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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2017

DMET—FOURTH SEMESTER EXAMINATION

MATERIALS 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. Define offset yield strength with a graph.
2. State the relation between true stress and engineering stress.
3. Name the minerals used in Mohs' hardness scale.
4. List out the indentors and loads used in Rockwell hardness test.
5. Differentiate between 'ductile fracture' and 'brittle fracture'.
6. Define ductile brittle transition temperature.
7. What are various loading systems in fatigue?
8. State the importance of creep test.
9. Define non-destructive test.
10. State the principle of eddy-current test.

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. Draw the stress-strain curve of an engineering material and draw all the important points on it. Define yield strength, ultimate tensile strength and failure strength.

12. What is necking phenomena? Derive the relation for the same.

13. Write the principle of 'Rockwell hardness test' and mention different loads used in the test for different scales.

14. Define 'theoretical cohesive strength' of a material and derive the equation for the same.

15. *(a)* Write the principle of an impact test. 5

(b) Differentiate between Izod and Charpy tests. 5

16. Explain the two theories of fatigue.

17. Define creep. Distinguish between stress rupture test and creep test.

18. Write different magnetization and demagnetization methods in magnetic particle test. Also mention the advantages and disadvantages of the test.

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