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Total Number of Pages : 02

B.Tech
PBT5H002

5th Semester Regular Examination 2018-19

PROCESS INSTRUMENTATION

BRANCH : BIOTECH

Time : 3 Hours

Max Marks : 100

Q.CODE : E085

Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.

The figures in the right hand margin indicate marks.

Part- I

Q1 Short Answer Type Questions (Answer All-10) (2 x 10)

- Write down two disadvantages of sight glass instrument.
- Reynolds number is used for what purpose?
- What are the different electrical methods for liquid level measurement?
- What is the disadvantage of venturi tube?
- Differential flow meters exhibit a linear relationship between head and flow rate.(T/F)
- Name at least two gauges for vacuum measurement.
- Why calibration of pressure measuring instrument is required?
- What are the common sources of errors in filled-system Thermometers?
- What are the building elements of radiation pyrometer?
- Write two disadvantages of Thermistors.

Part- II

Q2 Focused-Short Answer Type Questions- (Answer Any EIGHT out of TWELVE) (6 x 8)

- Being an engineer write down some steps for selection of flow meters.
- Explain the working principle of strain gauge pressure transducer.
- Discuss with neat sketch construction and working of dead-weight piston gauge.
- Discuss the working of Bimetallic thermometer with some advantages.
- Explain emission spectroscopy briefly.
- With suitable diagram explain torque tube type Displacer level detector.
- Explain the working principle of air purge system briefly.
- Explain mass spectroscopy briefly.
- Discuss with neat sketch construction and working of piezo-electric pressure transducer.
- Explain time-difference type ultrasonic flow meter briefly.
- What are the uses of Pressure switches?
- Explain the working principle of float-type level indicator.

210 210 210 210 **Part-III** 210 210 210 210

Long Answer Type Questions (Answer Any TWO out of FOUR)

- Q3** Suggest and discuss the indirect methods of liquid level measurements used in industries with suitable schematic diagram. **(16)**
- Q4** Discuss with neat sketch, the different types of flow meters used to measure flow of highly corrosive liquids involving measurement of erosive slurries. Also discuss its advantage and disadvantages. **(16)**
- Q5** Suggest the working, advantages and disadvantages of different elastic pressure transducers. **(16)**
- Q6** Explain radiation and optical pyrometer briefly. **(16)**