

22446

12223

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answer with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) 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) Write applications of rolling operations.
 - b) State the advantages of MIG welding.
 - c) Write the indications of following color in coding of pattern:
 - i) Black
 - ii) Red
 - iii) Yellow
 - iv) Red strips on yellow background
 - d) Enlist materials used for pattern making.
 - e) State basic parts of center lathe.
 - f) List different shaping operations.
 - g) Name the fillers used in soldering.

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- 2. Attempt any THREE of the following:** **12**
- a) State and explain the desirable properties of molding sand.
 - b) Differentiate between open die forging and closed die forging.
 - c) Define following terms with reference to a single point cutting tool:
 - i) Back rake angle
 - ii) Side rake angle
 - iii) End relief angle
 - iv) Side relief angle
 - d) Explain quick return mechanism used in shaper with neat sketch.
- 3. Attempt any THREE of the following:** **12**
- a) Explain the function of following parts in shaper:
 - i) Cross rail
 - ii) Table
 - iii) Ram
 - iv) Tool head
 - b) Draw neat sketch of radial drilling machine and label the following components:
 - i) Column
 - ii) Worktable
 - iii) Radial arm
 - iv) Drill head
 - c) Calculate the time required for one complete cut on a work piece of 60 mm diameter and 400 mm long. The cutting speed is 50 m/min and the feed 0.5 mm/rev.
 - d) Explain centrifugal casting process with neat sketch.

- 4. Attempt any THREE of the following:** **12**
- a) Write safety practices to be followed in foundry shop.
 - b) Compare hot rolling with cold rolling.
 - c) Draw neat sketch of slotting machine and explain its construction.
 - d) Explain calendering plastic process with neat sketch.
 - e) Estimate the time to drill the hole for a length of 40 mm considering the approach and over travel of 2.6 mm each with a feed of 0.3 mm/rev. At what speed of 30 mm drill will run for cutting the steel at 30 m/min surface speed.
- 5. Attempt any TWO of the following:** **12**
- a) Suggest and explain suitable process for large quantity production of round aluminum alloy rods with uniform cross section.
 - b) Explain mechanics of chip formation with neat sketch.
 - c) Suggest the manufacturing methods for following plastic products:
 - i) Credit card
 - ii) Carrying case
 - iii) Hollow cylinder
 - iv) Knobs
- 6. Attempt any TWO of the following:** **12**
- a) Draw neat sketch of following forging methods:
 - i) Drop Forging
 - ii) Press Forging
 - iii) Upset Forging
 - b) Suggest and explain suitable process for machining 5mm wide and 3mm deep internal key way in a pulley.
 - c) Describe the following welding defects with their causes:
 - i) Porosity
 - ii) Cracks in the weld
 - iii) Slag inclusions
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