CBCS SCHEME

USN | | | | | | | | | | |

18ME35A/MEA305

Third Semester B.E. Degree Examination, July/August 2021
Metal Cutting and Forming

Time: 3 hrs. Max. Marks: 100

Note: ***Answer any FIVE full questions.***

1	a.	Sketch and explain Tool signature of Single point cutting tool.	**(07 Marks)**
	b.	Determine the Shear Plane angle of Single Point cutting tool.	**(10 Marks)**
	c.	What are the types of chips?	**(03 Marks)**
2	a.	Sketch and explain the parts of an Engine Lathe.	**(10 Marks)**
	b.	What are the Lathe Operations?	**(05 Marks)**
	c.	Differentiate between Engine Lathe and Capstan and Turret Lathe.	**(05 Marks)**
3	a.	Sketch and brief about the various Milling Operations.	**(10 Marks)**
	b.	What are the methods of Indexing?	**(05 Marks)**
	c.	Note the differences between drilling , boring and reaming operations.	**(05 Marks)**
4	a.	What are the differences between Shaper, Planar and Slotter?	**(08 Marks)**
	b.	Sketch and explain Surface Grinding machine.	**(12 Marks)**
5	a.	What are the effect of Process Parameters on tool life? Explain.	**(10 Marks)**
	b.	What are the functions of cutting fluids?	**(05 Marks)**
	c.	What are the effect of Machining Parameters on Surface finish.	**(05 Marks)**
6	a.	What is Machinability and Machinability Index? Explain.	**(08 Marks)**
	b.	The following equation for tool life is given for a turning operation $(VT^{(0.13)}.f^{(0.77)}.d^{(0.37)} = C)$. A 60min tool life was obtained while cutting at V = 30m/min , f = 0.3mm/rev and depth of mt d = 25mm. Calculate the change in tool life, if the cutting speed , feed , depth of cut are increased by 25%, Individaully and also taken together. What will be their effect on tool life?	**(12 Marks)**
7	a.	Sketch and explain different forging equipments.	**(12 Marks)**
	b.	Write a note on different forging defects.	**(08 Marks)**
8	a.	Sketch and explain the types of Rolling Mills.	**(12 Marks)**
	b.	What are the variables in drawing process?	**(08 Marks)**
9	a.	Sketch and explain Sheet Metal Cutting Operation.	**(12 Marks)**
	b.	Brief out the different variables in drawing process.	**(08 Marks)**
10	a.	Explain : i) Drawing Ratio ii) Thickness Ratio iii) Drawing Force iv) Blank holding force v) Ironing.	**(10 Marks)**
	b.	Explain with neat sketches, Progressive and Combination dies.	**(10 Marks)**

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.