

**Indian Maritime University**  
**(A Central University, Govt of India)**  
**End Semester Examinations – December 2023**  
**Programme Name: B. Tech (Marine Engineering)**  
**Semester: I**  
**Subject Code: UG11T4105**  
**Subject Name: WORKSHOP TECHNOLOGY**

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Date: 26.12.2023

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

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General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Options, if any, are specified in respective section.

Section A

**Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer as applicable.**

1. Turret head in Capstan lathe is generally mounted on
  - (a) Slide
  - (b) Saddle
  - (c) Ram
  - (d) None of the above
2. Fixture is a production device which
  - (a) Holds the work piece
  - (b) Locates the work piece
  - (c) Holds and locates the work piece
  - (d) Guide the cutting tool
3. Drilling is an example of
  - (a) Orthogonal cutting
  - (b) Oblique cutting
  - (c) Simple cutting
  - (d) Uniform cutting

4. The horizontal feed in a lathe is controlled by
  - (a) Apron
  - (b) Headstock
  - (c) Cross-slide
  - (d) Tailstock
5. The main advantage of the radial drilling machine is that
  - (a) It is very compatible and handy for machining
  - (b) It is accurate, economical, portable and least time consuming while machining
  - (c) Heavy work pieces can be machined in any position without moving
  - (d) Small work pieces can be machined and it can be used for mass production as well.
6. In the shaper, the housing for the operating mechanism is following act as metal is removed during
  - (a) Base
  - (b) Column
  - (c) Cross-rail
  - (d) Table
7. During milling, the cutter manually moves
  - (a) Perpendicular to its axis
  - (b) Parallel to its axis
  - (c) Inclined to its axis
  - (d) None of the Above
8. The grade of the grinding wheel depends upon
  - (a) The thickness of the material being ground
  - (b) Speed of the wheel and work
  - (c) Condition of grinding machine
  - (d) All of the above
9. What is the least count of micrometer?
  - (A) 0.01 mm

- (B) 0.02 mm
  - (C) 0.05 mm
  - (D) 0.07 mm
10. In TIG welding, which type of electrode used is
- (a) Non consumable electrode
  - (b) Cored Electrode
  - (c) Continuous consumable wire electrode
  - (d) Stick electrode

### **Section B**

#### **Five Questions of 02 Marks each**

- 11. List the properties of cutting tool material?
- 12. Explain the advantages of using cutting fluid in Metal cutting
- 13. Illustrate the concept of clearance fit using suitable diagram
- 14. Explain fusion welding along with few examples
- 15. List out the importance of workplace housekeeping

### **Section C**

Seven Questions of 10 Marks each of which any 05 questions to be answered.

- 16. Explain the construction and working of the following processes:
  - a) Resistance spot welding
  - b) Thermit welding

(05 marks + 05 marks)
- 17. a) Write a short note on the following with necessary diagram
  - i) Autocollimator ii) Feeler gauge

b) What are the mandatory safety measures in marine workshop?

(05 marks + 05 marks)
- 18. Explain the different Grinding process and the necessary safety measures to be taken during Grinding.
- 19. a) What is the working principle of a Lathe Machine? Explain with basic sketch.

b) Describe the following operation done in lathe with diagram: i) Facing, ii) Threading and iii) Knurling.

(05 marks + 05 marks)

20. a) Explain the construction of the radial type drilling machine and pillar type drilling machine with the help of diagram. (06 marks)

b) Illustrate the nomenclature of twist drill and list the important parts of the drill bit. (04 marks)

21. a) How Files are classified? What are the methods commonly used for filing, explain? (07 marks)

b) What do you understand by pinning of file? (03 marks)

22. Describe the processes of a) face milling, b) end milling, c) straddle milling, d) form milling and e) gang milling.