Code No: H1502/R13

M. Tech. II Semester Supplementary Examinations, May-2017

EXPERIMENTAL STRESS ANALYSIS

(Common to Machine Design (15), Mechanical Engg. Design (14) and Computer Aided Analysis & Design (16))

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

Answer any FIVE Questions
All Questions Carry Equal Marks

1.	a	Explain the principal of plane stress and plain strain also writes their any two examples?	8
	b	Discuss the importance of compatibility conditions also write their mathematical relations?	4
2.	a	What are the various types of strain gauges used in strain measurement? Also explain electrical resistance strain gauge with its neat sketch?	4
	b	Explain the importance of static recording and data logging system also write their any two practical applications?	8
3.		Determine the magnitude and direction of light vector emerging from a series combination of linear polarizer and half wave plate oriented at an orbitrary angle θ with respect to the plane of vibration of the linear polarizer?	12
4.	a	Briefly describe the following terms i. Effects of stressed model in a plane and circularly polarized light ii. 3-Dimensional photo elasticity materials.	8
	b	List out the applications of the frozen stress method and explain each one of them?	4
5.		Difference between isoclinic fringe patterns and iso chromatic fring patterns also write their any two practical examples?	12
6.	a	Discuss the procedure to be used to install a coating stresses and strains?	8
	b	List out failure theories for brittle coating and explain any two of them?	4
7.	a	Explain the principle of Geometrical approach to moiré fringe analysis?	4
	b	What is meant by coating sensitivity also write its any two practical applications?	8
8.		Write a short notes on the following terms a. Stress separation methods b. Out of plane displacement measurement c. Shear difference method d. Analysis of brittle coating data	12

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