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Question Paper Code : X10042

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2021

Sixth Semester

Aeronautical Engineering

AE 8605 – EXPERIMENTAL STRESS ANALYSIS

(Common to Aerospace Engineering)

(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

1. Define the terms sensitivity and range. **PART – A** **(10×2=20 Marks)**

2. List the types of extensometers.

3. What do you mean by temperature calibration ?

4. What is Rosette analysis ?

5. What are the photo elastic materials ?

6. What is Jones calculus ?

7. What are the types of brittle coating ?

8. State the relation between stresses in coating and specimen.

9. What is non-destructive testing ?

10. What is eddy current testing ?

PART – B

(5×13=65 Marks)

11. a) Describe the working of mechanical type extensometer with a neat sketch.

(OR)

b) What is Laser displacement sensor ? Explain in detail.

12. a) What is dynamic strain measurement ? Explain with the help of potentiometer circuit diagram.

(OR)

b) What is six component balances ? Explain.

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13. a) With neat sketch explain the working of circular polaris cope.

(OR)

b) Explain about compensation and separation techniques.

14. a) State and explain any two failure theories of brittle coating.

(OR)

b) Describe Moiré methods of strain analysis.

15. a) What are the different types of acoustic emission techniques ? Explain.

(OR)

b) Write short notes on

i) Radiography and

(7)

ii) Thermography testing.

(6)

PART – C

(1×15=15 Marks)

16. a) Describe the interpretation of fringe pattern of isoclinic and isochromatic photo elasticity.

(OR)

b) What is Wheat Stone Bridge ? With suitable diagram describe the working of wheat stone bridge also state its merits and demerits.
