17403

11819

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination hall.

Marks

1. a) **Attempt any SIX of the following:** **12**

(i) Define forgeability.

(ii) Enlist names of any four parts of an automobile that can be manufactured by forging.

(iii) State the function of pilot and stopper in a die.

(iv) Define blanking and piercing.

(v) Enlist any four demerits of soldering.

(vi) What are the maximum temperature ranges for oxidizing and neutral flames.

(vii) State the function of ATC in CNC machine.

(viii) Enlist any four demerits of VMC.

Marks

b) **Attempt any TWO of the following:** **8**

(i) State the function of following codes.

(1) G18

(2) G71

(3) M05

(4) M30

(ii) Explain axes identification of a CNC machine with neat sketch.

(iii) Explain honing with neat sketch.

2. Attempt any FOUR of the following: **16**

a) Explain closed die forging with neat sketch.

b) Differentiate between hot and cold forging.

c) List out any four characteristics of forged parts.

d) Draw a neat sketch of compound die.

e) Enlist any four merits and demerits of mechanical press.

f) Explain simple die with neat sketch.

3. Attempt any FOUR of the following: **16**

a) What are the steps in drop forging?

b) What is trimming? Why it is necessary for forged parts?

c) Explain drawing operation in press with neat sketch.

d) Explain fly press with neat sketch.

e) Explain the importance of pressure pads in a die with neat sketch.

f) Draw a neat sketch of progressive die.

Marks

4. Attempt any TWO of the following: **16**

a) Differentiate between:

(i) MIG and TIG welding

(ii) Carbonizing and Oxidizing flame

b) Explain any two types of resistance welding processes in detail.

c) Explain :

(i) Absolute co-ordinate system

(ii) Incremental co-ordinate system

5. Attempt any FOUR of the following: **16**

a) "CNC machine is having higher productivity than a general lathe machine". Justify the statement.

b) Differentiate between mechanical and hydraulic press.

c) Draw a schematic of a set up of shielded metal arc welding.

d) Explain electrolytic cleaning with neat sketch.

e) List out any four applications of lapping and buffing.

f) "Surface cleaning is necessary for machined parts." Justify the statement.

6. Attempt any TWO of the following: **16**

a) Explain following constructional details of CNC machine with neat sketches:

(i) Hydrostatic slideways

(ii) Recirculating ball screw and nut.

Marks

b) Write a part programme for taper turning as shown in Figure No. 1

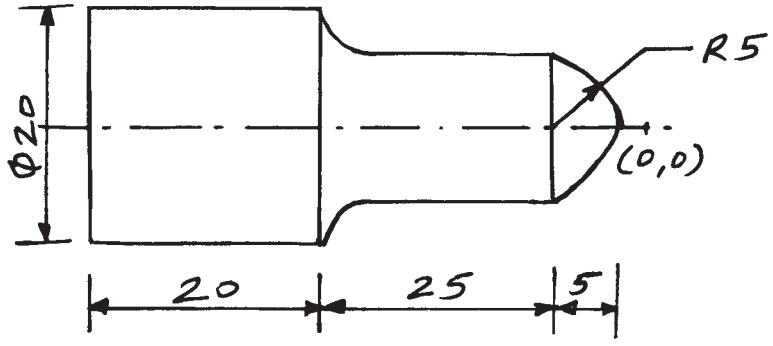

Fig. No. 1

c) Write a part programme for milling a mild steel plate of 20 mm as shown in Figure No. 2.

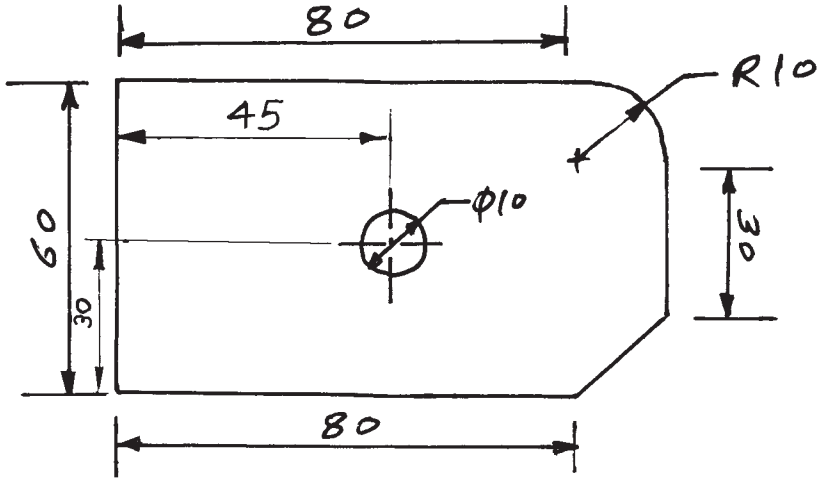

Fig. No. 2