

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2021**

**Subject Code:2131903****Date:08/09/2021****Subject Name:Manufacturing Process-1****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.

- Q.1** (a) What is the effect of nose radius on surface roughness and vibration while performing the turning operation? **03**
- (b) Explain the function of positive and negative rake angle of single point cutting tool. **04**
- (c) Explain the working and auxiliary motion in machine tools with schematic diagram. **07**
- Q.2** (a) What is a mandrel? Enlist different types of mandrels. **03**
- (b) What does mean by taper turning? Write down the formula of taper angle. Enlist the various taper turning methods. **04**
- (c) Why does alignment test carry out on lathe machine tool? Explain any two alignment test with schematic diagram. **07**
- OR**
- (c) Differentiate between engine lathe, turret lathe and capstan lathe. **07**
- Q.3** (a) Write function of drilling machine. Enlist various drilling operation. **03**
- (b) Discuss the effect of unequal lips of drill on hole quality. **04**
- (c) Analyze and discuss the effect of cutting parameter on material removal rate and tool wear in case of lathe machine. **07**
- OR**
- Q.3** (a) Sketch out the jig-boring machine with notation. **03**
- (b) Differentiate between the gang drilling machine and multi spindle drilling machine. **04**
- (c) Analyze and discuss the effect of speed and feed on hole quality and tool wear of drill. **07**
- Q.4** (a) Differentiate between the boring and reaming process. **03**
- (b) Write working principle of the shaper and planner with suitable schematic diagram. **04**

- (c) Explain the basic method of milling (up and down milling) with schematic diagram. **07**

**OR**

- Q.4** (a) Define term “Milling”. Enlist the various milling attachment method. **03**  
(b) Enlist milling machine operations and explain any two. **04**  
(c) Explain the hydraulic mechanism in shaper with suitable diagram. **07**

- Q.5** (a) Write down the limitation of broaching machine **03**  
(b) What is dressing of grinding wheel? Which operation is required to change shape of grinding wheel? **04**  
(c) Explain the standard marking system for grinding wheels. **07**

**OR**

- Q.5** (a) Write down the limitation of sawing machine **03**  
(b) Explain the Glazing and Dressing. **04**  
(c) Explain centreless grinding process with neat sketch & standard work feeding methods for centreless grinding with neat sketch. **07**

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