Code No: NR310805 **NR**

III B.Tech I Semester Supplementary Examinations, November 2006
PROCESS INSTRUMENTATION
(Chemical Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. What are the different elements of a measuring instrument? Describe in detail.[16]
2. Describe the working principle of and range of operation of any two of the following :
   (a) Radiation pyrometer
   (b) Optical pyrometer
   (c) Photoelectric pyrometer [8+8+8]
3. Why is composition analysis required in a process industry? Write briefly on the qualitative and quantitative measurements with suitable examples. Highlight about positive methods of composition analysis. [16]
4. What is humidity? Explain its importance. Describe how moisture in fibre materials is measured by infra-red transmission technique. [16]
5. What are the various designs of manometers used to measure pressure. [16]
6. Discuss the different methods of measurement of liquid in open vessels. [16]
7. Describe the working principle of a V-notch and its applications. Obtain the equation used to find the flowrates using weirs. [16]
8. Instrument the process and draw an instrumentation diagram for medium size steam plant with oil firing. The plant produces steam at 13.7 atm for heating and processing uses and the demand is fairly steady. [16]

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