

Total No. of Questions : 10]

P2554

SEAT No. :

[Total No. of Pages : 3

[5153]-520

T.E. (Mechanical)

MANUFACTURING PROCESS - II

(2012 Course) (Semester - II) (End Semester)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.
- 2) Figures to the right indicate full marks.
- 3) Use of electronic pocket calculator is allowed.
- 4) Assume suitable data, if necessary.

Q1) a) A hole of 25mm diameter and 70mm depth is to be drilled. The suggested feed is 3 mm/rve. and cutting speed 60m/min. Assuming tool approach and tool overtravel as 6mm, Calculate [6]

- i) Spindle speed
- ii) Feed Speed
- iii) Cutting Speed.

b) Draw a neat sketch of twist drill with its nomenclature and explain various terminologies of twist drill. [6]

OR

Q2) a) Describe the Tool and Cutter grinder with neat sketch. [6]

b) Write short notes on Burnishing Process. [6]

Q3) a) Explain chip breakers with its function? [4]

b) In orthogonal cutting of a 60mm diameter MS bar on lathe, the following data was obtained: [4]

Rake angle = 10°, Cutting Speed = 100 m/min, Cutting force = 200N, Feed Force = 70N, Chip thickness = 0.3 mm, feed = 0.2 mm/rev. Calculate:

- i) Shear angle
- ii) Coefficient of friction,
- iii) Chip flow velocity
- iv) Friction Angle

OR

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- Q4)** a) With the help of neat sketch explain the relation between shear velocity, cutting velocity and chip flow velocity. [4]  
 b) What is Machinability? Explain different factors affecting Machinability. [4]

- Q5)** a) Explain USM process with its adv., limitations and applications. [8]  
 b) Compare the ECM and EDM with various process parameters. [8]

OR

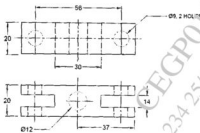
- Q6)** a) Draw a Schematic diagram of 'Laser Beam Machining' and Explain its working principle and process parameters. [8]  
 b) Explain AJM process with its adv., limitations and applications. [8]

- Q7)** a) Explain DNC machines with neat sketch. State its advantages and limitations. [6]  
 b) Explain with neat sketch NC motion control system. [5]  
 c) Explain the following codes [5]  
 G02, G91, G98, M03, M02

OR

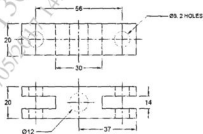
- Q8)** a) Explain machining center with neat sketch. State its advantages, disadvantages and applications. [6]  
 b) Differentiate between open and close loop system with neat sketch. [6]  
 c) Explain the following codes [4]  
 G03, M00, G91, M08

- Q9)** a) What is 3-2-1 location principle? Explain with neat sketches. [6]  
 b) Draw and explain diamond pin locator. [4]  
 c) Design and draw drilling jig for drilling the  $\phi 9\text{mm}$  TWO holes in the component shown in figure. [8]



OR

- Q10)** a) List various types of locating devices used in jig and fixtures. Explain any one in detail. [6]
- b) Write short notes on modular fixture. [4]
- c) Design and draw milling fixture for milling 74mm × 20mm face [8]



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