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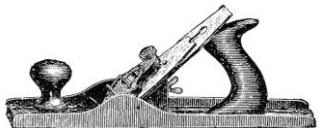
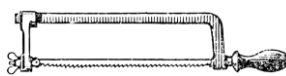
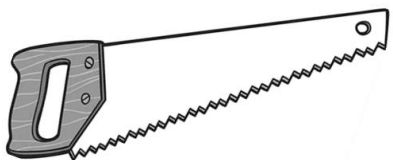
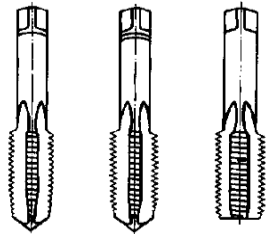

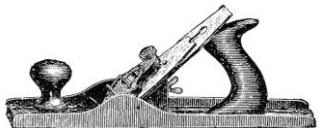
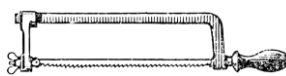
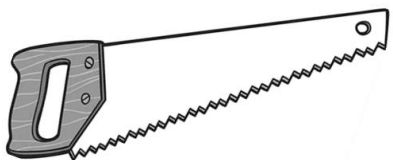
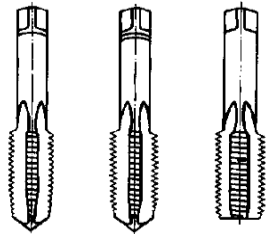

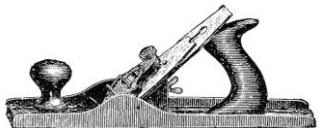
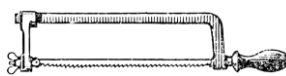
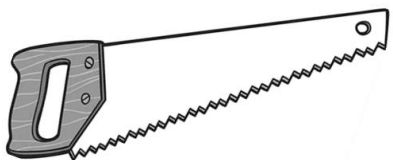
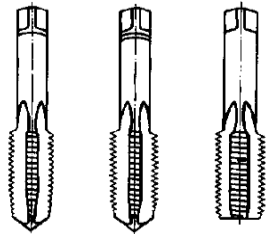

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, January 2021

Course: Workshop Practices
Program: B. Tech
Course Code: MEPD1003

Semester: I
Time 03 hrs.
Max. Marks: 100

Instructions: In section C, answer any one of the two options: Either Option A or Option B

SECTION-A : Total 30 marks
Each question carries 5 marks

S. No.		CO												
Q 1	Identify the hand tools: <table border="1" data-bbox="203 798 1421 1249"><tr><td>a</td><td></td><td>c</td><td></td><td>e</td><td></td></tr><tr><td>b</td><td></td><td>d</td><td></td><td></td><td></td></tr></table> <p>a) _____, b) _____, c) _____, d) _____, e) _____</p>	a		c		e		b		d				CO1 CO2
a		c		e										
b		d												
Q 2	True/False: a) Electric arc welding is done at low voltages of around 30-60 V. _____ b) A riser is used to prevent formation of blow holes in a casting. _____ c) Grooving operation is done on a lathe machine to create markings for better grip. _____ d) Hot working leads to lower strength as compared to cold working. _____ e) For every metal/alloy, recrystallization temperature is above 700 °C. _____	CO1												
Q 3	Select ALL the correct options related to metal working: a) Cold working leads to more internal stresses in the material as compared to hot working. b) During cold working, new equiaxed grains form in the material. c) Hot working requires more stress for deformation of material compared to cold working. d) Cold-worked products are generally stronger than hot-worked products. e) The friction between billet and container walls is lower in indirect extrusion as compared to direct extrusion.	CO1												

<p>Q 4</p>	<p>Identify the rolling mills:</p> <p>b) _____, b) _____, c) _____, d) _____, e) _____</p>	<p>CO1</p>
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<p>Q 5</p>	<p>Name the process suitable for manufacturing each of the following products:</p> <p>a) Chisels: _____</p> <p>b) Steel bar with hexagonal cross-section: _____</p> <p>c) Engine Casing: _____</p> <p>d) Copper wire with 1 mm diameter: _____</p> <p>e) Steel sheet of 2 mm thickness: _____</p>	<p>CO1</p>
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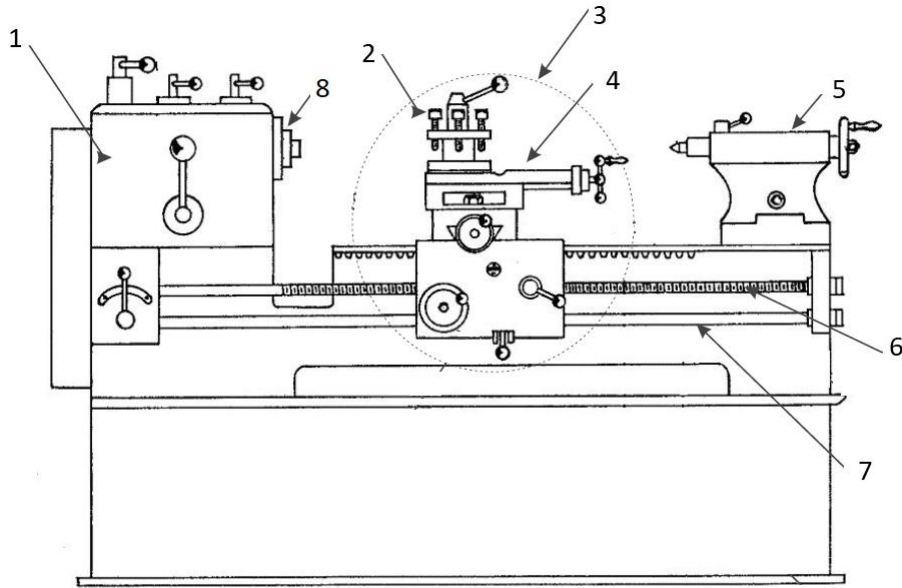
<p>Q 6</p>	<p>Fig. below represents a job prepared from a uniform solid cylinder using lathe machine. Name the five machining operations (1-5), as indicated in figure, that have been carried out for preparing this job.</p> <p>1. _____, 2. _____, 3. _____, 4. _____, 5. _____</p>	<p>CO1</p>
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SECTION-B : Total 50 marks
Each question carries 10 marks

<p>Q 7</p>	<p>a) With the help of schematic diagram, show transition and interference fits. (5 marks)</p> <p>b) Discuss the advantages of additive manufacturing as compared to machining processes. (5 marks)</p>	<p>CO1</p>
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Q 8

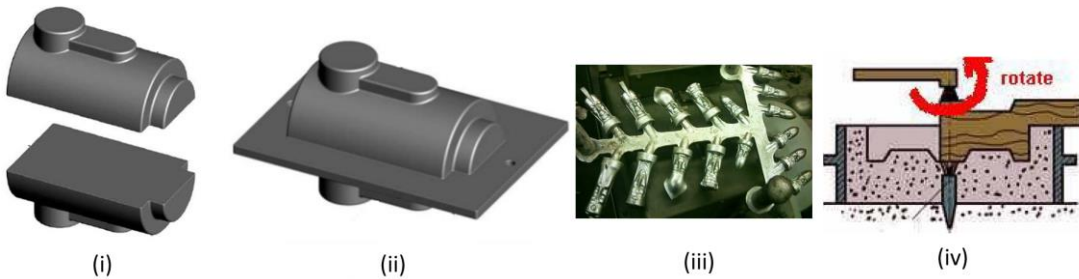
a) Label the various parts (1-8) of lathe machine as shown in the figure below:
Note: Part no. 3 represents a collection of different components lying inside the marked circle.
(8 marks)



b) Briefly discuss difference between 3-jaw and 4-jaw chuck. (2 marks)

Q 9

a) Identify the following pattern types: (4 marks)



b) Briefly describe the appearance (with the help of schematic diagram) and reasons for formation of following defects in cast products: (i) blow holes (porosity) and (ii) penetration defect

(6 marks)

Q 10

Answer any two of the following:

a) Briefly discuss why shrinkage allowance and draft allowance is provided in patterns. (5 marks)

b) Mention any four properties required in moulding sand. (5 marks)

c) Briefly discuss how hollow sections are created in a cast product. Also mention why chaplets are used in the mould making process. (5 marks)

CO1

CO1

Q 11	<p>a) With the help of a detailed schematic diagram, describe the abrasive jet machining process. (6 marks)</p> <p>b) Mention the various parameters that are used to control the abrasive jet machining process. (4 marks)</p>	CO4
SECTION-C		
Q 12	<p style="text-align: center;"><u>Option A: Electric Arc Welding (EAW)</u></p> <p>A.i) Draw a schematic diagram to show the setup used for electric arc welding (EAW) process.</p> <p>A.ii) Briefly discuss the MIG (Metal Inert Gas) and TIG (Tungsten Inert Gas) welding processes using schematic diagrams.</p> <p>A.iii) Briefly discuss following defects in welding: a) Undercut and b) Cracking</p> <p>A.iv) Mention the composition of flux used for coating the electrodes in EAW. Also discuss why electrodes are coated with flux.</p> <p style="text-align: center;">OR</p> <p style="text-align: center;"><u>Option B: Gas Welding, Brazing & Soldering</u></p> <p>B.i) List the fuel used in gas welding process. Briefly discuss the role of oxygen in gas welding process.</p> <p>B.ii) Discuss the different types of flames used in gas welding process.</p> <p>B.iii) Discuss the differences between welding, soldering and brazing.</p> <p>B.iv) Briefly discuss following defects in welding: a) Porosity, and b) Slag inclusions</p>	CO2