

# 22307

**22223**

**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 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. Attempt any FIVE of the following: **10****
- a) State any four properties of aluminium.
  - b) Define heat treatment.
  - c) State different types of foundries.
  - d) State the types of cutting tools. Give two examples of each.
  - e) List any four types of drilling machines.
  - f) List the operations performed on milling machine.
  - g) Write the chemical composition of gun metal.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Distinguish between thermoplastic and thermosetting plastics.
  - b) Distinguish between flame hardening and induction hardening.
  - c) Explain any four types of pattern.
  - d) Explain taper turning by swiveling compound rest method with neat sketch.
- 3. Attempt any THREE of the following:** **12**
- a) Explain the effect of Nickel and chromium on alloy steel.
  - b) Explain the meaning of single point cutting tool 0-7-6-8-15-16-0.8 according to ASA system.
  - c) Draw the sketch of gating system of casting process and show all the parts on it.
  - d) Explain basic steps in casting process with a neat block diagram.
- 4. Attempt any THREE of the following:** **12**
- a) Classify engineering materials with examples of each one.
  - b) Illustrate the Iron-Iron carbide (Fe-Fe<sub>3</sub>C) diagram showing critical temperature on it.
  - c) Explain hot chamber die casting with neat sketch.
  - d) Classify moulding process. Explain any one in detail.
  - e) Distinguish between orthogonal and oblique cutting.
- 5. Attempt any TWO of the following:** **12**
- a) Classify various copper alloys. Write composition and applications of any two of its alloys.
  - b) Classify various casting processes. Explain shell moulding process with neat sketch.
  - c) Classify types of milling machines. State the parts of column and knee universal milling machine. Show it on sample block diagram.

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

- a) Write the single point cutting tool nomenclature with neat sketch.
  - b) Suggest suitable cutter for carrying following operations on milling.
    - i) Gear tooth
    - ii) Parting off
    - iii) V-grooves
    - iv) Key-way
    - v) T-slot
    - vi) Rounding corner
  - c) Suggest and write suitable operation method on lathe machine to perform following operations on workpiece with justification.
    - i) Produce angle on job
    - ii) Produce grip on job
    - iii) Enlarging previously drilled hole
    - iv) Producing a hole
    - v) Cutting the job
    - vi) Finishing previously drilled hole
-