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(Revision-2021)

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER – 2022

MACHINE TOOLS

[Maximum marks: 75]   (Time: 3 Hours)

PART A

I. Answer all questions in one word or one sentence. Each question carries one mark.

(9 x 1 = 9 Marks)

		Module outcome	Cognitive level
1	Name the type of chip formed while machining with ductile materials.	M1.01	R
2	The ability of a cutting tool to maintain a sharp cutting edge is called………	M1.02	U
3	Name the lathe operation used to produce a flat surface at the end of the workpiece.	M1.05	R
4	In a shaper machine, the cutting action takes place in………stroke.	M2.01	U
5	The drilling machine operation used to enlarge the end of a hole cylindrically is called…………….	M2.04	U
6	Name the machine tool that removes metal as the work is fed against a rotating multipoint cutter.	M3.01	R
7	Name the Grinding machine used to finish plane or flat surfaces.	M3.04	R
8	The brain of the NC machine is…………..	M4.02	U
9	Lubricants or coolants applied to the tool-workpiece interface to assist in the cutting operation is called…………….	M4.04	U

PART B

II. Answer any eight questions from the following. Each question carries three marks.

(8 x 3 = 24 Marks)

		Module outcome	Cognitive level
1	Compare the Orthogonal and Oblique cutting process.	M1.01	U
2	List the various types of Lathes	M1.04	R
3	Give the specifications of a shaper	M2.01	U
4	Name the different types of work-holding devices in drilling.	M2.04	R

5	List the operations performed in a slotter machine.	M2.05	R
6	Explain direct indexing.	M3.03	U
7	List the factors affecting the selection of grinding wheels.	M3.04	U
8	List the basic components of NC machine.	M4.02	R
9	List the advantages of CNC machines over NC machines.	M4.03	U
10	Describe the functions of cutting fluids.	M4.04	U

PART C
Answer all questions. Each question carries seven marks.

(6 x 7 = 42 Marks)

		Module outcome	Cognitive level
III	Draw and label the tool nomenclature of the single-point cutting tool.	M1.02	U
	OR		
IV	With neat sketches explain the different types of chip formation during machining	M1.01	A
V	Taylor Tool life equation is given as $VT^n = C$. A Titanium carbide tool with $n = 0.5$, $C = 400$, Calculate the percentage increase in tool life when the cutting speed is reduced by 50%.	M1.03	A
	OR		
VI	Draw a neat sketch of a Centre lathe and mark different parts.	M1.04	U
VII	Compare shaper and planning machines	M2.02	U
	OR		
VIII	Draw a neat sketch of the Radial drilling machine and label the parts.	M2.03	U
IX	Draw a neat sketch of a horizontal milling machine and mark all parts.	M3.01	U
	OR		
X	List the work and tool-holding devices used in the milling machine.	M3.03	U
XI	With a neat sketch explain centreless grinding.	M3.04	U
	OR		
XII	List the applications of Honing and Lapping	M3.05	A
XIII	Compare NC and CNC machines.	M4.03	U
	OR		
XIV	What are the desirable characteristics of cutting fluids?	M4.05	U

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