Roll No. .....

22223

M. Tech. 1st Sem. - Mechanical Engg.

(Machine Design)

Examination – January, 2016

EXPERIMENTAL STRESS ANALYSIS

Paper : M-805-A

Time : Three Hours] *[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

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

1. (a) Explain the construction and working of pneumatic strain gauge. 10

(b) Explain with sketch dual-temperature-compensated semi conductor strain gauge. 10

2. Discuss the various types gauge materials and also discuss the Weld able gauges. 20

3. What is foil gauges and Strain gauge adhesive ? Explain how strain gauge adhesive is used in strain gauges and how the Fixing of gauges is done. Explain. 20

4. Explain with the help of sketch the working and calculations Wheatstone bridge. Also discuss what circuit sensitivity is. 20

5. (a) Enumerate the properties of an ideal photoelastic material. 10

   (b) Write short note on plane polarized and elliptically polarized light. 10

6. Explain the crack pattern and crack detection in coating technique of stress analysis. 20

7. (a) Explain briefly the phenomenon of Moire technique used for the analysis of stress. 10

   (b) State the assumption made in the brittle coating of stress analysis and drive the equation for the same. 10

8. Write short notes on : 20

   (a) Signal addition and modification

   (b) Fractional fringe order

   (c) Gauge sensitivity
