

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2021****Subject Code:2152507****Date:15/09/2021****Subject Name:Tool Engineering****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.

		<b>MARKS</b>
<b>Q.1</b>	(a) State the procedure of tool design.	<b>03</b>
	(b) Enlist the factor affecting on tool life and explain any one.	<b>04</b>
	(c) Differentiate between orthogonal and oblique cutting with neat sketch.	<b>07</b>
<b>Q.2</b>	(a) State the applications of cutting fluids.	<b>03</b>
	(b) Enlist the types of cutting fluids and explain any two.	<b>04</b>
	(c) Enlist the factors causes tool wear and explain the types of tool wear.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(c) Draw the merchant circle diagram and state its assumptions.	<b>07</b>
	(a) Designate the tool signature: 0-7-7-7-15-15-0.5	<b>03</b>
	(b) Differentiate between “ASA” and “ORS” system to designate the tool shape.	<b>04</b>
	(c) Explain the design feature of reamer.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Enlist the properties of cutting tool materials.	<b>03</b>
	(b) Enlist the types of cutting tool materials and discuss the application and limitation of HSS.	<b>04</b>
	(c) Explain the design feature of plain milling cutter.	<b>07</b>
<b>Q.4</b>	(a) Define the following term: (i) Stripper (ii) Pitman (iii) Shut height.	<b>03</b>
	(b) Differentiate between blanking die and piercing die.	<b>04</b>
	(c) Discuss the terminology of press tool with neat sketch.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Discuss the effects of clearance on die and punch.	<b>03</b>
	(b) Differentiate between compound die and progressive die.	<b>04</b>
	(c) Discuss the strip layout with suitable example.	<b>07</b>
<b>Q.5</b>	(a) Differentiate between jig and fixture.	<b>03</b>
	(b) Enlist the types of jig and fixtures.	<b>04</b>
	(c) Discuss the 3-2-1 location principle with neat sketch.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) State the advantages of jig and fixture.	<b>03</b>
	(b) List out the various types of clamping devices and explain any one.	<b>04</b>
	(c) Discuss the design steps for jig and fixture.	<b>07</b>

\*\*\*\*\*