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Question Paper Code : X10888

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Seventh Semester

Civil Engineering

OML 751 – TESTING OF MATERIALS

(Common to Aeronautical Engineering/Automobile Engineering/Industrial Engineering/Industrial Engineering and Management/Robotics and Automation /Chemical Engineering/Electronics and Communication Engineering/

Manufacturing Engineering/Marine Engineering/Mechatronics Engineering/ Petrochemical Engineering/Production Engineering/Biotechnology/Electrical and Electronics Engineering/Instrumentation and Control Engineering/Mechanical Engineering)

(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What are the advantages of materials testing ?
2. What is the importance of testing standards ?
3. What is the principle of hardness testing ?
4. What is endurance limit ?
5. What are the limitations of magnetic particle testing ?
6. State any two applications of eddy current testing.
7. What is the principle of optical microscopy ?
8. What is the information(s) that can be determined using X-Ray Diffraction ?
9. What is the principle of Differential Scanning Calorimetry ?
10. Name the technique that is commonly used for determining the % carbon in cast irons.

PART – B

(5×13=65 Marks)

11. a) Describe the various classifications of materials testing.

(OR)

- b) Discuss the different testing organizations, its committee and the standards followed.

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12. a) Explain the procedure and standard specimen dimensions used for impact testing of materials.

(OR)

b) Explain the procedure for creep testing of materials. List the advantages and applications.

13. a) Explain the various steps involved in liquid penetrant testing with their advantages and limitations.

(OR)

b) Explain the procedure for determining the internal defects present in the material using radiographic testing.

14. a) Explain the principle and working of any one electron microscopy technique.

(OR)

b) Briefly explain the different types of electrical and magnetic techniques with their advantages.

15. a) Explain the principle, procedure and advantages of dynamic mechanical analysis.

(OR)

b) Explain the principle and procedure for determining elemental composition using inductively coupled plasma.

PART – C

(1×15=15 Marks)

16. a) Explain the procedure for any one commercial method used in steel foundries to determine the chemical composition of materials.

(OR)

b) Explain the procedure for tensile testing. Using a typical stress-strain curve, discuss the various properties that can be determined.
