M.Tech. 1st Semester Mechanical Engg. (Machine Design) Examination, December–2017

EXPERIMENTAL STRESS ANALYSIS

Paper–M–805–A

Time allowed : 3 hours] *[Maximum marks : 100*

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

1. (a) Explain the working of Single Pressure output pneumatic strain guage. 10

   (b) Write about piezoelectric transducer. 10

2. What is foil guage and strain guage adhesive ? Explain how strain guage adhesive is used in strain guages and how the fixing of guages is done. Explain. 20

3. Write about rectangular, delta and tee-delta rosette in detail. 20

4. Discuss about :

   (a) Potentiometer circuit 10

   (b) Photoelastic materials. 10

5. (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

6. Write about :
   (a) Photoelasticity and polarization of light. 10
   (b) Optical strain guage. 10

7. Write in detail about calibration through tension, beam and disc models. 20

8. Write brief note on :
   (a) Fractional fringe order. 10
   (b) Reflection polariscopy. 10