12100

13141

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) ***Use*** *of Non-programmable Electronic Pocket Calculator is* ***permissible.***

MARKS

1. A) Attempt **any six** of the following : **(6×2=12)**
   a) Define the term forgeability.
   b) Enlist the materials used for press work.
   c) Give definition of welding.
   d) Enlist the factors affecting the selection of cleaning process.
   e) List any four advantages of CNC machines.
   f) Draw and label closed loop system of CNC machine.
   g) Give classification of welding process.
   h) Classify CNC machines based on number of axis.

   B) Attempt **any two** of the following : **(2×4=8)**
   a) Enlist chemical cleaning process and describe electrolytic cleaning process.
   b) What are the types of flames used in Gas welding ?
   c) Explain use of Pilots with neat sketch.

2. Attempt **any four** of the following : **(4×4=16)**
   a) How the forging is carried out in open dies ?
   b) Give classification of press operation and explain any one in brief.
   c) Describe oxy-acetylene welding.
   d) Describe Abrasive blast mechanical cleaning process.
   e) Describe with neat sketch absolute and incremental co-ordinate system.
   f) Describe open loop and closed loop system in relation with CNC machines.

P.T.O.

MARKS

3. Attempt **any four** of the following : **(4×4=16)**

   a) Describe with neat sketch various hand tools used in smith forging.

   b) Enlist different press components used in automobile. Describe process sequence of any one.

   c) Describe MIG (Gas metal arc welding) process.

   d) Write advantages and limitations of forging process.

   e) Give ISO codes used in programming.

   f) Enlist surface finishing processes and describe buffing process with neat sketch.

4. Attempt **any four** of the following : **(4×4=16)**

   a) Describe working of spot welding with its application.

   b) Distinguish between open die and closed die forging.

   c) Differentiate between NC machines and CNC machines.

   d) Enlist any four die accessories and describe with neat sketch button stop.

   e) Which are the surface coating processes ? Describe any one in detail.

   f) Differentiate between compound and combination die.

5. Attempt **any four** of the following : **(4×4=16)**

   a) Draw neat labelled sketch of punch and die set used for punching operation.

   b) Give comparision between resistance welding and arc welding.

   c) Describe working of fly press.

   d) With help of figure describe axis identification for VMC.

   e) Give forging sequences for Gear with neat sketch.

   f) Describe construction of progressive die used for punching.

MARKS

6. Attempt **any two** of the following : **(2×8=16)**

a) Write down the code for following preparatory functions and Miscellaneous functions :

i) Rapid traverse
ii) Dwell
iii) Dimensioning in metric units
iv) Absolute dimensioning
v) Programme stop
vi) Coolant on
vii) Spindle stop
viii) Spindle start (clockwise)

b) Write the part programming by using ISO codes for component shown in fig. 01 on VMC machine.

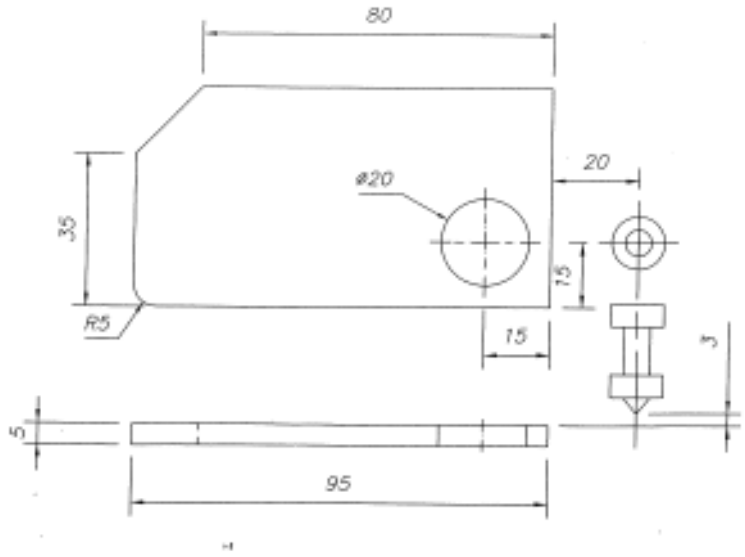

FIG. NO. 01
NOTE: ALL DIMENSIONS ARE IN MM

c) Write the part programming by using ISO codes for component shown in fig. 02 on CNC Lathe.

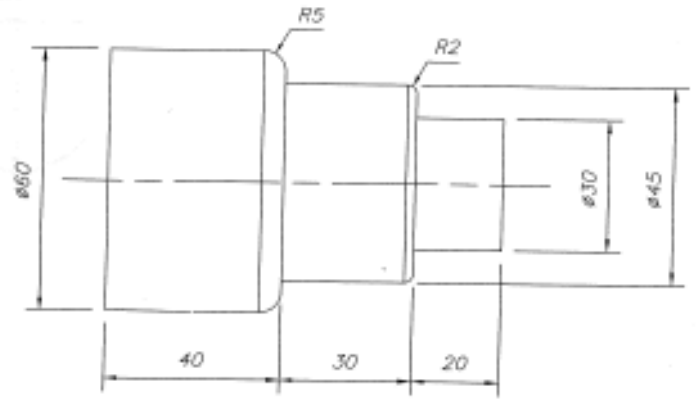

FIG. NO. 02
NOTE: ALL DIMENSIONS ARE IN MM