P P SAVANI UNIVERSITY

Fifth Semester of B. Tech. Examination
December 2022
SEME3051 Production Technology

06.12.2022, Tuesday **Time: 10:00 a.m. To 12:30 p.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

Q - 1	MCQ/Short Question/Fill in the Blanks (Any Five)	**[05]**	**CO**	**BTL**
(i)	What is the purpose of chip breaker?		**1**	**2**
(ii)	Write down the expression for chip thickness ratio.		**1**	**2**
(iii)	Name various types of tool material.		**1**	**2**
(iv)	What is machinability?		**2**	**1**
(v)	Write down the expression for Taylor's tool life equation.		**1**	**2**
(vi)	Name different types of tool wear.		**1**	**2**
(vii)	Explain tool life in short.		**1**	**2**
Q - 2 (a)	What are the characteristics of cutting fluid? Name various cutting fluid.	**[05]**	**2**	**1**
Q - 2 (b)	Draw tool geometry. Express the relation between shear angle and chip thickness ratio.	**[05]**	**1**	**2**
	OR			
Q - 2 (a)	What are the sources of heat generation in machining? State the effect of heat generation.	**[05]**	**2**	**1**
Q - 2 (b)	State the importance of economics of metal cutting operations.	**[05]**	**2**	**1**
Q - 3 (a)	Draw Merchant circle diagram. Express the relation between various forces observed under Merchant's circle diagram.	**[05]**	**1**	**2**
Q - 3 (b)	Draw Velocity diagram of metal cutting operation. Derive the expression of velocity observed under velocity diagram.	**[05]**	**1**	**2**
	OR			
Q - 3 (a)	Explain the principle of theory of metal cutting operation.	**[05]**	**1**	**2**
Q - 3 (b)	Explain the various types of chip formed under mechanics of metal cutting operation.	**[05]**	**1**	**2**
Q - 4	Attempt any one/two.	**[05]**		
(i)	Explain different types of thread manufacturing process.		**3**	**2**
(ii)	Explain the principle of gear manufacturing process through any method.		**3**	**2**

SECTION – II

Q - 1	MCQ/Short Question/Fill in the Blanks (Any Five)	**[05]**		
(i)	Define drawing.			
(ii)	Write any two types of jigs.		**3**	**2**
(iii)	Write any two types of fixtures.		**3**	**2**
(iv)	What is the full form of AJM?		**5**	**2**
(v)	What is the full form of LBM?		**5**	**2**
(vi)	Write any two applications of Electro - Chemical Machining.		**5**	**2**

(vii)	What is the need of modern manufacturing process. Explain in two steps.		**5**	**2**
Q - 2 (a)	Explain the shearing principle in press tool operation.	**[05]**		
Q - 2 (b)	Explain the process of drawing operation. What are the advantages and disadvantages of drawing operation?	**[05]**		
	OR			
Q - 2 (a)	What is the need of progressive die design?	**[05]**		
Q - 2 (b)	What are the methods of scrap reduction?	**[05]**		
Q - 3 (a)	Differentiate between jigs and fixtures.	**[05]**	**4**	**2**
Q - 3 (b)	What are the different types of fixtures?	**[05]**	**4**	**2**
	OR			
Q - 3 (a)	What are the advantages and disadvantages of ultra-sonic machining?	**[05]**	**5**	**2**
Q - 3 (b)	State some applications of ultra-sonic machining?	**[05]**	**5**	**2**
Q - 4	Attempt any one	**[05]**		
(i)	Differentiate between abrasive jet machining and water jet machining.		**5**	**2**
(ii)	What is the need of dielectric fluid in electro-discharge machining? Name various types of dielectric fluid used in electro-discharge machining.		**5**	**2**

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CO : Course Outcome Number BTL : Blooms Taxonomy Level

Level of Bloom's Revised Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create

1.