

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2017

Subject Code: 2161909

Date: 13/11/2017

Subject Name: Production Technology

Time: 02:30 PM TO 05:00PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1**
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|---|-----------|
| (a) Define tool life and list the factors affecting tool life. | 03 |
| (b) Explain any one fixture with neat sketch. | 04 |
| (c) What are the methods by which cutting fluids are applied in a machining operation? Explain EP method. | 07 |

- Q.2**
- | | |
|---|-----------|
| (a) Draw the neat sketch of single point cutting tool geometry. | 03 |
| (b) Write down advantages of USM. | 04 |
| (c) The following observations were made during orthogonal turning of a mild steel tubing of 50 mm diameter on a lathe. | 07 |
- (1) Cutting speed = 30 m/min
(2) Tool rake angle = 15°
(3) Feed rate = 0.15 mm/rev
(4) Tangential cutting force = 2500N
(5) Feed force = 1000N
(6) Length of continuous chip in one revolution = 100 mm
Determine:
(i) Co-efficient of friction
(ii) Shear plane angle
(iii) Velocity of chip tool face
(iv) Chip thickness

OR

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|---|-----------|
| (c) Prove that: $\tan \phi = r \cos \alpha / (1 - r \cos \alpha)$ | 07 |
|---|-----------|

- Q.3**
- | | |
|---|-----------|
| (a) Draw and discuss Hinged clamping device. | 03 |
| (b) Draw neat schematic diagram of a sectioned view of a blanking die and punch assembly and label on it. | 04 |
| (c) What are the different methods of gear manufacturing? List the methods and explain any one. | 07 |

OR

- Q.3**
- | | |
|---|-----------|
| (a) List the various types of locating devices used for both Jigs and Fixture. | 03 |
| (b) Draw Merchant's force diagram. | 04 |
| (c) List various principles of location and explain the 3-2-1 Principle of Location with neat sketches. | 07 |

- Q.4**
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| (a) Draw LBM sketch with labels. | 03 |
| (b) Discuss Chasing with neat sketch. | 04 |
| (c) Explain with neat sketches compound die and progressive die. | 07 |

OR

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|---|-----------|
| Q.4 (a) What are the different methods of gear forming ? List the methods. | 03 |
|---|-----------|

	(b)	Write short note on material utilization factor for a sheet metal on a press tool using press tool die.	04
	(c)	Explain with neat sketch manufacturing of gear by Gear shaping using pinion type cutters. What are the advantages of this method?	07
Q.5	(a)	Write important functions of dielectric fluid.	03
	(b)	What do you mean by chip with built up edge? What factors are responsible for this type of chip formation?	04
	(c)	Explain with suitable diagram working of electro discharge machine. State its advantage, disadvantage and application.	07
		OR	
Q.5	(a)	Draw the neat sketch of ECG method.	03
	(b)	Explain the function of (i) Die Block (ii) Punch.	04
	(c)	Describe water jet machining process with the help of neat sketch. State its advantages and application.	07
