7492

BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

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. Write the specifications of test samples for tension test.

2. Define ultimate tensile strength and yield stress.

3. Name the different minerals in Moh's scale.

4. Write the VHN formula.

5. Define notch sensitivity and notch toughness.

6. Draw the test specimen with specification of Izod test.

7. Define fatigue.

8. Define Wood's concept.

9. Write the importance of creep test.

10. Write any two differences between stress rupture test and creep test.

Instructions : (1) Answer **all** 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. *(a)* Discuss the effect of temperature of tensile properties.

(OR)

(b) Explain the necking phenomenon.

12. *(a)* Explain the rebound hardness test.

(OR)

(b) Explain test procedure of BHN test.

13. *(a)* Explain the principle and operation of Charpy test.

(OR)

(b) Derive the equation for theoretical cohesive strength of a metal crystal.

14. *(a)* Explain the S-N curve in detail.

(OR)

(b) Explain the fatigue test procedure.

15. *(a)* Explain the creep curve and its regions.

(OR)

(b) Explain creep mechanism by diffusion creep.

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. How is dye penetrant test universally applicable in determining the surface defects?

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