Total No. of printed pages = 5

END SEMESTER (REGULAR/RETEST)
EXAMINATION, MAY/JUNE – 2025

Semester : 4th

Subject Code : Me-403

MANUFACTURING TECHNOLOGY - II

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Instructions :

(i) Question Nos. 1 and 2 are compulsory.

(ii) Answer any *five* questions from the rest.

1. Fill in the blanks : 1×10=10

   (a) The _____ of a lathe provides mechanical means of rotation to the workpiece at multiple speeds.

   (b) The _____ is used only for thread cutting, a never for any other cutting.

[Turn over

(c) _____ formed in the body of the drill to permit removal of chips and to allow cutting fluid to reach the cutting lips.

(d) _____is the operation of smoothing and squaring the surface around a hole for the seat for a nut or the head of a screw.

(e) _____ is a system to produce a reciprocating effect such that time taken by system in return stroke is less time taken by it in the forward stroke.

(f) In a planer the _____ which is supported on the table reciprocates past the stationary _____.

(g) _____ is metal cutting operation performed by means of a rotating abrasive wheel that acts as a tool.

(h) _____ removes loading and breaks away the glazed surface.

(i) A Vertical milling machine can be distinguished from a Horizontal milling machine by the position of its _____.

(j) The depth of cut in milling is the thickness of the material removed in _____ of the work under the cutter.

2. State whether the following statements are True or False : 1×5=5

(a) Ultrasonic Machining (USM) is a non-conventional mechanical material removal process generally associated with high material removal rates.

(b) Laser can be used for cutting as well as for drilling.

(c) A jig may be defined as a device which locates workpieces.

(d) Carriers and catch plates are used to drive a workpiece when it is held between two centers.

(e) Honing is a finishing process used to improve the geometry of a part.

3. (a) List down the main parts of Lathe machine.

(b) What are the Speed Changing Conditions in Lathe machine ?

(c) Differentiate between Capstan lathe and Turret lathe. 2+5+4=11

4. (a) What are the operations that can be performed in drilling machine ?

(b) Draw a neat sketch of a twist drill highlighting its parts.

(c) How is machining time in drilling machine determined ? 3+5+3=11

5. (a) Classify shaper machine.

(b) Find the time required in shaper machine for taking a complete cut on a plate 600×900mm, if the cutting speed is 9m/min. The return time to cutting time ratio is 1:4 and the feed is 3mm. The clearance at each end is 75mm.

(c) What are the differences between Slotter and Planer ? 3+6+2=11

6. (a) What are the abrasives used to make a grinding wheel ?

(b) What are the factors for selecting a grinding wheel ?

(c) Describe the process of superfinishing. 3+6+2=11

7. (a) List down some commonly used milling cutters.

(b) Explain the Simple/Plain indexing method in brief.

(c) A carbide face milling cutter of 300mm diameter is used to cut across the face of a block of aluminum of 300 mm wide. The length of block is 450mm. If a feed of 0.80mm/rev is used, how long will it take to machine one cut of the block ? The overrun is 20mm. The cutting speed is 400 meter/minute. 2+3+6=11

8. Describe any *two* of the following : 5.5×2=11

(a) Ultrasonic Machine

(b) Advantages of using jigs and fixtures

(c) Gear Hobbing

(d) Abrasive jet machining.