



C20-A-304

7204

BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DAE – THIRD SEMESTER EXAMINATION

ENGINEERING MATERIALS AND MANUFACTURING PROCESSES

Time : 3 Hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define hardness and ductility.
2. Define elasticity and plasticity.
3. Define unit cell.
4. List the six microconstituents of an iron carbon system.
5. What is the purpose of heat treatment?
6. Give the composition and uses of grey cast iron.
7. Give the composition and uses of gun metal.
8. List out any three advantages and limitations of welding.
9. Write the main parts of lathe.
10. List out any six work holding devices used in lathe.

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11.** Explain the procedure for conducting impact test on Izod and Charpy testing equipment with a neat sketch.

(OR)

Explain the ultrasonic test on a specimen with the help of a neat sketch.

- 12.** Draw the iron carbon diagram and mark the salient points.

(OR)

With the help of suitable diagrams, explain BCC, FCC and HCP space lattices.

- 13.** Explain the procedure for manufacturing steel from Bessemer converter with a sketch.

(OR)

Explain the different types of tempering heat treatment process.

- 14.** Explain the different flames used in oxy-acetylene gas welding.

(OR)

Explain the procedure of shielded metal arc welding. State its advantages and limitations.

- 15.** Explain taper turning by tail stock set over method with a neat sketch.

(OR)

With the aid of neat sketches, explain the following operations :

- (a) Parting off
- (b) Facing
- (c) Thread cutting

PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) The question carries **ten** marks.
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Explain the construction and working of turret lathe with a neat sketch.

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