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Total Number of Pages : 01

B.Tech
PEEI5403

8th Semester Back Examination 2018-19

INDUSTRIAL INSTRUMENTATION

BRANCH : CHEM, CSE, ECE, EEE, EIE, ELECTRICAL, ETC, IEE

Time : 3 Hours

Max Marks : 70

Q.CODE : F021

Answer Question No.1 which is compulsory and any FIVE from the rest.

The figures in the right hand margin indicate marks.

- Q1** Answer the following questions : (2 x 10)
- a) Define loading error with examples.
 - b) Differentiate between gas and liquid analyzers.
 - c) Write Bragg's condition for coherent scattering.
 - d) Define reliability. How reliability is related to MTTF?
 - e) Explain the term NEMA and IP.
 - f) What is flue gas? Lists the gases present in flue gas.
 - g) How the channel capacity and channel bandwidth related?
 - h) Draw the typical block diagram of voltage telemetry system.
 - i) Draw the scheme of power plant cycle.
 - j) How thermal conductivity of pure gas varies with temperature?
- Q2** a) Lists the sensors/instruments for the measurement of the pressure, temperature, flow, level and vibration on power plant. (5)
- b) Explain the generation of X-ray and their characteristics. (5)
- Q3** a) Derive the mathematical expressions for step response of a second order system for under damping and critically damping. (5)
- b) Explain TDM and FDM in measurement system. (5)
- Q4** a) Sketch the typical wireless I/O and explain its operation. (5)
- b) Explain the propagation of light through fibre optic system. (5)
- Q5** a) Draw the balanced scheme of a zener barrier protection system and explain its operation. (5)
- b) Explain the methods of preventions of ignition in Hazardous area. (5)
- Q6** Draw the control diagram for temperature control in a reactor using cascade arrangement and explain it. (10)
- Q7** Distinguish the process between evaporation and drying. Explain the importance of measurement and control of density and conductivity and differential pressure in evaporators. (10)
- Q8** Write short answer on any TWO : (5 x 2)
- a) PH Measurement
 - b) Bath Tub Curve
 - c) Gas Chromatography