22307

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

(7) 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) List any four types of cast iron.

b) State two purpose of heat treatment.

c) List four hand moulding tool used in foundry.

d) Define speed and feed in machining process.

e) Explain importance of tool life.

f) List the main four parts of a lathe machine.

g) Classify drilling machine.

Marks

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

a) Differentiate between Grey cast iron and white cast iron.

b) State any four objective of heat treatment and sketch phase diagram.

c) Define term porosity and state any four properties of moulding sand.

d) Draw block diagram of centre lathe machine and state major parts.

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

a) Explain glass fiber (GRP) with properties and application.

b) Identify properties of material used for connecting rod with justification.

c) Differentiate between flame hardening and induction hardening process.

d) Classify various types of moulding sand and gives it's uses.

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

a) Write four properties of ceramic material and gives it's application in automobile industry.

b) Illustrate the Iron-Iron carbide (Fe Fe_3C) diagram showing critical temperature on it.

c) Apply proper heat treatment process for manufacturing motor cycle parts with justification.

d) Explain match plate pattern with it's significance.

e) Explain any four defect in casting and gives remedies for it.

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

a) Differentiate between orthogonal and oblique cutting with the help of sketch.

b) Explain single point cutting tool and meaning of 0-7-6-8-15-16-0.8 according to ASA system.

c) Classify various types of milling machines. List major parts of universal milling machine.

Marks

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

a) Identify the types of chips formed during machining of Aluminium and grey cast iron material with justification.

b) Explain tapper turning operation for a job having following dimension

Diameter of work piece (D) = 60 mm

Reduced diameter (d) = 40 mm

Topper length = 70 mm.

c) Suggest and sketch a milling cutter for following milling operation:

i) T slot

ii) Face milling

iii) Key-way milling.