

22307

11920

3 Hours / 70 Marks

Seat No.

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- 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**
- Write two needs of advanced materials in automobile sector.
 - Draw cooling curve for pure iron and explain.
 - Classify various manufacturing processes.
 - Explain importance of tool life.
 - List two important properties of cutting fluids.
 - Write four operations performed on Lathe machine.
 - Explain gang milling process.

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- 2. Attempt any THREE of the following: 12**
- a) State various types of cast Iron and give applications of each.
 - b) Describe various phase transformations of iron after cooling at various rates using JTT diagram.
 - c) Explain the importance of pattern allowances and state various pattern allowances.
 - d) Explain taper turning by swiveling compound rest.
- 3. Attempt any THREE of the following: 12**
- a) Enlist four properties of Magnesium alloy AZ31 and also give it's applications.
 - b) Explain the effects of nickel, chromium, silicon, molybdenum addition on the properties of steel.
 - c) Describe carburizing process with it's applications.
 - d) Classify various types of moulding sands and give it's uses.
- 4. Attempt any THREE of the following: 12**
- a) Write four properties of ceramic materials and give it's applications in automobile industry.
 - b) Explain induction hardening process and give it's applications.
 - c) Differentiate hardening and tempering of automobile parts.
 - d) Describe shell moulding process with applications.
 - e) Explain any four defects in casting and give remedies for it.

- 5. Attempt any TWO of the following:** **12**
- a) Differentiate clearly between Orthogonal and Oblique cutting. (minimum six points each)
 - b) Explain single point cutting tool nomenclature with sketch.
 - c) Classify various types of milling machines. List major parts of universal milling machine.
- 6. Attempt any TWO of the following:** **12**
- a) Explain the importance of various machining parameters in improving tool life.
 - b) Describe the construction and working of bench drilling machine with block diagram.
 - c) Explain key way milling process with standard milling cutters.
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