

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 54505

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Fourth Semester

Electronics and Instrumentation Engineering

15UEI405 - INDUSTRIAL INSTRUMENTATION - I

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- In a drag cup type AC tacho generator, the output voltage is
 - sinusoidal
 - in the form of pulses
 - modulated waveform
 - constant DC because rectifiers are used
- Which of the following is not a speed measuring instrument?
 - Psychrometer
 - Stroboscope
 - Tachometer
 - all the above
- When seismic transducers operate in the displacement mode, they should be designed with _____
 - stiff spring and light mass
 - heavy mass and weak spring
 - light mass and weak spring
 - heavy mass and stiff spring
- A car initially at rest accelerates in a straight line at 3m/s^2 . What will be the speed after 2 seconds?
 - 0 m/s
 - 5 m/s
 - 6 m/s
 - 3 m/s
- Configuration of Bourdon spring tube is never made of _____ shape.
 - circular
 - Semi-circular
 - helical
 - spring

6. Pressure of 0.0001 absolute psi can be measured by _____ gauge.
 (a) McLeod (b) Pirani (c) Thermocouple (d) None of these
7. Recording is not possible with
 (a) Liquid in glass thermometer (b) Thermocouple
 (c) Filled in system thermometer (d) Pyrometer
8. Self compensating capillary tube is used in the filled in system thermometer to eliminate or minimize
 (a) elevation effect (b) immersion effect
 (c) barometric effect (d) temperature effect
9. Which of the following thermocouples can measure the maximum temperature?
 (a) Platinum-rhodium (b) Tungsten-molybdenum
 (c) Chromel-alumel (d) Iron-constantan
10. Radiation pyrometers are used in the temperature range of
 (a) 0-500°C (b) 500-1000°C
 (c) 1200-2500°C (d) -250-500°C

PART - B (5 x 2 = 10 Marks)

11. Define magneto-elastic effect.
12. Define density. Give some units of density.
13. State the principle of LVDT.
14. Label any four temperature scales.
15. Define temperature

PART - C (5 x 16 = 80 Marks)

16. (a) Describe the principle and construction of
 (i) Stroboscope (8)
 (ii) Strain gauge load cell (8)
- Or
- (b) Analyze the working of DC and AC tacho generator with neat sketch and give its merits and demerits. (16)

17. (a) Explain in detail about Piezoelectric and variable reluctance accelerometer with neat sketch. Give its merit and demerits. (16)

Or

(b) Explain mechanical type vibration measuring instruments with merits and demerits. (16)

18. (a) Explain in detail about electrical methods of pressure measurement with neat diagram. (16)

Or

(b) Analyze the principle of working of bellows and diaphragm with neat sketch. (16)

19. (a) Explain in detail about different types of filled system thermometers with neat sketch. (16)

Or

(b) Discuss the electrical methods of temperature measurement. Resistive Temperature Detectors (RTD). (16)

20. (a) Write short notes on

(i) Laws of intermediate temperatures and metals (8)

(ii) Cold junction compensation of thermocouple (8)

Or

(b) Illustrate the construction and working principle of two colour radiation pyrometers with its advantages and disadvantages. (16)
