16117

3 Hours / 100 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) 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.

(8) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. **Solve any TEN :**   **20**

(a) Define 'Forging'.

(b) Give principle of 'Rolling'.

(c) Name the different sheet metal operations.

(d) Give principle of 'Extrusion'.

(e) Give principle of 'casting process'.

(f) Explain 'solid piece pattern'.

(g) Name different press machine parts.

(h) Give explanation for any two defects in casting.

(i) Give applications of 'soldering'.

(j) Give basic principle of 'Welding Process'.

(k) Explain in brief 'Twist Drill'.

    (l)   Give names of any four welding defects.

    (m)   Define 'Thermosetting' plastic.

    (n)   Define 'counter sinking' operation.

2. **Solve any FOUR :**   **16**

    (a)   Explain 'direct extrusion process'.

    (b)   Explain any two types of sand's used in moulding.

    (c)   Give 'Twist drill nomenclature'.

    (d)   Explain 'Compression moulding'. Give it's applications.

    (e)   Explain 'Two High Rolling Mill'.

    (f)   Explain 'Shrinkage allowance' given on pattern.

3. **Solve any FOUR :**   **16**

    (a)   Give advantages of casting process.

    (b)   Explain 'Hot chamber die casting'.

    (c)   Explain the following terms with respect to Lathe machine.

        (i)   Depth of cut

        (ii)   Feed

    (d)   State properties of plastic.

    (e)   What is 'Tube Extrusion' ?

    (f)   Explain 'Upset forging process'.

4. **Solve any FOUR :**   **16**

    (a)   Explain 'compound die' with neat sketch.

    (b)   Give 'colour coding' of pattern.

    (c)   Give explanation for 'Electric Arc Furnace'.

(d) Determine the time required to drill the hole for a length of 40 mm considering the approach & over travel of 2.5 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.

(e) What is 'orthogonal cutting' ? Explain with simple sketch.

(f) Explain 'Notching operation' with neat sketch.

5. Solve any FOUR : **16**

(a) Explain following press working operation :

(i) Blanking

(ii) Punching

(b) Explain 'Combination Die'.

(c) Explain 'SMAW' Welding process.

(d) Explain why flux is used in welding operation.

(e) Explain 'Cupola Furnace' used in casting.

(f) Explain any four materials used for pattern making.

6. Solve any FOUR : **16**

(a) Explain 'Tungsten Inert Gas (TIG) welding process. Give its two applications.

(b) Explain 'MIG' welding process. Give it's two applications.

(c) Explain 'progressive die' with neat sketch.

(d) A steel shaft of 25 mm diameter is turned a cutting speed of 50 m/min. Find RPM of shaft.

(e) Name and explain any four die set components.

(f) Give different sections of rolled parts.

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