17527

15162

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

Instructions : *(1)* ***All*** *questions are* ***compulsory****.*
(2) Illustrate your answers with neat sketches ***wherever*** *necessary.*
(3) Figures to the ***right*** *indicate* ***full*** *marks.*
(4) Assume suitable data, if ***necessary****.*

Marks

1. A) Answer **any three** of the following : **(3×4=12)**
i) List the ideal characteristics of electrode materials used in EDM.
ii) Differentiate subroutine and canned cycles used in CNC part programming.
iii) Explain down milling with a neat sketch.
iv) Explain grinding wheel dressing.

B) Answer **any one** of the following : **(1×6=6)**
i) Explain the principle and working of electro discharge machining with neat sketch.
ii) Explain the process parameters of laser beam machining.

2. Answer **any four** of the following : **(4×4=16)**
a) Draw a neat sketch of abrasive jet machining and list any four applications of AJM.
b) State the advantages and disadvantages of plasma arc machining.
c) Sketch any four shapes that can be machined by broaching process.
d) What are the advantages and disadvantages of using CNC machines for machining ?
e) Give the classification of grinding machines.

3. Answer **any two** of the following : **(2×8=16)**
a) Write a part program to machine the part given in Figure 1. on a CNC milling machine.

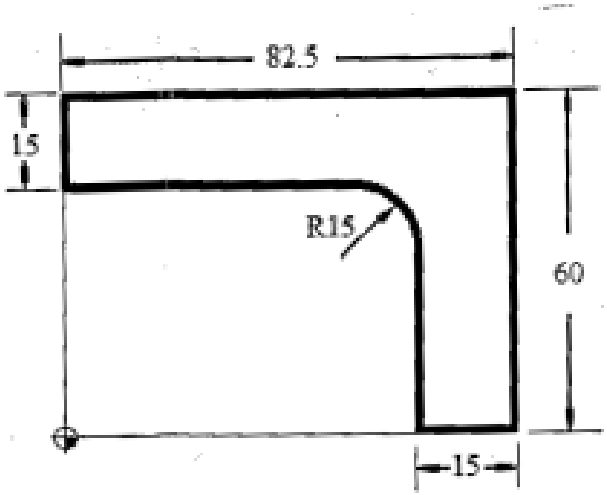

Figure 1

P.T.O.

Marks

b) How are the axes identified in CNC machines ? Justify your answer with neat sketches for VMC, HMC and CNC lathes.

c) a) Differentiate between EDM and LBM processes.

b) Classify non-traditional machining processes on the basis of type of energy used.

4. A) Answer **any three** of the following : **(3×4=12)**

i) Differentiate between pull broach and push broach.

ii) Explain salient features of capstan and turret lathes.

iii) Sketch a planer and explain its working.

iv) List gear finishing methods and explain any one of them in detail.

B) Answer **any one** of the following : **(1×6=6)**

i) What is boring operation ? Give the specifications of vertical boring machine.

ii) Name the methods by which gears are produced by machining. Explain any one method.

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

i) Draw and state the use of any two standard milling cutters.

ii) What is a dividing head in gear cutting process ? With a neat sketch explain the construction of any one dividing head.

iii) Give the cutting parameters of milling operation.

iv) Give the advantages and disadvantages of gear hobbing process.

v) Sketch surface grinding machine and explain its working.

vi) What are the advantages and disadvantages of honing process ?

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

i) Explain buffing operation. State its advantages.

ii) Explain with a neat sketch machine lapping process.

iii) List the types of maintenance and explain any one of them.

iv) Explain the maintenance practice for couplings and machine belts.

v) What is repair complexity ? How is it useful to the maintenance team ?

vi) What is maintenance manual ? What are its contents ?
