Code: 23ES1101

## I B.Tech - I Semester - Regular Examinations - JANUARY 2024

## 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.

BL – Blooms Level

CO – Course Outcome

## PART - A

		BL	CO
1.a)	What is the scope of transportation engineering?	L1	CO1
1.b)	List out advantages of prefabricated structures.	L1	CO5
1.c)	What is surveying?	L1	CO2
1.d)	Basic differences between flexible and rigid pavements.	L1	CO3
1.e)	What are the functions of DAMS?	L <sub>1</sub>	CO4

			BL	СО	Max. Marks		
		UNIT-I					
2	a)	Explain the necessity of civil engineering	L2	CO1	5 M		
		for society building.					
	b)	Discuss pre-fabricated construction	L2	CO5	5 M		
		techniques in detail.					
	OR						
3	Ela	porate the scope of any three civil	L2	CO1	10 M		
	eng	ineering disciplines.					

		UNIT-II			
4	a)	Define contour and discuss the	L2	CO2	5 M
		characteristics of contours and give			
		suitable sketches.			
	b)	Discuss briefly about prismatic compass.	L2	CO2	5 M
	1	OR	T		
5	a)	The following staff readings were	L2	CO2	6 M
		observed successively with a level. The			
		instrument has been moved after 5 <sup>th</sup> and			
		11 <sup>th</sup> readings. 0.485, 1.210, 1.635, 3.395,			
		3.775, 0.650, 1.400, 1.795, 2.575, 3.375,			
		3.895, 1.735, 0.635, 1.605 m. Determine			
		the R.L. of various points, if the first			
		reading was taken with a leveling staff			
		held on a bench mark of R.L of 100m			
	4 >	using Raise and Fall method.		~ ~ ~	13.5
	b)	Explain any two methods of leveling.	L2	CO2	4 M
		UNIT-III	T 0	000	<i>7.</i> 3. <i>1</i>
6	a)	Explain the necessity of transportation	L2	CO3	5 M
	1 \	for any country.	1.0	001	<i>7.</i> ) <i>1</i>
	b)	What is mean by hydrology and state its	L2	CO4	5 M
	importance?				
7	OR				5 N 1
7	a)	Explain Tunnel and Airport engineering.	L2	CO <sub>4</sub>	5 M
	b)	Discuss quality and specifications of	L2	CO4	5 M
		water.			

## PART - B

		BL	CO
1.f)	Write any four different applications of Ferrous materials.	L1	CO1
1.g)	What is shape memory alloy?	L1	CO1
1.h)	What is hot working and cold working process?	L1	CO2
1.i)	What is the principle of boiler?	L1	CO2
1.j)	What is Fission Process?	L1	CO3

			BL	СО	Max. Marks	
		UNIT-I				
8	a)	Write down the role of mechanical	L2	CO1	5 M	
		engineering in energy and manufacturing				
		sector.				
	b)	Explain the applications of composite	L2	CO1	5 M	
		materials.				
		OR				
9	a)	Discuss the different types of ceramic	L2	CO1	5 M	
		materials.				
	b)	Explain the applications of smart	L2	CO1	5 M	
		materials.				
		UNIT-II		T		
10	a)	Discuss the different types of forming	L2	CO2	5 M	
		processes with diagrams.				
	b)	Draw and show the following parts of the	L2	CO2	5 M	
		sand mold and mention their functions.				
		i) Riser, ii) Vent Hole,				
		iii) Chaplet, iv) Mold cavity,				
		v) Runner.				
	OR					
11	a)	Differentiate between welding and	L2	CO2	5 M	

		brazing processes.			
	b)	Explain the working principle of Vapor	L2	CO2	5 M
		Compression Refrigeration system with a			
		neat sketch.			
		UNIT-III			
12	a)	Discuss about the Hydro power plant	L2	CO3	5 M
		with few advantages.			
	b)	Explain different types of Gear Drives	L2	CO3	5 M
		and Chain Drives.			
	OR				
13	a)	Explain different configurations of robot.	L2	CO3	5 M
	b)	Differentiate between Flat belt and V belt	L2	CO3	5 M
		drives based on the applications.			