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

Question Paper Code: 31642

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

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. What is load cell and give the type of it?
2. Write the formula for determining the actual speed in a stroboscope.
3. Write the natural frequency equation for vibration.
4. What is API scale?
5. Mention the different units of pressure.
6. What is the function of a dead weight tester?
7. List the applications of RTD.
8. What is triple point of water?
9. Define first law of thermocouple.
10. List the factors which decide the response of thermocouple.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Explain the working principle of pneumatic load cell. (8)

(ii) Elucidate the operation of AC tacho-generators with neat sketch. (8)

Or

(b) (i) Describe in detail about pneumatic load cell with neat diagram. (8)

(ii) Describe in detail about magneto elastic load cell with neat diagram. (8)

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) (i) Explain the working principle and construction of pressure head type densitometer. (8)

(ii) Explain the working principle and construction of bridge type gas densitometer. (8)

13. (a) (i) With neat diagram, illustrate the operation of capacitive type pressure gauge. (8)

(ii) Explain in detail about the operation of thermal conductivity gauge. (8)

Or

(b) (i) Describe in detail about testing and calibration of pressure gauge. (8)

(ii) Draw the diagram of McLeod gauge and explain in detail. (8)

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

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

Or

(b) Elaborate the different types of sources of errors in filled in system and explain the compensation technique with relevant sketches. (16)

15. (a) (i) Explain in detail about two color radiation pyrometer with neat diagram. (8)

(ii) Describe in detail infra-red pyrometer with neat diagram. (8)

Or

(b) (i) List any five advantages and disadvantages of thermocouple. (8)

(ii) Explain the operation of fiber optic temperature measurement. (8)

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