

3511

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL-2014

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) Answer should be brief and straight to the point and ~~shall not exceed five simple sentences.~~

1. Define yield strength and modulus of elasticity.
2. State the principle of mechanical strainometer.
3. Name different minerals used in Mohs' hardness scale.
4. State the industrial importance of Vickers' hardness test.
5. Differentiate between ductile fracture and brittle fracture.
6. Draw the Izod impact sample with all dimensions.
7. What is endurance limit?
8. Write any three differences between stress rupture test and creep test.
9. State the principle of radiography.
10. Write the steps involved in dye penetrant test.

/3511

1

[ 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 criterion for valuation is the content but not the length of the answer.

11. Explain important tensile properties. 10
12. (a) Define uniaxial, biaxial, triaxial state of stress, torque, twisting movement and angle of twist.  
(b) State the general equation for torsion. Write the units (SI) variables in equation. 6+4=10
13. (a) Explain the principle of Brinell hardness test.  
(b) What is the importance of rebound hardness test? 6+4=10
14. (a) Differentiate between ductile fracture and brittle fracture.  
(b) Explain the Griffith theory of brittle fracture. 4+6=10
15. (a) Define transition temperature.  
(b) What factors affect the transition temperature? 4+6=10
16. (a) What are various factors affecting the fatigue strength?  
(b) Explain the effect of surface residual stress and temperature. 4+6=10
17. (a) State the mechanism of creep.  
(b) Explain about stress-rupture test. 4+6=10
18. Explain the principle of eddy-current test and its applications. 10

\*\*\*