

B.TECH. DEGREE EXAMINATION, MAY 2014**Sixth Semester**

Branch : Applied Electronics and Instrumentation

INDUSTRIAL INSTRUMENTATION—I (A)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions.**Each question carries 4 marks.*

1. Distinguish between Direct and Indirect measurements, giving examples.
2. Define the dynamic response of a system and distinguish between steady-state response and transient response.
3. How an unknown force is measured ?
4. What is a load cell ? Explain its principle.
5. List out different torque measuring devices.
6. What are the advantages of the feedback method of torque measurement ?
7. List out the general features of differential pressure type flow meters.
8. What are the advantages of ultrasonic flowmeter ?
9. What are "manometers" ? How are these classified ?
10. Explain the principle of measurement of sound pressure level.

(10 × 4 = 40 marks)

Part B*Answer all questions.**Each question carries 12 marks.*

11. Distinguish between Static and Dynamic characteristics. Explain the terms : accuracy, precision, sensitivity, resolution, hysteresis, drift and repeatability with examples.

Or

12. Explain the principles of null and deflection methods with the help of examples. Compare and contrast them.

Turn over



13. What are load cells ? Describe a pneumatic type load cell and a magnetoelastic load cell.

Or

14. Describe the construction and working of a strain gauge load cell. State its field of application.

15. With the help of neat sketches, describe the working principle of vibrating wire forcé transducers. Explain how torque can be measured using it.

Or

16. Describe the method of torque measurement using a dynamometer.

17. How is a liquid level in a boiler drum measured ? How far would this value be correct ? What are the difficulties associated with such measurement ?

Or

18. Describe with neat sketch the construction and working of area flow meter. Also list out its advantages and disadvantages.

19. On what principle do the bell gauges operate ? Name the different types of bell gauges used in practice and describe the application of any one clearly.

Or

20. Explain the principle of a manometer. How differential pressure measurements are taken ? Explain.

(5 × 12 = 60 marks)

