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Question Paper Code : 71782

M.E. DEGREE EXAMINATION, JUNE/JULY 2013.

Second Semester

Structural Engineering

ST 9222/ST 922/UST 9122/10211 SE 202 — EXPERIMENTAL TECHNIQUES AND INSTRUMENTATION

(Regulation 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Give any four basic characteristics of measuring devices.
2. Define a strain gauge.
3. What is LVDT?
4. What are the characteristics of structural vibrations?
5. Define pressure transducers.
6. What is the use of wind tunnel?
7. Define half cell.
8. How do you measure corrosion of reinforcement in concrete?
9. Define GECOR.
10. List various types of NDT.

PART B — (5 × 16 = 80 marks)

11. (a) What is meant by compensation methods in photo elasticity? Discuss and explain in detail two methods of compensation in polariscope.

Or

- (b) Explain in detail the calibration of testing machines and proving rings.

12. (a) Explain the characteristics of structural vibrations and explain vibration analyzer.

Or

- (b) Write short notes on :
- (i) Vibration meter
 - (ii) Seismographs.
13. (a) Explain the principles of pressure and flow measurements and discuss pressure transducers.

Or

- (b) Explain structural modeling and discuss direct and indirect model analysis.
14. (a) What are the causes of distress in structures? And explain corrosion of reinforcement in concrete.

Or

- (b) What are techniques for residual stress measurements and explain the damage assessment procedures?
15. (a) Write short notes on:
- (i) Rebound hammer
 - (ii) Ultrasonic testing principles and application.

Or

- (b) Write short notes on:
- (i) Brittle coating
 - (ii) Impact echo.
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