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Total Number of Pages: 2

**B.Tech**  
**PEEI5403**

**8<sup>th</sup> Semester Regular / Back Examination 2016-17**  
**INDUSTRIAL INSTRUMENTATION**

**BRANCH(S): EEE,METTA,MME**

**Time: 3 Hours**

**Max Marks: 70**

**Q.CODE: Z270**

**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) Mention different types of drift in measurement system and explain them.
  - b) What is spectroscopy? What is Mass spectroscopy?
  - c) How thermal conductivity of a pure gas varies with temperature?
  - d) Define fidelity.
  - e) List the various modes used in optical fiber communication.
  - f) What is voltage telemetry?
  - g) What is hygrometer?
  - h) Write the differences between TDM and FDM.
  - i) Mention different hazards zones presents in industry.
  - j) Write the main objectives of power plant instrumentation.
- Q2 a) What is dynamic calibration of a measuring system? Explain the method of dynamic calibration of a second order system. (5)**
- b) With a help of a neat sketch explain the operation of dual hot wire thermal conductive cell (5)**
- Q3 a) Explain receiver and transmitter of Frequency Hopping Spread Spectrum. (5)**
- b) Explain diffusion, moderation, absorption and decay process in a nuclear reactor. (5)**
- Q4 a) Explain PCM,PDM,PAM with suitable example. (5)**
- b) Describe the operating principle of pH analyzer. (5)**

- Q5** a) Is chromatography related to colour? Explain the working of a liquid chromatography. (5)
- b) What is Zirconia? How Zirconia can be used as oxygen analyzer. (5)
- Q6** a) Briefly discuss the different density measurements used in industry. (5)
- b) Draw and explain the operating principle of MODEM. (5)
- Q7** a) Explain briefly intrinsic safety employed in industry. (5)
- b) Discuss the operation of sodium analyzer with proper diagram. (5)
- Q8** **Write short answer on any TWO:** (5 x 2)
- a) Humidity measurements
- b) Wireless I/O
- c) Modulation of digital data
- d) Statistical Error analysis