M.E. Second Semester (Civil (Structural Engineering)) (New-CGS)

13097 : Elective Experimental Stress Analysis

2 SFSE 5

P. Pages : 1

Time : Four Hours

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AW - 3624

Max. Marks : 80

Notes : 1. All question carry equal marks.
2. Answer **two** question from Section A and **two** question from Section B.
3. Illustrate your answer necessary with the help of neat sketches.
4. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. Discuss the difference observed is fring pattern when observed is a plane and a circular polariscope with white light source considering a photoelastic model of certain thickness and explain the procedure to determine the difference in principal stresses. **20**

2. a) Explain the Babinet - Soleil method of compensation. **10**

b) Explain oblique incidence method of separation of principal stresses. **10**

3. a) Explain the scattered light method for determining the direction of secondary principal stresses. **10**

b) Explain stress freezing method is three dimensional photoelasticity. **10**

SECTION - B

4. a) Describe the advantages of semiconductor type strain gage over the other gages. **5**

b) Describe the salient features of semiconductor type strain gage. **5**

c) Derive an expression for gage factor of resistance strain gage. **10**

5. a) Distinguish between accuracy and precision which of these is more desirable during the act of measurement and why. **5**

b) Write a short note on type of brittle coating. **5**

c) Derive relation between the state of stress in coating and that in model. What theories of failure are supposed to govern the cracking of brittle coating. **10**

6. a) Explain Moire Fringe method. **10**

b) How a wheatstone bridge is used for the measurement of strain. Explain the working of null balance wheatstone bridge circuit. **10**

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