Total No. of Questions : 10]

SEAT No. :

**P2554**

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# [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 1.3 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 = 10º, 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

***P.T.O.***

***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]**

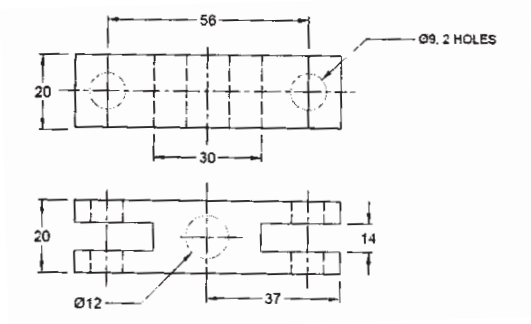
c) Explain the following codes **[4]**

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 ϕ9mm 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]**