

B.E DEGREE EXAMINATIONS: JUNE 2010

Second Semester

MECHANICAL ENGINEERING

MEC103: Manufacturing Technology - I

Time: Three hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (10 x 1 = 10 Marks)

1. The metal pattern as compared to wooden pattern require less
A. Shrinkage allowance B. Machining allowance C. Draft allowance D. Distortion allowance
2. The Centrifugal casting method is used for casting articles of
A. Symmetrical shape about vertical axis B. Symmetrical shape about horizontal axis
C. Irregular shape D. Non ferrous metal only
3. Thermit welding is often used in
A. Replacing broken gear tooth B. Repairing broken shear
C. Joining rails, truck frames & locomotive frames etc D. All of the above
4. The flux commonly used in brazing
A. Zinc chloride B. Ammonium chloride C. Rosin plus alcohol D. Borax
5. Cold working of metal increases
A. Tensile strength B. Yield strength C. Hardness D. Toughness.
6. Thread rolling is restricted to
A. Ferrous materials B. Ductile materials C. Hard materials D. Brittle materials
7. The operation of giving impressions of letters, figures or patterns on sheet metal parts is
A. Embossing B. Coining C. Curling D. Sizing
8. Which of the following is a high velocity forming process
A. Pneumo mechanical forming B. Magnetic pulse forming
C. Hydro forming D. Rubber pad forming
9. Slow speed of the spindle is necessary in
A. Thread cutting B. Turning a hard or tough material
C. Turning a work of larger diameter D. Drilling
10. Tumbler gears in lathe are used to

- A. Reduce the spindle speed
- B. Drill a work piece
- C. Give desired direction of movement
- D. Give desired direction of movement to the lathe carriage

PART B (10 x 2 = 20 Marks)

- 11. Exhibit the basic steps in the foundry process.
- 12. List the types of ladles used in foundry.
- 13. Differentiate between bare and coated electrodes.
- 14. What is brazing and soldering?
- 15. Draw neatly wire drawing pillet.
- 16. Classify the types of rolling mills.
- 17. Name some characteristics of sheet metal forming process.
- 18. Define 'Blanking'.
- 19. Mention any two functions of a tailstock in a lathe.
- 20. Write down the accessories used in lathe.

PART C (5 x 14 = 70 Marks)

- 21. (a) (i) Write short notes on the following related to true centrifugal casting
(1) Long tube production (2) Short pot production (7 +7)
(OR)
(b) (i) Discuss with neat sketches, the die casting process. (7)
(ii) Give a brief account of Inspection of castings. (7)
- 22. (a) Detail the TIG welding process and give its Merits, De-merits & Applications.
(OR)
(b) With neat sketches explain the following
(i) Submerged arc welding. (7)
(ii) Electron beam welding. (7)
- 23. (a) (i) Describe the geometry of rolling process with suitable sketch. (7)

(ii) Demonstrate with neat sketches, the two types of extrusion process. (7)

(OR)

(b) (i) List the typical forging operations and explain any two of them. (7)

(ii) Give an account on defects in rolled parts. (7)

24. (a) Briefly explain the following with appropriate diagrams

(1) Nibbing (2) Knock out (3) Stretch forming (4) Metal spinning

(OR)

(b) Illustrate the working principle and application of the following forming processes

(1) Rubber pad forming (2) Magnetic pulse forming (7 + 7)

25. (a) (i) Spread the salient features of Capstan lathe. (4)

(ii) Explain the working principle of multi spindle automats giving the operations performed in that Machine. (10)

(OR)

(b) (i) Discuss the thread cutting operation in lathe. (7)

(ii) Why chucks are used? List various types of chucks used in lathes and describe any two in brief. (7)
