Code No: I8704/R16

M.Tech. I Semester Regular Examinations, January-2017
EXPERIMENTAL STRESS ANALYSIS

(Common to Structural Engineering (87), Structural Design (85) and Computer Aided Structural Engineering (35))

Time: 3 Hours   **Max. Marks: 60**

Answer any FIVE Questions
All Questions Carry Equal Marks

1.	a	Describe the direct reading and null balance methods in strain measurement.	6
	b	Briefly explain the methods of model design applicable to strain measurement.	6
2.	a	Explain the method of strain measurement using electrical resistance strain gage	6
	b	What are the performance characteristics of wire and foil strain gauge that influences environmental factors?	6
3.	a	Write the objectives on non-destructive testing methods over destructive testing methods? Give few examples.	4
	b	Explain the working principle and applications of rebound hammer which used for assessment of concrete quality.	8
4.	a	Explain with a neat sketch the principle of operation of a plane polariscope.	8
	b	What do you mean by compensation? List the methods of compensation.	4
5.	a	Explain fringe sharpening and fringe multiplication techniques used in photo elasticity.	7
	b	Explain calibration of Brittle coatings?	5

6.	Write short note on	12
	a) Weldable strain gauges	
	b) Foil gauges and	
	c) Strain gauge adhesives.	

7.	a	Explain the Tardy's Method of compensation with neat sketches.	6
	b	Define measurement. Explain requirements for measuring system, methods of measurement and types of error in measuring.	6
8.	a	Explain working principle of Holography.	4
	b	Derive the relation between the stresses, relative retardation, material fringe value and thickness of photoelastic model.	8

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