**18ME35A**

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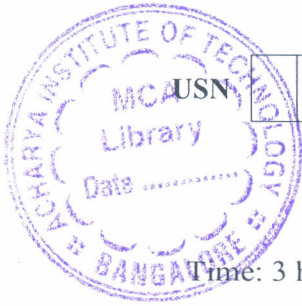
## Third Semester B.E. Degree Examination, June/July 2024
## Metal Cutting and Forming

Time: 3 hrs.　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 100

**Note:** *Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

1　a. With a neat sketch, explain the types of Chips formed during metal cutting. **(10 Marks)**
　　b. What do you mean by tool signature? Explain with respect to single point cutting tool.
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**(10 Marks)**

### OR

2　a. Classify Lathes. Briefly explain various parts of lathe, with neat sketch. **(10 Marks)**
　　b. List the operations performed on lathe and explain any four operations with a neat sketch.
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**(10 Marks)**

### Module-2

3　a. With sketch, write comparison between Up milling and Down milling. **(10 Marks)**
　　b. Sketch and explain Radial drilling machine highlighting its advantages and disadvantages.
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**(10 Marks)**

### OR

4　a. With a neat sketch, explain Quick return mechanism of a shaper. **(10 Marks)**
　　b. With sketch, explain the External centreless grinding highlighting the feed mechanism.
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**(10 Marks)**

### Module-3

5　a. Explain the types of tool wear with necessary sketches. **(10 Marks)**
　　b. A mild steel bar of diameter 50mm is to be turned at over length of 160mm with a depth of cut of 1.5mm , feed of 0.2mm/rev at 230 rpm by HSS tools. If the tool life equation is given $VT^{0.2} f^{0.3} d^{0.12} = 50$. Determine how many components may be turned before regrinding the tool. **(10 Marks)**

### OR

6　a. Explain the properties and functions of cutting fluids. **(06 Marks)**
　　b. Explain the effect of machining parameters on surface finish. **(08 Marks)**
　　c. Explain Machinability and mention its importance. **(06 Marks)**

### Module-4

7　a. What is Forging? Explain the working of board hammer with sketch. **(10 Marks)**
　　b. Give the brief classification of Metal forming. **(10 Marks)**

### OR

8　a. With a neat sketch, explain the Wire drawing process. **(10 Marks)**
　　b. Explain the various types of Extrusion processes. **(10 Marks)**

## Module-5

9  a. Briefly explain the operations that can performed in the sheet metal.                (10 Marks)
   b. Explain the variables in drawing process.                                            (06 Marks)
   c. Differentiate between Trimming and Shearing.                                         (04 Marks)

## OR

10 a. Explain the following with respect to bending operations :
      i) Embossing      ii) Coining      iii) Progressive die.                             (12 Marks)
   b. With a line diagram, explain Compound and Combination dies.                          (08 Marks)

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