Total No. of printed pages = 4

END SEMESTER (REGULAR/RETEST) EXAMINATION, NOVEMBER/DECEMBER-2024

Semester : 3rd

Branch : Mechanical Engineering

Subject Code : Me-303

MANUFACTURING TECHNOLOGY-I

Full Marks – 70

Time –Three hours

The figures in the margin indicate full marks for the questions.

Instruction :

- *All* questions are compulsory.

1. Fill in the blanks : 1×5=5

   (a) _____ is perhaps the oldest method of manufacturing and invariably the first step in sequence of manufacturing a product.

   (b) A pattern consisting of two pieces is called a two piece _____ pattern.

   (c) _____ is a process of joining two materials with the help of heat or pressure or by some other means.

[Turn over

(d) When the ratio of oxygen to acetylene is equal a ____ flame is obtained.

(e) When the cutting edge of the wedge is perpendicular to the cutting velocity, the process is ____ cutting.

2. Write True or False : 1×5=5

(a) Match plate patterns are suited for mass production of small castings in moulding machines.

(b) Sand mould is an example of permanent mould.

(c) In oxidizing flame the ratio of oxygen to acetylene varies from about 1.2 to 1.5.

(d) Discontinuous chips are usually produced while cutting more brittle materials.

(e) BUE causes the finished surface to be rough.

3. Choose the correct answers : 1×5=5

(a) Oxy-acetylene flame is used for welding of

(i) Monel (ii) Nickel

(iii) Steel (iv) Bronze

(b) How many zone(s) are there in a curburizing flame ?

(i) One (ii) Two

(iii) Three (iv) Four

(c) Hot working process does not give the following property

(i) Good surface finish

(ii) Close tolerances

(iii) Elimination of porosity

(iv) Improvement of mechanical property

(d) The following is not a casting defect

(i) Hot tear (ii) Blow hole

(iii) Scale (iv) Decarburization

(e) A riser is used for

(i) feeding the casting at a rate consistent with rate of solidification.

(ii) reservoir for molten metal.

(iii) feeding the casting till solidification takes place.

(iv) feeding molten metal from pouring basis to gate.

4. (a) Explain orthographic and oblique cutting. 4

(b) Draw figures to show cutting tool nomenclature and tool angles. 5

5. (a) Explain the different types of chips with neat diagrams. 6

(b) Write the factors affecting on the discontinuous chips. 3

6. (a) Give any three welding defects and their remedies. 3

(b) Explain the types of welding flames with neat sketch. 6

7. (a) Write the properties of cutting fluids. 4

(b) Write the advantages and limitations of MIG welding. 5

8. (a) What is a pattern ? 2

(b) Discuss the various types of pattern. 4

(c) Write the names of pattern material. 3

9. (a) What are the different types of moulding sand ? 2

(b) Give a list of steps involved in casting process. 3

(c) Write short note of investment casting. 3

(d) Write down the applications of powder metallurgy. 2