Reg. No. : | | | | | | | | | | |

Question Paper Code: 34602

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Fourth Semester

Instrumentation and Control Engineering

01UIC402 - INDUSTRIAL INSTRUMENTATION - I

(Common to Electronics and Instrumentation Engineering)

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Write the principle of stroboscope.
2. Define load cell.
3. What is API scale?
4. Define density and what are its units?
5. What is calibration?
6. What is the function of a dead weight tester?
7. What is the purpose of protecting sheaths in a thermocouple?
8. What are three electrical methods of temperature measurement?
9. What is optical pyrometer?
10. Distinguish between RTD and thermocouple.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Explain about drag-cup type tachometer. (8)

(ii) Explain any two types of speed measurement. (8)

Or

(b) Describe in detail about magneto elastic load cell with neat diagram. (16)

12. (a) (i) Explain the working of variable reluctance type accelerometer with neat diagram. (8)

(ii) With neat diagram, explain the operation of ultrasonic densitometer. (8)

Or

(b) Explain the detail about LVDT and Strain gauge accelerometer. Give its merit and demerits. (16)

13. (a) Discuss about different types of manometer. (16)

Or

(b) With neat sketch explain the principle of operation of Mcleod gauge and dead weight tester. (16)

14. (a) (i) Write short notes on secondary fixed points thermometers. (8)

(ii) Explain the working of 3 lead and 4 lead RTDs. (8)

Or

(b) (i) Explain in detail about the operations of bimetallic thermometer. (8)

(ii) Explain about the signal conditioning methods for industrial RTDs. (8)

15. (a) Describe in detail about cold junction compensation techniques with neat diagram. (16)

Or

(b) Discuss the working principle, construction and operation of total radiation pyrometer with advantage and disadvantage. (16)