

5. Assertion (A): When the pitch difference is large, then the Moire's fringes are said to be positive. [K₂]

Reason (R): The distance between the master grating lines is called pitch.

- a) Both A and R are individually true and R is the correct explanation of A b) Both A and R are individually true and R is not the correct explanation of A
c) A is true but R is false d) A is false but R is true

6. When the strain field is unknown, the rosette recommended for use is, [K₂]

- a) Rectangular rosette b) T-delta rosette
c) Delta rosette d) Square rosette

7. Name of the wave generated in UPV instrument is [K₂]

- a) Compression waves b) Torsion waves
c) Tension waves d) All the above

8. The rebound values reflect the concrete quality upto a depth of [K₂]

- a) 20 mm b) 40 mm
c) 50 mm d) 70 mm

9. Which of the following is a model material? [K₂]

- a) Brass b) Polyurethane Rubber
c) Both a) and b) d) Paper

10. Consider the following statements. [K₂]

1. A model is smaller than the prototype.
2. Certain photo-elastic materials exhibits double refractive property when stressed.
3. If the scale ratio is more than 5, the model is said to be large scale model.
4. Lateral extensometer method is one of the methods of stress separation.

Which of these statements are correct?

- a) 1,3 b) 1,4
c) 3,4 d) 2,4

PART B (10 x 2 = 20 Marks)

11. What are the applications of proving rings? [K₂]
12. What is the necessity of calibration of testing machines? [K₂]
13. Draw a constant current Wheatstone bridge circuit and mark the salient points. [K₂]
14. What is LVDT? Explain its uses. [K₂]
15. Write the classification of strain rosettes. [K₂]

16. What is a transducer? [K₂]
17. Define holography. [K₂]
18. What is acoustic emission? [K₂]
19. Compare kinematic similarity and dynamic similarity. [K₂]
20. List the methods of stress separation. [K₂]

PART C (10 x 5 = 50 Marks)

21. Explain the application of pressure gauges in strain measurements. [K₂]
22. What are the basic characteristics of strain gauge? What are the factors to be considered while selecting a strain gauge? [K₃]
23. Compare Potentiometer circuit and Wheatstone bridge circuit. [K₃]
24. List the uses of lead wires and switches. [K₂]
25. Draw and explain a seismograph. [K₃]
26. Explain Moire's techniques briefly. [K₃]
27. Describe the testing of bridges and tower structures using non-destructive testing techniques. [K₂]
28. Explain the uses of non-destructive testing techniques. [K₂]
29. Explain the advantages of testing large scale structures. [K₂]
30. What is a wind tunnel? Explain its use in structural analysis. [K₃]

PART D (2 x 10 = 20 Marks)

31. Explain digital data acquisition and processing systems with neat sketches. [K₃]
32. Illustrate the properties of Isoclinic and Isochromatic fringe patterns. [K₃]
