

22223

**M.Tech. 1st Semester (EM)
Examination, December-2018**

MACHINE DESIGN

Paper- M-805-A

Experimental Stress Analysis

Time allowed : 3 hours]

[Maximum marks : 100

Note: Attempt any five questions. All questions carry equal marks.

1. What are the basic characteristics of a strain guage? Also write brief note on dielectric and electrical strain guages. 20
2. Discuss the various types of guage materials and also discuss bonded type guages. 20
3. Write about
 - (a) Temperature effects in bonded guages. 10
 - (b) Guage factor and guage sensitivity. 10
4. What is current sensitivity? Also explain working and calculations of Wheatstone bridge with neat sketch. 20
5. Discuss about
 - (a) Stress optic law and strain optic law. 10
 - (b) Elliptically polarized light. 10
6. (a) What are various crack detection methods? 10
(b) Discuss the crack pattern which can be obtained under various combinations of stresses. Illustrate with neat sketches. 10

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[P.T.O.]

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7. Write about
- (a) Polariscope. 10
 - (b) Fringes due to Principal stress direction and difference. 10
8. Explain in detail about separation of stresses. 20

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