

Time: Three Hours

Maximum Marks: 80

“Please check whether you have got the right question paper.”

- i) Solve any two questions from each section.
- ii) Figure to the right indicate full marks.
- iii) Draw diagram wherever necessary.
- iv) Assume suitable data if necessary.

SECTION-A

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| Q.1 | a) Explain the basic concept in dynamic measurement. | 08 |
| | b) Explain the procedure of experimental planning. | 05 |
| Q.2 | a) Define and explain the basic concept of calibration and standards. | 08 |
| | b) Explain the concept of generalized measurement system. | 05 |
| Q.3 | a) Explain the Chi-square test of goodness of fit. | 08 |
| | b) What do you mean by the correlation coefficient? | 05 |
| Q.4 | a) Explain the causes and types of experimental errors. | 08 |
| | b) What do you mean by statistical analysis of experimental data? | 05 |
| Q.5 | Write short notes on (<u>any two</u>) | 14 |
| | 1) The Gaussian distribution. | |
| | 2) Normal error distribution. | |
| | 3) Graphical analysis and curve fitting. | |
| | 4) General considerations in data analysis. | |
| | 5) The method of least square. | |

SECTION-B

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| Q.6 | a) What are the various methods of sound measurement? Explain any one. | 08 |
| | b) What are the practical considerations of seismic instruments? | 05 |
| Q.7 | a) Explain the general data acquisition system. | 08 |
| | b) What do you mean by data transmission? Explain. | 05 |
| Q.8 | a) Explain any two types of strain gauges. | 08 |
| | b) Explain the concept of mass balance measurement. | 05 |
| Q.9 | a) Explain the concept of stress strain measurement. | 08 |
| | b) Explain the concept of elastic elements of force measurement. | 05 |
| Q.10 | Write short notes on (<u>any two</u>) | 14 |
| | 1) Signal conditioning. | |
| | 2) Data storage and display. | |
| | 3) Torque measurement. | |
| | 4) Simple vibration instrument. | |
| | 5) Data transmission. | |