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Question Paper Code : 91074

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019
Seventh Semester
Aeronautical Engineering
AE 6702 – EXPERIMENTAL STRESS ANALYSIS
(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What is analysis ?
2. Define accuracy.
3. Describe about strain gauge.
4. Write the working principle of strain indicator.
5. What do you mean by 'stress optic law' ?
6. Discuss about 'Photo elasticity'.
7. What do you understand the term 'Brittle coating' ?
8. Write the uses of Moire method.
9. What is the role of Non-Destructive testing ?
10. Mention any four applications of 'Thermography'.

PART – B

(5×13=65 Marks)

11. a) Explain clearly accuracy, precession, resolutions and sensitivity. (13)
(OR)
b) What is an extensometer ? Also explain with the suitable examples of any two types of extensometers. (13)

91074



12. a) Explain the physical operation of strain gauges. Also explain wheatstone bridge applications for strain gauges. (13)
- (OR)
- b) What is a triangular strain Rosette and how is it employed to obtain magnitude and direction of principal stresses. (13)
13. a) i) What is stress optic law ? (4)
- ii) Distinguish between plane polariscope setup and circular polariscope setup with neat sketches and their components. (9)
- (OR)
- b) i) What is meant by compensation technique ? Explain. (7)
- ii) What is meant by separation technique ? Explain. (6)
14. a) Explain the following Moire techniques :
- i) E-beam process. (7)
- ii) Lithographic techniques for grating. (6)
- (OR)
- b) Explain the following Moire technique process :
- i) Generating and recording in fringe pattern. (7)
- ii) Moire generation of fringe pattern. (6)
15. a) What do you mean by 'Acoustic Emission' ? Explain the phenomena and uses of Acoustic Emission. (13)
- (OR)
- b) Explain the concept and materials used for Fluorescent Penetrant Inspection (FPI). Also state the advantages and disadvantages of it. (13)

PART - C

(1×15=15 Marks)

16. a) Explain the working of six component wind tunnel balance with necessary diagrams and equations. (15)
- (OR)
- b) Explain the clearly the all the equipment of radiography. (15)