Total No. of Questions :10]

SEAT No. :

P1698

[Total No. of Pages :3

[5058] - 320

T.E. (Mechanical)

MANUFACTURING PROCESS - II

(2012 Pattern) (Semester - II) (End Sem.)

Time : 2½ Hours] *[Max. Marks :70*

Instructions to the candidates:

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

b) A hole of 25 mm diameter and 70 mm 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) Describe the Tool and Cutter grinder with neat sketch. **[6]**

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

Q3) a) In orthogonal cutting of a 60mm diameter MS bar on lathe, the following data was obtained:
Rake angle = 10°, Cutting Speed = 100m/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 **[4]**
iv) Friction Angle

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

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

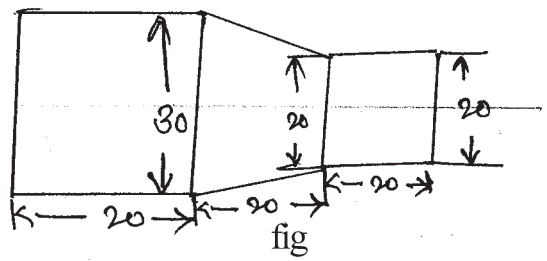
Q6) a) Draw a Schematic diagram of 'Laser Beam Machining' and Explain its working principle and process parameters. **[8]**

b) Explain AJM process with its adv., limitations and applications. **[8]**

Q7) a) Explain DNC machines with neat sketch. State its advantages and limitations. **[5]**

b) Explain with neat sketch NC motion control system. **[4]**

c) Write a part program for component shown in fig. Assume that spindle speed of 400rpm and feed is 0.3mm/rev. **[7]**



fig

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 G03, M00, G91, M08. **[4]**

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

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

c) Design and draw drilling jig for drilling the ϕ 10 mm holes in the component show in fig. (a) **[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 slot of 10 mm wide, 5 mm deep and 25 mm in length for the component shown in fig. (a) **[8]**

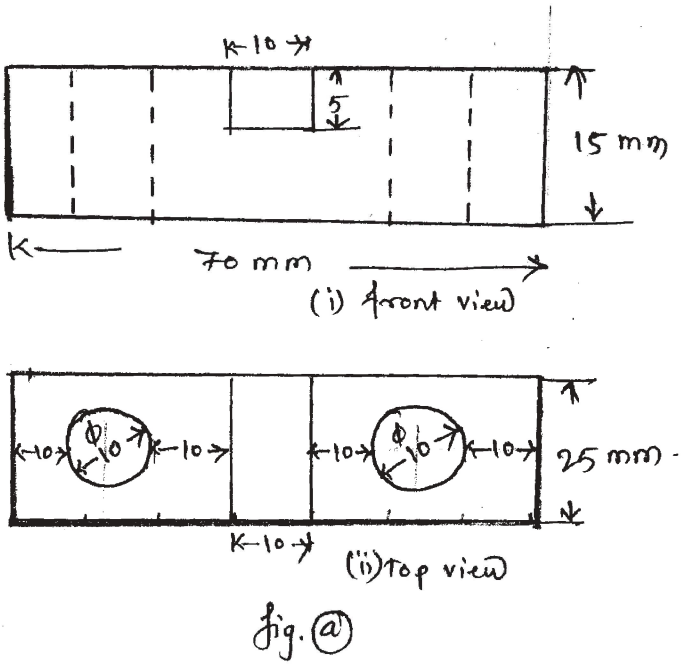


fig. (a)