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**UPES**  
**End Semester Examination, May 2023**

<b>Course: Workshop Practices</b> <b>Program: B.Tech – ADE, ASE, Mech, MEX, ECE, Elec. &amp; Comp. Engg.</b> <b>Sustainability, Food Tech. Bio Tech.</b> <b>Course Code: MEPD1003</b>	<b>Semester: II</b> <b>Time: 03 hrs.</b>  <b>Max. Marks: 100</b>
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**Instructions: Q 8 and Q 10 have internal choice.**

**SECTION A**  
**(5Qx4M = 20 Marks)**

S. No.		Marks	CO
Q 1	Identify the tools shown below: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">             (a)         </div> <div style="text-align: center;">             (b)         </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">             (c)         </div> <div style="text-align: center;">             (d)         </div> </div>	<b>4</b>	<b>CO2</b>
Q 2	Explain briefly four timber defects.	<b>4</b>	<b>CO1</b>
Q 3	Explain the difference between blanking and punching as applicable to sheet metal operations.	<b>4</b>	<b>CO1</b>
Q 4	Briefly discuss the significance of polarity in arc welding.	<b>4</b>	<b>CO1</b>
Q 5	Explain briefly four defects that can occur in sand casting.	<b>4</b>	<b>CO1</b>

**SECTION B**  
**(4Qx10M = 40 Marks)**

Q 6	a) Explain four reasons for the need for Non-Conventional Machining. b) With a schematic diagram, explain the process of Water Jet Machining (WJM). Enlist few uses of WJM.	<b>4+6</b>	<b>CO4</b>
Q 7	a) Identify the parts (1-6) in the schematic diagram of sand casting mould as shown below:	<b>6+4</b>	<b>CO1</b>

Q 8	<p>b) Explain two NDTs to detect defects in sand casting.</p> <p>Explain the process of direct extrusion and indirect extrusion with neat sketches. Explain the advantages of indirect extrusion over direct extrusion.</p> <p style="text-align: center;"><b>OR</b></p> <p>Write short notes on the following with suitable sketches:  a) Rolling, b) Swaging, c) Upsetting, d) Deep drawing</p>	8+2  4×2.5	CO1
Q 9	<p>a) Explain the following terms – tolerance, allowance, and deviation.  b) Tolerances for a hole and shaft assembly having a nominal size of 30 mm are as follows:  <i>Hole</i> = <math>30_{-0.06}^{-0.02} \text{ mm}</math>                      <i>Shaft</i> = <math>30_{+0.00}^{+0.02} \text{ mm}</math>  Determine the allowances, tolerances and deviations. Determine the type of fit.</p>	3+7	CO1
<p><b>SECTION-C</b>  <b>(2Qx20M = 40 Marks)</b></p>			
Q 10	<p>a) Explain the setup used for gas welding process with a neat sketch.  b) Briefly discuss the role of oxygen in gas welding process.  c) Differentiate between soldering, brazing &amp; welding.</p> <p style="text-align: center;"><b>OR</b></p> <p>a) Describe with neat sketches the process of Gas Metal Arc Welding. Explain the advantage of using inert gas in the process.  b) Explain the process of friction welding with a neat sketch.  c) Explain the different types of welded joints with neat sketches.</p>	10+4+6	CO2 CO1
Q 11	<p>a) Name the machining operations (1-6), as indicated in figure that have been carried out for preparing this job on a lathe machine.</p> <p>b) Explain four accessories used on lathe machine.  c) Explain the need for CNC machining. Explain G – codes and M – codes.</p>	6+8+6	CO2 CO4