Exam.Code:1015
Sub. Code: 7761

2072

M.E. (Mechanical Engineering)

Second Semester

MME-202: Advanced Manufacturing Processes

Time allowed: 3 Hours | Max. Marks: 50

NOTE: *Attempt five questions in all, selecting atleast two questions from each Part.*

x-x-x

PART-A

Q1.	a) Why the need for advanced manufacturing processes arose? What are the benefits of these processes? b) What are chip less machining methods? What are their advantages?	10
Q2.	With neat sketch, explain the main elements of Ultrasonic machining process? Also describe its working?	10
Q3(a)	In abrasive water jet machining, the velocity of water at the exit of the orifice, before mixing with abrasives, is 800 m/s. The mass flow rate of water is 3.4 kg/min. The abrasives are added to the water jet at a rate of 0.6 kg/min with negligible velocity. Assume that at the end of the focusing tube, abrasive particles and water come out with equal velocity. Consider that there is no air in the abrasive water jet. Assuming conservation of momentum, calculate the velocity (in m/s) of the abrasive water jet at the end of the focusing tube.	5
(b)	What is the principle difference between AJM and AWJM and where are these processes used? List the applications of AJM and AWJM. Also mention the advantages anddisadvantages of AJM and AWJM?	5
Q4	Explain various parameters that influence the performance of chemical machining process. Write the wide applications, advantages, and limitations of Chemical Machining?	10
	PART B	
Q5(a)	Describe with the help of neat sketches, the principle and working of Electron Beam Machining (EBM)?	5
(b)	Explain the Process parameters of EBM. What are the advantages and Limitations of EBM?	5
Q6	Draw a Schematic diagram of 'Electro-discharge Machining' and Explain its working principle and process parameters.	10
Q7(a)	What are the functions and desirable properties of dielectric fluid in EDM? Explain desirable properties of electrode material used in EDM?	5
(b)	EDM is used to machine a metallic sheet. Calculate surface finish value if C = 15 UF, V = 130 V, K = 4.0. Use the equation based on experimental results.	5
Q8(a)	What is Ion beam machining? Explain its working principle with the help of neat sketches?	5
(b)	Amongst the advanced manufacturing processes you studied, list out the green processes or the processes which can be hybridized into environmentally friendly ones. Explain with proper reasoning.	5

x-x-x