

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note: Attempt four questions in all, selecting one question from each section A, B, C & D. Section E is compulsory.

SECTION A

1. Define different types of engineering material? Write at least five applications of each. How Steel is differing from cast iron? Write short note on-
(i) Hardness; (ii) Ductility;
(iii) Malleability; (iv) Fatigue;
(v) Resilience. (5)
2. What is difference between Hot rolling and Cold rolling? Explain different type of metal forming process with neat and clean sketch. (5)

SECTION B

3. How are patterns classified? Describe any two types of sketches and state the uses of each of them. (5)
4. What are the wood joints? Explain about various carpentry processes. (5)

SECTION-C

5. (a) Draw neat and clean sketches of the following machine tools
(i) Lathe Machine; (ii) Milling Machine;
(iii) Drilling machine (2.5)
- (b) When screwing two workpieces together why is it necessary to drill a clearance hole in the top part? Explain (2.5)
6. Explain the electric arc welding process with neat sketch. (5)

SECTION D

7. Explain Job holding tool and striking tool with neat and clean sketch. (5)
8. Classify various type of NC. What are advantage and disadvantage of NC? (5)

SECTION-E (Compulsory Question)

9. (a) What is the difference between crystalline and non-crystalline structures in materials?
(b) What are the two most common shearing operations?
(c) List out the defects in welding process
(d) Why pattern allowance is kept as small as possible?
(e) Write down the ingredients of moulding sand.
(f) What is the difference between wood and timber?
(g) What are the three basic categories of material removal processes?
(h) What distinguishes machining from other manufacturing processes?
(i) What is the fundamental difference between a fusion weld and a solid state weld?
(j) What are G-code and M-code?

(10×2=20)