

Enrollment No.....



Faculty of Engineering
End Sem Examination May-2023

AU3CO25 / ME3CO25 Manufacturing Processes -II
Programme: B.Tech. Branch/Specialisation: AU/ME

Duration: 3 Hrs.**Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. The surface of the single point cutting tool on which the chips formed in cutting operation slide is called as- **1**
(a) Flank (b) Heel (c) Face (d) Shank
- ii. Zero back rake angle is used in the machining of- **1**
(a) Cast iron (b) Brass (c) Lead (d) High speed steel
- iii. When the tool of Centre lathe moves perpendicular to the axis of rotation- **1**
(a) It produces a cylindrical surface
(b) It produces a flat surface
(c) It produces a tapered surface
(d) None of these
- iv. Which type of cutting tools have widely application on lathes **1**
(a) Single point (b) Multi point
(c) Both (a) & (b) (d) None of these
- v. In _____ operation, the chip thickness is minimum at the beginning of cut and the reaches maximum when the cuts terminates. **1**
(a) Conventional milling (b) Climb milling
(c) Face milling (d) None of these
- vi. For harder materials, helix angle of the is- **1**
(a) Less than 45 degree (b) Equal to 45 degree
(c) Between 45 and 60 degree (d) Between 60 to 90 degree
- vii. Removing dull grains in order to make grinding wheel sharp is known as- **1**
(a) Loading (b) Dressing (c) Glazing (d) Trueing

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- viii. In centre less grinding, work piece is supported by- **1**
 (a) Centres (b) Chucks (c) Work rest (d) All of these
- ix. CNC machining centres do not include operations like _____. **1**
 (a) Milling (b) Boring (c) Welding (d) Tapping
- x. Presently, Numerical control of machine tools use which type of hardware technology- **1**
 (a) Electromechanical relays
 (b) Vacuum tubes
 (c) Microprocessors and microcomputers
 (d) None of these
- Q.2 i. What are the essential condition for the effective metal cutting? **3**
 ii. During orthogonal cutting process, the following data have been observed: **7**
 Rake angle : 12°
 Cutting force : 1800 N
 Feed force : 900N
 Chip thickness: 0.26 mm
 Determine shear and compression forces, coefficient of friction of the chip on the tool face.
- OR iii. Draw and explain single point cutting tool geometry. **7**
- Q.3 i. How a lathe machine can be specified? **2**
 ii. Explain any eight operations of lathe machine with diagram. **8**
- OR iii. What are different methods of thread cutting? Describe any one of them. **8**
- Q.4 i. Mention the various types of milling machine. **3**
 ii. Write in brief about radial drilling machine. **7**
- OR iii. Define pull & push type broaching methods. **7**
- Q.5 i. Define dry & wet grinding. **4**
 ii. Explain with a neat sketch 'Centre less internal grinding'. **6**
- OR iii. Define the following terms: **6**
 (a) Glazing & loading (b) Dressing & truing of the wheel

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- Q.6 Attempt any two:
- i. What is "Electrical Discharge Machining (EDM)"? Explain its principle with the help of a suitable diagram. **5**
- ii. Explain clearly, with a neat diagram, Abrasive Jet Machining (AJM) method. State also its advantages and disadvantages. **5**
- iii. Give the comparison between NC and CNC machines. **5**

Marking Scheme

AU3CO25-ME3CO25 (T) Manufacturing Processes -II

Q.1	i)	Face	1
	ii)	brass	1
	iii)	It produces a flat surface	1
	iv)	single point	1
	v)	Conventional milling	1
	vi)	less than 45 degrees	1
	vii)	dressing	1
	viii)	work rest	1
	ix)	welding	1
	x)	Microprocessors and microcomputers	1
Q.2	i.	One mark for each condition	
	ii.	Compressive force =1336.5N (2.5 marks), shear force = 1504.5N(2.5 Marks), co-efficient of friction = 0.797 (2 marks)	
OR	iii.	2.5 marks for side and front view of tool geometry and 2 marks for side view of side view	
Q.3	i.	0.5 marks for each specification	
	ii.	1 mark each operation	
OR	iii.	0.5 marks for each method and 6 marks for explanation of any method	
Q.4	i.	0.5 marks for each milling machine	
	ii.	2.5 marks for diagram and 4.5 for explanation	
OR	iii.	3.5 marks for pull type and 3.5 marks for push type	
Q.5	i.	2 marks for each definition	
	ii.	2 marks for diagram and 4 marks for explanation	
OR	iii.	1.5 marks for each definition	
Q.6	i.	2.5 marks for diagram 2.5marks for principle	

- ii. 3 marks for explanation 2 marks for advantages and disadvantages
- iii. 1 mark for each comparison
