314347

24225

3 Hours / 70 Marks Seat No. | | | | | | | | |

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

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

(3) Illustrate your answer 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. Attempt any FIVE of the following: **10**

a) Define non ferrous metal.

b) State any four important properties of Aluminium.

c) State the percentage of carbon in following metals –

i) Mold steel

ii) Low carbon steel.

d) List any four conventional machines.

e) State the purpose of following machines –

i) Drilling machine

ii) Milling machine.

f) State the working principle of Lathe Machine.

g) State any two benefits of modern machines over conventional machines.

Marks

2. Attempt any THREE of the following: **12**

a) Define ferrous metal. State any four properties and any four applications of ferrous metal.

b) State any four advantages and any four applications of copper.

c) Explain the method of determining hardeners by Rockwell hardeners tester.

d) Explain following lathe machine operation –

i) Turning

ii) Knurling.

3. Attempt any THREE of the following: **12**

a) Describe construction of vertical milling machine with neat labelled diagram.

b) State the working principle of EDM wire cut machine. State any four applications of EDM wire cut machine.

c) State the significance of G-code and M-code in CNC machining.

d) Describe working of CNC milling. Draw a close loop block diagram for CNC milling.

4. Attempt any THREE of the following: **12**

a) Define heat treatment. State its necessity. List any four heat treatment processors.

b) State the need of finishing and polishing in mould manufacturing. List any four finishing and polishing operations.

c) Define –

i) Impression

ii) Cavity

iii) Core

iv) Sprue.

d) Justify the statement, "Inspection of mould is necessary before mould assembly".

e) Identify the mould components that ensure proper locking of male and female part of mould. Draw and explain those components.

Marks

5. Attempt any TWO of the following: **12**

a) Explain the construction of upright drilling machine. Draw a neat labelled diagram. State its working and any four operations done on it.

b) Identify the conventional machine where surface of mould component could be finished with rotating grinding wheel. Draw and explain its construction.

c) Identify the modern machine where tool is cathode and workpiece is anode. Explain its working and construction with neat labelled diagram.

6. Attempt any TWO of the following: **12**

a) Identify the case hardening method where surface get harden with carbon compound. Explain its any one type.

b) Explain step wise diamond polishing method to polish the cavity of injection mould.

c) Describe step wise bench fitting method.
