Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

MVSE-204

M.E./M.Tech., II Semester

Examination, December 2016

Experimental Stress Analysis

Time : Three Hours

Maximum Marks : 70

Note : i) Attempt any five questions.
ii) Each question carry equal marks.
iii) Assume suitable data, if required.

1. a) Differentiate between unbalanced and balanced bridge systems.
   b) Explain "Moire fringe method".

2. a) Describe 2D and 3D techniques of static stress analysis by photo-elastic strain gages.
   b) Explain method of calculation of stress intensity factor for double cantilever beam specimen by FEM.

3. a) Describe principle of crack theory. Differentiate between stable and unstable crack growth.
   b) Explain method of section for an approximate calculation of stress intensity factor.

4. a) Discuss the strain-gage locations for various measured quantities.
   b) Explain in detail optical relationship.

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5. a) Write short notes on followings :
   i) Brittle coating
   ii) Calibrating strain gages
   b) Explain "Griffith Orowan-Irwin concept".

6. a) Explain some material characteristics used for the evaluation of crack propagation resistance.
   b) What are the uses of multichannel recording systems?

7. a) Discuss mechanical strain gage in detail. What are the advantages of mechanical strain gages over all other types of strain gages.
   b) Discuss the strain-gage locations for various measured quantities.

8. Write short notes on any two of the following :
   a) Temperature compensation of circuitry
   b) Shell with a crack trajectory
   c) Magnetic tape recorders

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