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Question Paper Code: 54505

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fourth Semester

Electronics and Instrumentation Engineering

15UEI405 - INDUSTRIAL INSTRUMENTATION - I

(Regulation 2015)

Duration: 1:15hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

- When DC tacho generator is used for measurement of speed of a shaft, it requires frequent calibration because the
 - Contact wears off
 - Strength of permanent magnet decreases with age
 - Armature current produces heating effects
 - Change in atmospheric temperature induces more error
- Which of the following is not a speed measuring instrument?
 - Psychrometer
 - Stroboscope
 - Tachometer
 - all the above
- Mass of wood is 2600 kg and volume is 5.2 m^3 , its density is
 - 500 kg m^{-3}
 - 50 kg m^{-3}
 - 5000 kg m^{-3}
 - 2×10^{-3}
- 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. _____ temperature scale assigns 0° to the 'ice point' and 80° to the 'steam point'.
 (a) Celsius (b) Rankine (c) Reaumur (d) Fahrenheit
8. Thermistors are made of
 (a) Ultra pure metals (b) Metal oxides
 (c) Iron-copper alloys (d) Nickel-chromium alloys
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 (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain the sensing principle and operation used in pneumatic load cell with a neat diagram. (8)
12. Discuss the seismic transducer and explain its operation in displacement mode and acceleration mode. (8)
13. Summarize the working of hot and cold cathode type ionization gauge. Cold Cathode Type Ionization Gauge. (8)
14. Explain the possible sources of errors in filled in system thermometers and give its compensation. (8)
15. Analyze the signal conditioning circuit of thermocouple. (8)