

Reg. No. :

--	--	--	--	--	--	--	--	--	--

**Question Paper Code: 53U02**

M.E. DEGREE EXAMINATION, MAY 2018

Third Semester

Structural Engineering

15PSE302 – EXPERIMENTAL TECHNIQUES AND INSTRUMENTATION

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. The photo elastic effect was invented by \_\_\_\_\_  
(a) David Brewster (b) Filon  
(c) Maxwell (d) Tuzi
2. \_\_\_\_\_ are instruments used to record and measure earthquakes.  
(a) Seismometer (b) Seismograph  
(c) Seismogram (d) Accelerograph
3. \_\_\_\_\_ is the deliberate destruction of structures and materials by means of explosives, mechanical devices, fire, chemical agents.  
(a) Demolition (b) Galvanizing  
(c) Stress Relaxation (d) Routing
4. SBR \_\_\_\_\_  
(a) Signal to Background Ratio (b) Signal to Blank Ratio  
(c) Signaling to Blurred Responding (d) Simultaneous to Broadcasting Reference
5. A technique used to determine a structures vibration characteristics  
(a) Similitude (b) Finite element method  
(c) Modal analysis (d) Oriented analysis

PART B - (5 x 3 = 15 Marks)

6. What are the types of vibration?
7. What is Vibrationmeter?
8. What do you mean by wind tunnel?
9. Define Structural health Monitoring.
10. What is controlled demolition?

PART C - (5 x 16 = 80 Marks)

11. (a) Explain in detail about the mechanical strain gauges with neat sketches. (16)

Or

- (b) Discuss the associated instrumentation for measuring (i) Static strain  
(ii) Dynamic strain. (16)

12. (a) Explain briefly about the Cathode Rays Oscilloscope. (16)

Or

- (b) Explain briefly about Data Acquisition System. (16)

13. (a) Explain vibration-meter and vibration-analyzer. (16)

Or

- (b) Explain direct model study and in direct model study. (16)

14. (a) Describe the various types of strengthening techniques adopted for structural distress. (16)

Or

- (b) Describe the construction and uses of half-cell. (16)

15. (a) Explain the load testing of towers. (16)

Or

- (b) Explain the components of wind tunnel and its uses in structural analysis. (16)