GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2024

Subject Code:2161909   **Date:20-05-2024**

Subject Name:Production Technology

Time:10:30 AM TO 01:00 PM   **Total Marks:70**

Instructions:
1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

			MARKS
Q.1	**(a)**	Draw and named the geometry of single point cutting tool.	**03**
	(b)	Differentiate between : (A) Blanking and Punching. (B) Gear shaping and gear hobbing	**04**
	(c)	The power required to turn medium carbon steel is approximately 3.75 watts mm^3/sec. If the maximum power available at the machine spindle is 3.8 kW. find : (i) Maximum metal removal rate (ii) The depth of cut and cutting force for the maximum metal removal rate if cutting speed is 0.6 m/sce and feed rate is 0.3 mm/rev.	**07**
Q.2	**(a)**	List the common components of a press setup.	**03**
	(b)	Explain the 3-2-1 location principle?	**04**
	(c)	With schematic diagram discuss effect of following Process parameters on Material removal rate for Ultrasonic Machining. (i) Grain size (ii) Amplitude (iii) Frequency (iv) Abrasive concentration (v) Feed force (vi) Hardness ratio	**07**

OR

	(c)	Find the time required to drill a hole in a 6 mm thick tungsten carbide sheet with the following operating parameters for an ultrasonic machining set up Radius of the boron carbide grit 15 micron Static stress on the tool 140 kPa Amplitude of tool oscillation 0.03 mm Frequency of operation 25 k Hz Surface fracture strength of tungsten carbide 7060 MPa Assume that only one pulse out of 12 is effective.	**07**
Q.3	**(a)**	Define cutting tool life with its equation.	**03**
	(b)	Write about characteristics of cutting fluid.	**04**
	(c)	What are the sources of heat generation in machining and discuss its effects.	**07**

OR

Q.3	**(a)**	Define machinability of metals and machining.	**03**
	(b)	What are the functions of cutting fluid?	**04**

	(c)	Discuss any two techniques of temperature measurement during in machining operation.	**07**
Q.4	**(a)**	Give classification of presses.	**03**
	(b)	With appropriate example explain how to find center of Pressure.	**04**
	(c)	Explain with a neat sketch how a slight modification in design can improve MUF.	**07**

OR

Q.4	**(a)**	Give classification of dies.	**03**
	(b)	With appropriate example explain how to find strip layout of irregular shape.	**04**
	(c)	What is the function of drill bushes? Draw any five bush and give their function.	**07**
Q.5	**(a)**	List out types of locators and explain any one.	**03**
	(b)	What are the different between gear forming and gear generating methods?	**04**
	(c)	Discuss EDM process and its process parameters.	**07**

OR

Q.5	**(a)**	List out types of clamps and explain any one.	**03**
	(b)	Explain any two methods of threads manufacturing.	**04**
	(c)	Discuss LBM process and its process parameters.	**07**

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