surveying .	5 M
	b)	The following staff readings were observed successfully with level, the instrument having been moved after 3rd , 6th and 8th readings; 2.228, 1.606, 0.988, 2.090, 2.864, 1.262, 0.602, 1.982, 1.044, 2.684 meters. Enter the above readings in a page of a level book and calculate the RL of points if the first reading was taken with a staff held on bench mark of 300mt.	5 M
<b>UNIT-III</b>			
6	a)	Describe the importance of transportation in Nations economic development.	5 M
	b)	Briefly explain about different types of highway pavements.	5 M
<b>OR</b>			
7	a)	Elaborate the process of rain water harvesting.	5 M
	b)	Explain the types and components of dams and reservoirs.	5 M

## PART – B

1.f)	Identify the latest technology of manufacturing engineering.
1.g)	Mention any two examples of ceramic materials.
1.h)	Name any two refrigerants used in refrigeration cycle.
1.i)	Classify the types of gears.
1.j)	List the applications of robots.

			BL	CO	Max. Marks
<b>UNIT-I</b>					
8		Explain the role of mechanical engineering in industries and society.			10 M
<b>OR</b>					
9	a)	Discuss the properties and applications of ceramics and composites.			5 M
	b)	Write a short note on smart materials.			5 M
<b>UNIT-II</b>					
10	a)	What is gas welding? Write the advantages and disadvantages of gas welding.			5 M
	b)	Explain the working principle of 4-stroke CI engine.			5 M
<b>OR</b>					
11	a)	Compare electric and hybrid vehicles.			5 M
	b)	Discuss about metal forming process.			5 M
<b>UNIT-III</b>					
12		With a neat sketch, explain the working of hydro electric power plant and mention various essential elements.			10 M

**OR**

13	a)	Explain the types of power transmission from one shaft to another.	6 M
	b)	What are components of a robot?	4 M