Registration no: | | | | | | | | | | |

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B.TECH
PEEI5403

8th Semester Regular / Back Examination 2015-16
INDUSTRIAL INSTRUMENTATION
BRANCH(S): AEIE, ECE, EIE, ENV, ETC, IEE, MINERAL
Time: 3 Hours
Max Marks: 70
Q.CODE: W243

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) What do you mean by dynamic calibration?
b) Mention different types of drift in a measuring system and explain them.
c) What is loading error in measurement system?
d) What is spectroscopy? Define mass spectroscopy.
e) What is telemetry? Give example of voltage telemetry.
f) What are the advantages of pneumatic means in telemetry system?
g) What is Flue gas? List the gases present in Flue gas?
h) What do you understand by intrinsic safety?
i) What is "swelling" and "shrinkage" operation in boiler?
j) Define NEMA and IP.

Q2 **a)** Derive the expression for the response of second order system with step input. **(5)**
b) Explain the operation of X-Ray generation with proper diagram. Also mention their characteristic. **(5)**

Q3 **a)** Discuss and explain the operation of Dual hot wire conductivity cell with proper diagram. **(5)**
b) What is Zirconia Oxygen Analyzer? Explain the operation of it. **(5)**

Q4 **a)** What is Relative humidity? Explain the operation of hygrometer. **(5)**
b) Discuss the scheme of a non dispersive dual channel absorption type IR spectrometer. **(5)**

Q5 **a)** Explain receiver and transmitter of Frequency Hopping Spread Sprectrum. **(5)**
b) Is chromatography related to colour? Explain the operation of a liquid chromatography. **(5)**

Q6 **a)** Draw and explain the typical FDM. What are the difference between FDM and TDM. **(5)**

b) What is the importance of modulation in telemetry? Briefly explain the methods of modulation of digital data. **(5)**

Q7 **a)** Draw the scheme of a typical power plant and explain each block. **(5)**

b) Explain the methods of prevention of Ignition in Hazardous area. **(5)**

Q8 Write Short Note on any two **(5 x 2)**

a) Measurement of pH—construction and working principle

b) Statistical error analysis.

c) Scintillation counter.

d) Wireless I/O