

<b>Name:</b>	
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2021**

<b>Programme: B. Tech-ADE</b> <b>Course Name: Metrology &amp; Manufacturing Technology</b> <b>Course Code: MEPD 2001</b>	<b>Semester : V</b> <b>Max. Marks : 100</b> <b>Max. Time : 03 Hours.</b>
--	--

**SECTION A (20 Marks)**

1. All questions are compulsory in this section.
2. Total 05 questions are there in this section and each question is of 4 Marks.
3. Short answer type questions.
4. Assume any missing data if required.

Q1	Name & explain in brief about the sources of errors in measurement.	4	CO1
Q2	Discuss the significance of limit of sizes & allowances in manufacturing industry.	4	CO2
Q3	Describe the snap gauge and plug gauges in terms of usage with suitable examples.	4	CO3
Q4	Name the various forming processes and the defects associated with forging process.	4	CO4
Q5	Name the important dimensions of a machining process in terms of Material removal rate.	4	CO5

**SECTION B (40 Marks)**

1. All questions are compulsory in this section.
2. Total 04 questions are there in this section and each question is of 10 Marks.
3. Write brief notes.
4. Assume any missing data if required.

Q6	Illustrate the working of Wheatstone in strain measurement with neat sketch.	10	CO1
Q7	a) Name & Explain the Fit & its type with suitable example. b) A spindle slides freely in a bush. The basic size of the fit is 50 x10– 3 mm. If the tolerances quoted are 0 +62 for the holes and -80 +180 for the shaft, find the upper limit and lower limit of the shaft and the minimum clearance.	10	CO2
Q8	Discuss the working principal of mechanical & optical comparator and state the advantages and disadvantages.  <p style="text-align: center;"><b>OR</b></p> Name the instruments used for angular measurement & explain the sine bars with neat sketch	10	CO3
Q9	Explain the lost wax casting process, with neat sketch. Also state the advantages & disadvantages	10	CO4

**SECTION C (40 Marks)**

1. There are two questions of 20 marks each with an internal choice in 1 question.

**2. Write long answers.**

**3. Assume any missing data if required.**

Q10	a) Discuss the mechanism of chip formation. Also, analyze the continuous chips with built up edges.  b) Explain the tool geometry of a single point cutting tool with a neat sketch.  <p style="text-align: center;"><b>OR</b></p> Explain the following terms a) Speed, Feed & Depth of Cut b) Milling operation c) Chip thickness ratio & shear Angle d) Compare orthogonal & oblique cutting	<b>20</b>	<b>CO5</b>
Q 11	Explain the terms: a) Forging b) Extrusion & drawing c) Defects in casting d) Tool wear	<b>20</b>	<b>CO4</b>