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	Reg. No. :
	Question Paper Code: 11289
	M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.
	Second Semester
	Structural Engineering
	ST 5203 — EXPERIMENTAL TECHNIQUES
	(Regulation 2017)
Time	: Three hours Maximum : 100 marks
	Answer ALL questions.
	PART A — $(10 \times 2 = 20 \text{ marks})$
1.	Define Gauge length.
2.	What is the need for calibration of testing machines?
3.	Define LVDT and its applications.
4.	What is the use of XY plotter?
5.	How do you measure corrosion of reinforcement in concrete?
6.	What are the techniques used in residual stress measurement?
7.	Write a short note on Ground Penetrating Radar.
8.	Name some NDT methods.
9.	State the laws of similitude.
10.	Differentiate between direct and indirect model study.
	PART B — $(5 \times 13 = 65 \text{ marks})$
11.	(a) Explain briefly working principle of optical strain gauge.
	Or
	(b) What is load cell? Explain the working principle of an electronic load cell.

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12. (a) Draw and explain the operation of CRO in detail.	
	Or	
(Explain how LVDTs are constructed, its output voltage characteris and how null voltage of LVDTs can be improved. 	stics
13. (a) (i) Explain briefly about the construction and uses of half potentiometer.	cell (8)
	(ii) Write short notes on structural health monitoring.	(5)
	Or	
(Describe the various types of strengthening techniques adopted structural distress. 	for
14. (a) Discuss in detail about Ultrasonic testing principles and its application	ns.
	r 401 castinites). Or	
(b) Explain about the following:	
	(i) Ultrasonic pulse echo	(5)
	(ii) Impact echo and GECOR.	(8)
15. (Explain in detail about the Necessity, Advantages and Application Model analysis. 	s of
	Or	
(b) Describe in detail about the scale effect in Model analysis.	
	PART C — $(1 \times 15 = 15 \text{ marks})$	
16.	a) Explain the working principle and operation of pressure Transducer.	
	Or	
	b) How will you measure the Corrosion of reinforcement in concrete explain how to control it?	and
	and attraction in a resistanting professional management that contribution (40)	
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