

Register Number: .....

**B.E. DEGREE EXAMINATIONS: MAY/ JUNE 2013**

Sixth Semester

**AERONAUTICAL ENGINEERING**

AER114 : Experimental Stress Analysis

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. Blunders mainly covers due to \_\_\_\_\_
  - a) Human mistakes in reading instrument
  - b) Human mistakes in recording instrument
  - c) Wrong adjustment of measuring device
  - d) All of the above
2. \_\_\_\_\_ is the closeness to the measurement of true value.
  - a) Accuracy
  - b) Precision
  - c) Sensitivity
  - d) Endurance
3. A strain gauge is a device which undergoes change in electrical \_\_\_\_\_ to measure strain.
  - a) resistance
  - b) conductivity
  - c) wave length
  - d) sign convention
4. Change in angle or shape divided by the original angle or shape is called \_\_\_\_\_.
  - a) Normal strain
  - b) Shear strain
  - c) Normal stress
  - d) Shear stress
5. Static as well as dynamic strain can be measured more accurately in \_\_\_\_\_.
  - a) Mechanical strain gauge
  - b) Optical strain gauge
  - c) Pneumatic strain gauge
  - d) Electrical resistance strain gauge
6. Potentiometer circuit is sometimes called as \_\_\_\_\_.
  - a) Quarter bridge circuit
  - b) Half bridge circuit
  - c) Full bridge circuit
  - d) None of the above



b) Explain the principles of measurement with reference to accuracy, sensitivity and range.

22. a) What are the various types of Mechanical strain gauges? Explain Huggenberger tensometer in detail.

**(OR)**

b) Write a short account of the various types of strain gauges. Give their special advantages and limitations.

23. a) Write short notes on the following :

(i) Electromagnetic strain gauge (7)

(ii) Weldable strain gauge (7)

**(OR)**

b) Discuss the various methods of calibrating a strain gauge

24. a) Sketch a plain polariscope. Explain the effects of a stressed model and the fringes obtained in it.

**(OR)**

b) Explain the Tardy's compensation method in detail. Why this method is preferred over other methods?

25. a) Write short notes on the following:

(i) Eddy Current Testing (7)

(ii) Radiography (7)

**(OR)**

b) State the uses and advantages of Non-Destructive Testing procedures. Explain in detail any one of the NDT procedure for evaluating a given specimen.

\*\*\*\*\*