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Pages: 2

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (S, FE) / S6 (PT) (S, FE) Examination May 2023 (2015 Scheme)

Course Code: ME306

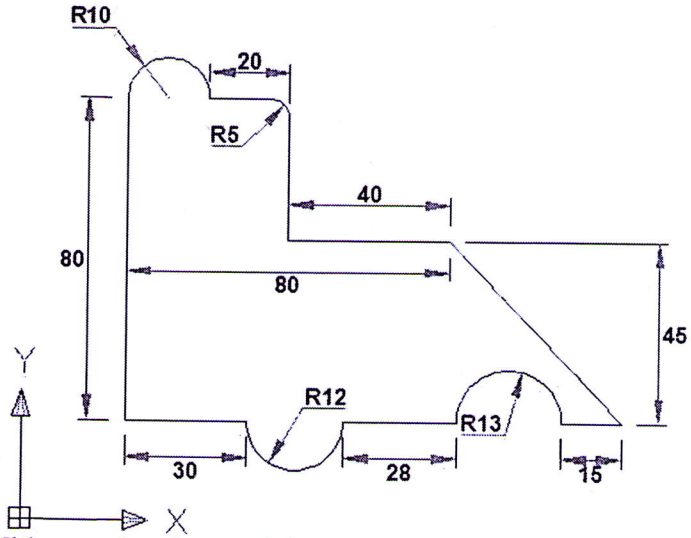
Course Name: ADVANCED MANUFACTURING TECHNOLOGY

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any three full questions, each carries 10 marks.

			Marks
1		Develop a manual part program for the given figure. Explain each step. Assume feed rate and depth of cut. Take home position before starting the work.	(10)



2	a)	With neat sketches explain any two principal methods used to produce metallic powders.	(5)
	b)	With the aid of a labelled diagram, describe cold-isostatic pressing used in metal powder pressing.	(5)
3	a)	Describe any five language commands used in PLC programs with suitable diagrams.	(5)
	b)	Construct a ladder logic diagram and truth table for a stair case lamp that can be operated from both floors using two-way switches.	(5)
4	a)	Write any 5 preparatory function codes in manual part programming and its explanation.	(5)
	b)	Describe the format used for writing the motion statements both for both point to point and contouring motion in APT language.	(5)

PART B

Answer any three full questions, each carries 10 marks.

5	a)	With neat sketch explain the Electric Discharge Machining.	(6)
	b)	List the advantages and applications of Wire EDM.	(4)

6	a)	Explain the mechanism of metal removal in Ultrasonic machining with suitable sketch.	(6)
	b)	Explain the effects of process parameters of ECM on material removal rate.	(4)
7	a	With a neat sketch explain the working principle of Plasma Arc Machining.	(6)
	b	List the applications of Iron Beam Machining (IBM).	(4)
8	a)	With neat sketches compare the Abrasive Water Jet Machining (AWJM) and Abrasive Jet Machining (AJM).	(10)

PART C

Answer any four full questions, each carries 10 marks.

9	With the help of a graph show the effects of high speeds on the stress strain relationship of aluminum and copper.	(10)
10	Define stress waves in deformed solids. Explain different types of elastic body waves.	(10)
11	With a neat sketch explain any one high velocity forming method for sheet metals. List the process variables and properties of explosively formed parts.	(10)
12	With a neat sketch explain the working of Magnetic Float Polishing.	(10)
13	Explain any two material addition processes with the help of neat figures.	(10)
14	With neat sketches explain the following (i) Laser Engineered Net-Shaping (ii) LIGA process.	(10)

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