

Name:			
Enrolment No:			
<b>UPES Dehradun</b> <b>End Semester Examination, Dec 2023</b>			
<b>Course: Manufacturing Processes</b> <b>Program: B.Tech (Mechanical Engineering)</b> <b>Course Code: MECH2046</b>		<b>Semester: III</b> <b>Time : 03 hrs.</b> <b>Max. Marks: 100</b>	
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
S. No.	Statement of question	Marks	CO
Q 1	Explain the working of CNC machine with neat schematic..	4	CO2
Q 2	Define various patterns used in casting process.	4	CO2
Q 3	Compare the different types of 3D printing technologies.	4	CO4
Q 4	Describe the advantages and disadvantages of solid state welding processes.	4	CO1
Q 5	Summarize the geometry of single point cutting tool with neat diagram.	4	CO4
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 6	Classify the various types of joining processes. Describe the difference in between brazing and soldering.	10	CO2
Q 7	Discuss the working of electro discharge machining process.	10	CO1
Q8	Solve the problem to calculate the useful tool life of a HSS tool machining mild steel at 18m/min is 3 hours. Calculate the tool life when the tool operates at 24m/min. Assume $n=0.125$	10	CO3
Q9	Compare the Plasma arc machining and laser beam machining processes.	10	CO4
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>			
Q10	Solve the tooling cost and optimum cutting speed for metal machining. The following information is available:  Tool change time = 10 min Tool re-grind time = 5 min Machine running cost = Rs 6 per hour Tool depreciation per re-grind = 30p $N=0.25$ , $C=150$	20	CO2

Q11	Explain various types of defects in casting process with neat diagrams.  OR Explain the working principle of abrasive jet machining with neat diagram. How it is different than water jet machining.	20	CO3
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