PVP 12

Code: **MEMD2T4**

I M.Tech - II Semester - Regular Examinations – September 2015

EXPERIMENTAL STRESS ANALYSIS
(MACHINE DESIGN)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) Derive compatibility equations for plane strain distribution in Cartesian Co-ordinates. 7 M

   b) Explain three dimensional stress strain relations. 7 M

2. a) Explain electrical resistance strain gauges and its desirable features. 7 M

   b) Explain strain sensitive resistive elements. 7 M

3. a) Explain strip-chart recording signal of increasing frequency. 7 M

   b) Explain Gap effect at high frequency and low frequency. 7 M

4. a) Explain the procedure for brittle coating analysis and calibration. 7 M

b) What are the different variables which influence the coating behavior? 7 M

5. a) Explain different types of gratings are used in Moire strain Analysis. 7 M

b) Explain moiré Fringe effect on combined normal and shear strain. 7 M

6. Describe the procedure for accurate determination of integral and fractional fringe values in a stressed photoelastic model. 14 M

7. a) Explain Shear difference method in three dimensions and derive its equation. 7 M

b) Explain figure of merit, sensitivity index and time edge effect. 7 M

8. a) Explain reinforcing effect of birefringent coating in plane stress and derive its equation. 7 M

b) Explain the effects of coating thickness . 7 M