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(Revision- 2021)

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE – APRIL - 2024

MODERN PRODUCTION PROCESSES

[Maximum Marks : 75] [Time : 3 hours]

PART–A

I. Answer **all** the following questions in one word or sentence. Each question carries 1 mark.

(9x1=9 marks)

		Module Outcome	Cognitive level
1	Name the device which holds and located a workpiece and guides and controls one or more cutting tools.	M1.01	R
2	In powder metallurgy, the process of pressing metal powder in a die through the application of high pressure is called……	M1.02	R
3	ECM process is based on the principle of……law.	M2.01	R
4	Name the non-conventional machining process in which the metal removal is carried out by melting and vaporisation.	M2.02	U
5	Name one tool material used in electro-discharge machining.	M2.02	R
6	How many axes does a CNC milling machine have?	M3.01	R
7	In Rapid prototyping, the process of converting STL file into layers is called……..	M3.03	R
8	Several machine tools can be controlled by a central computer in …….system.	M4.01	R
9	Write two applications of industrial Robot.	M4.03	R

PART B

II. Answer **any Eight** questions from the following. Each question carries 3 marks.

(8x3=24 marks)

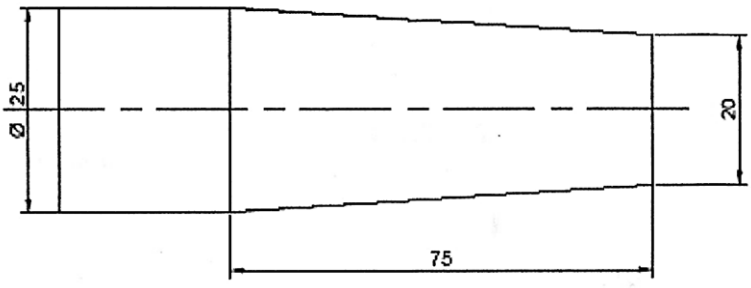
		Module Outcome	Cognitive level
1	Write any three important considerations while designing jigs and fixtures.	M1.01	R
2	List the basic steps in Powder Metallurgy Process.	M1.02	R
3	Write short notes on organic coatings.	M1.03	R
4	Draw schematic arrangement of AWJM and label its components.	M2.02	R
5	Write suitable non-conventional machining processes for machine the following situations. a) Removal of metal where the holding of a workpiece is difficult. b) Machining hard and brittle materials such as glass and ceramics c) Drilling of micro holes.	M2.03	A
6	Enumerate the advantages of CNC machines.	M3.01	R
7	List three types of tool magazines used in CNC machines.	M3.02	R

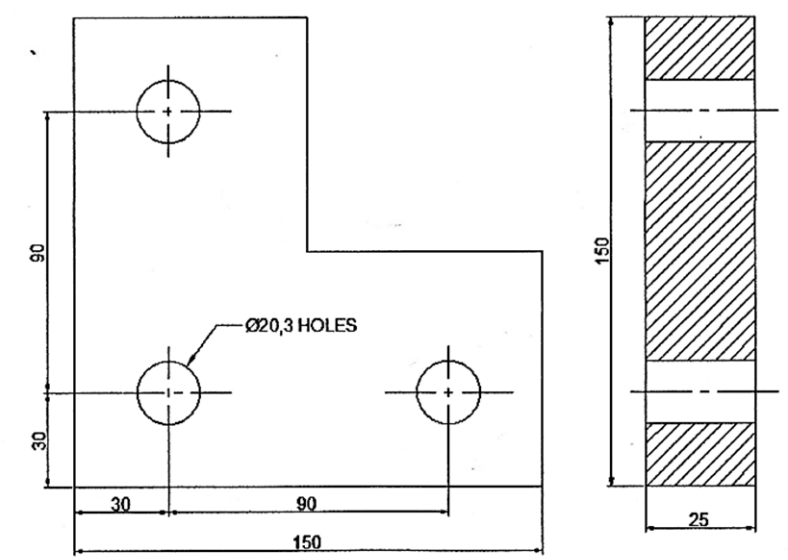
8	What do you mean by machining centre?	M3.02	R
9	What are the steps in the process of rapid prototyping?	M3.03	R
10	List the objectives of automation.	M4.01	R

PART C

Answer **all** questions from the following. Each question carries 7 marks.

(6x7=42marks)

		Module Outcome	Cognitive level
III	Compare jigs and fixtures.	M1.01	U
	OR		
IV	Explain the procedure of Chemical Vapour Deposition process with a neat sketch.	M1.03	U
V	Summarize the reasons for adopting non-conventional machining processes.	M2.02	U
	OR		
VI	In a real-world manufacturing scenario where the Ultrasonic Machining process is applicable, describe how this machining method operates. Outline the fundamental steps and key components involved in USM.	M2.02	A
VII	Explain the working of EDM process with neat sketch.	M2.02	U
	OR		
VIII	Discuss the advantages and limitations of non-conventional machining process over conventional machining processes.	M2.03	U
IX	Prepare CNC part program using G and M code to taper a machine component as shown in figure from a 25 mm diameter mild steel rod. Set the spindle speed for 1200 RPM and a feed rate of 0.1 mm/rev. Write the important functions used in the program. 	M3.02	A
	OR		
X	Prepare a CNC part programming for drilling 3 holes on a 150 X 150 X 50 mm MS plate. The feed rate is 50 mm/ min. and spindle rotate at 1500 rpm. Write the important functions used in the program.	M3.02	A

			
XI	Summarize the needs of automation in industries.	M4.01	U
	OR		
XII	Illustrate any four types of robotic configurations.	M4.03	U
XIII	Explain the concept, components and applications of group technology.	M4.02	U
	OR		
XIV	List various layouts of Flexible Manufacturing System and explain any three with line diagrams.	M4.02	U

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