



C16-MET-402

6457

BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER—2020
DMET—FOURTH SEMESTER EXAMINATION
MATERIAL TESTING

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 — 1. Define engineering stress and true stress.
- ② — 2. Classify hardness tests.
- ③ — 3. State the importance of rebound hardness test.
- ④ — 4. Differentiate brittle fracture and ductile fracture.
- ⑤ — 5. Define notch toughness.
- ⑥ — 6. State the importance of fatigue test.
- ⑦ — 7. Define endurance limit.
- ⑧ — 8. Distinguish stress rupture test and creep test.
- ⑨ — 9. State the principle of magnetic particle test.
- ⑩ — 10. List any three applications of eddy current test.

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[Contd....

PART—B

10×5=50

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

11. Discuss the salient features of stress-strain curve with a neat sketch. 8+2
12. Derive the two conditions for necking. 5+5
13. (a) Explain the principle and operation of Vickers hardness test. 3+4
(b) State the loads and indenters used in Rockwell hardness test. 3
14. Explain the Griffith theory of brittle fracture. 10
15. What is impact strength? Explain the charpy impact test method with neat sketches. 3+5+2
16. Explain the effect of following factors on fatigue properties : 5+5
(a) Stress concentration
(b) Corrosion
17. Explain the creep curve and its regions with a neat sketch. 8+2
18. (a) Explain with a neat sketch the test procedure for ultrasonic test. 2+5
(b) State any three precautions while carrying out radiography test. 3
