Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2132501 **Date: 31/05/2017**

Subject Name: Machining Processes

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.**

			MARKS
Q.1		**Short Questions**	**14**
	1	Which of the following is a mechanism for mechanized movements of the carriage along longitudinal axis? a. Cross-slide b. Compound rest c. Apron d. Saddle	
	2	Which process squeezes metals into peaks and troughs with plastic deformation? a. Grooving b. Knurling c. Reaming d. None of the above	
	3	What is the function of cone pulley drive in lathe machines? a. Drive the lead screw b. Change the spindle speed c. Drive the tail-stock d. All of the above	
	4	Lathe center is used for…….. a. cutting b. Supporting c. all of these d. holding	
	5	In Drilling machine……. a. Drill is stationary & Work piece is rotating b. Drill is rotating & Work piece is Stationary c. Drill is rotating & Work piece is rotating d. Drill is moving & work piece is moving	
	6	In drilling machine, during operation the drill is given a. Only rotary Motion b. only Linear Motion c. Both linear and rotary motion d. None of above	

7 In …… milling process, the feed direction and direction of rotation of cutter are in …….. Direction.

a. up, opposite
b. up, same
c. down, opposite
d. down, reverse

8 The rear teeth of a broach

a. perform burnishing operation
b. remove minimum metal
c. remove maximum metal
d. remove no metal

9 The end of the drilled hole is

a. Flat
b. Conical
c. Circular
d. Chamfering

10 The Counter sinking operation can be performed on

a. Grinding Machine
b. Lathe Machine
c. Drilling machine
d. both (b) and (c)

11 In centerless Grinding machine

a. there is two grinding wheel
b. there is one grinding wheel & one regulating wheel
c. only one grinding wheel
d. there is one grinding wheel and two regulating wheel

12 In shaper machine, work piece …….. and tool ……

a. reciprocates, rotates
b. remains stationary, rotates
c. remain stationary, reciprocates
d. rotates, reciprocates

13 In a shaper, the length of stroke is increased by

a. increasing the centre distance of bull gear and crank pin
b. decreasing the centre distance of bull gear and crank pin
c. increasing the length of the arm
d. decreasing the length of the slot in the slotted lever

14 A process of removing metal by pushing or pulling a cutting tool is called

a. up milling
b. down milling
c. forming
d. broaching

Q.2 **(a)** Give the Definition of Machine tool, explain the function of machine tool and its requirement. **03**

(b) Explain construction of redial drilling machine with neat sketch **04**

(c) Classification of lathe machine **07**

OR

(c) Describe the all feed mechanism in lathe machine **07**

Q.3	**(a)**	Classify the milling machine	**03**
	(b)	Write short note on a) Portable drilling machine b) Gang Drilling machine	**04**
	(c)	Explain briefly drive mechanisms and feed mechanisms for slotter machines.	**07**

OR

Q.3	**(a)**	Draw schematic diagram of Horizontal column and knee type milling machine with all components name	**03**
	(b)	Write short note on a) Boring operation b) Tapping operation with figure	**04**
	(c)	Explain working of hydraulic shaper with neat sketch.	**07**
Q.4	**(a)**	Enumerate types of broaching machine and explain any one from it.	**03**
	(b)	Explain with neat sketch operation process of centerless grinding, Advantage and disadvantage.	**04**
	(c)	Explain with neat sketch different operation performed on the lathe machine.	**07**

OR

Q.4	**(a)**	Describe operation principal of broaching with figure and its application.	**03**
	(b)	Enumerate cylindrical grinders and explain it in brief.	**04**
	(c)	Explain different taper turning methods with neat sketch	**07**
Q.5	**(a)**	Calculate the cutting parameters for the slab milling operation for the following data; Diameter of milling = 120mm, Cutter speed = 480 rev/min, width of cutter =120mm, depth of cut = 4mm, table feed = 80 mm/min, length of work piece = 50 cm, width of work piece = 90 mm, number of teeth in the cutter = 8.	**03**
	(b)	Discuss the alignment test of the lathe machine	**04**
	(c)	Describe various types of chucks used on the lathe machine	**07**

OR

Q.5	**(a)**	A plain surface, width = 100mm and length = 320 mm is to be face milled on a vertical milling machine. The allowance is 4 mm. the cutter has 16 teeth and feed per tooth is 0.25 mm, Diameter of cutter = 160 mm. The spindle speed is 125 rev/ min. Calculate the machining time.	**03**
	(b)	A 155 mm long 12.8 mm diameter stainless steel rod is being turned to 12.20 mm diameter on a center lathe. Spindle speed = 500 RPM. Axial speed = 207.30 mm/ min. Determine 1) Cutting speed 2) material removal rate 3) machining time	**04**
	(c)	Explain various work holding device for the lathe machine.	**07**

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