

Code: 23ES1101

**I B.Tech - I Semester – Supplementary Examinations - JULY 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.

**PART – A**

1.a)	What is scope of structural engineering?
1.b)	What is meant by prefabricated structure?
1.c)	What is contour and specify its uses.
1.d)	Draw typical cross section of rigid pavement and list out different layers of it.
1.e)	State the importance of reservoir.

		Max. Marks
<b>UNIT-I</b>		
2	Discuss Building construction and planning in detail.	10 M
<b>OR</b>		
3	a) Explain three construction materials and their properties for construction.	6 M
	b) Elaborate the role of Environmental engineering in construction.	4 M

<b>UNIT-II</b>													
4	a)	Explain the procedure for measuring the horizontal angle by using the theodolite.	4 M										
	b)	Discuss Rise & Fall and Height of Instrument method for measuring levels of the ground with neat sketches.	6 M										
<b>OR</b>													
5	a)	Determine the values of included angles in the closed compass traverse ABCD in clockwise direction, given the following fore bearing of the lines and apply check as well <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Line</td> <td style="padding: 5px;">AB</td> <td style="padding: 5px;">BC</td> <td style="padding: 5px;">CD</td> <td style="padding: 5px;">DA</td> </tr> <tr> <td style="padding: 5px;">F.B</td> <td style="padding: 5px;">40°</td> <td style="padding: 5px;">70°</td> <td style="padding: 5px;">210°</td> <td style="padding: 5px;">290°</td> </tr> </table>	Line	AB	BC	CD	DA	F.B	40°	70°	210°	290°	4 M
	Line	AB	BC	CD	DA								
F.B	40°	70°	210°	290°									
b)	Discuss principles and objectives of the surveying in detail.		6 M										
<b>UNIT-III</b>													
6	a)	Briefly explain Railway and harbor engineering.	5 M										
	b)	Differentiate Dams and reservoirs with a sketch.	5 M										
<b>OR</b>													
7	a)	Draw typical flexible pavement cross-section and explain their layers and significance.	5 M										
	b)	State the necessity of water conveyance structures for better supply to maximum area.	5 M										

## PART – B

1.f)	Classify the engineering materials based on the nature.
1.g)	Write down the applications of ceramic materials.
1.h)	Mention the significance of 3D printing.
1.i)	Define Ton of refrigeration.
1.j)	Write down the application of Sensor in Robots.

			Max. Marks
<b>UNIT-I</b>			
8	a)	Explain the definition of Mechanical Engineering and write the relations of mechanical engineering with other engineering disciplines.	5 M
	b)	Justify how composite materials are different from alloys. (Mention minimum four points).	5 M
<b>OR</b>			
9	a)	Explain the applications of smart materials.	5 M
	b)	Briefly explain the industrial evolution of mechanical engineering in automobiles sector.	5 M
<b>UNIT-II</b>			
10	a)	Explain the milling process and their advantages.	5 M
	b)	Explain the CNC machine and mention the advantages of CNC machine.	5 M
<b>OR</b>			
11	a)	Explain the working of 4 stroke diesel engine with a proper diagram.	5 M
	b)	What is Hybrid vehicle how it differs from normal Engines?	5 M

**UNIT-III**

12	a)	Discuss about the Steam thermal power plant and different circuits.	5 M
	b)	Explain difference between an open belt drive and a crossed belt drive.	5 M

**OR**

13	a)	What are the future applications of Robot?	5 M
	b)	Discuss about the applications of Chain drives with examples.	5 M