Total No. of Questions : 10]

SEAT No. :

P2408

[Total No. of Pages : 3

[5253]-120

T.E. (Mechanical Engg.) (Semester - II)

MANUFACTURING PROCESS - II

(2012 Pattern)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q7 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) Draw a neat sketch of twist drill with its nomenclature and explain various terminologies of twist drill. **[6]**

b) A hole of 25mm diameter and 70mm depth is to be drilled. The suggested feed 1.3 mm/rev, and cutting speed 60m/min. assuming tool approach and tool overtravel as 6mm, Calculate: **[6]**

i) Spindle speed

ii) Feed Speed

iii) Cutting Speed

OR

Q2) a) Write short notes on Burnishing Process. **[6]**

b) Describe the Tool and Cutter grinder with neat sketch. **[6]**

Q3) a) 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,

P.T.O.

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

b) Explain chip breakers with its function. **[4]**

OR

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) Compare the ECM and EDM with various process parameters. **[8]**

b) Explain USM process with its adv., limitations and applications. **[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
G02, G91, G98, M03,M02 **[5]**

OR

Q8) a) Explain machining center with neat sketch. State its advantages, disadvantages and applications. **[6]**

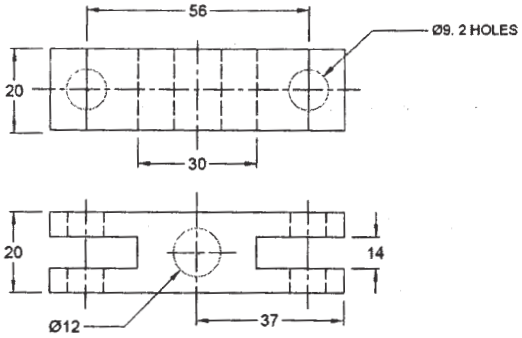
b) Differentiate between open and close loop system with neat sketch. **[6]**

c) Explain the following codes **[4]**
G03, M00, G91, M08

Q9) a) What is 3-2-1 location princip1e? Explain with neat sketches. **[6]**

b) Draw and explain diamond pin locator. **[4]**

c) Design and draw drilling jig for drilling the ϕ9 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]**