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# SF-7029

## B. E. - III (Sem. VI) (Chem.) Examination

### May / June – 2011

### Instrumentation

Time : Hours] [Total Marks : **100**

**Instructions :**

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
**Fillup strictly the details of ☛ signs on your answer book.**

Name of the Examination :

☛ **B. E. - III (Sem. VI) (Chem.)**

Name of the Subject :

☛ **Instrumentation**

☛ Subject Code No. : **7 0 2 9** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Draw sketches wherever required.
(3) Figures to the right of each question indicate marks.
(4) Assume suitable data if necessary.

**1** (a) Answer the following. **06**

(1) What is laws of Radiation ?

(2) True value + Static Error = _____

(3) Which temperature has the same numerical value in °F and K scales ?

(4) Pirani Gage is used for _____ measurement.

(5) Give any two names of commonly used Thermocouples.

(6) Pointer with scale in an instrument is _____ element.

(b) Answer the following. **08**

(1) Give the name of various vacuum measurement gauge.

(2) Define : Lag
: Reproducibility.
(3) What is Thermoelectricity.
(4) Match the following tables.

| | A | | B |
|---|---|---|---|
| (1) | Alkalinity of solution | (1) | Polarimeter |
| (2) | Specific gravity of liquid | (2) | $p^H$ meter |
| (3) | Analysis of Sugars | (3) | Hygrometer |
| (4) | Amount of moisture in Air | (4) | Hydrometer |

(c) Discuss briefly about static characteristics of an instrument. **06**

**2** Answer any two of the following. **14**
(a) Discuss responce of thermometers.
(b) Explain principle, contribution and working with diagram of any two vacuum gage.
(c) Explain Diaphragm-box system for liquid level measurement.

**3** Write short notes on : (Any four) **16**
(a) Pressure spring thermometer.
(b) pH meter.
(c) Optical pyrometers.
(d) Classification of instrument.
(e) Pitot Tube.

**4** (a) Answer the followings. **2×5=10**
(1) Write down the principle of hydrometer.
(2) Do is complement of $(101100)_2$.
(3) Give symbol and truth table for NOR.
(4) Convent the following decimal number to binary number 41.6875
(5) Draw the schematic diagram of combined pitot tube.
(b) Describe bubble system for liquid level measurement. 1×8=8

**5** Attempt any two : **8×2=16**

(a) Represents the given function in k-map

(i) $F(x,y,z)=\sum(0,2,4,5,6)$

(ii) $F = A'B'C'=B'CD+A'BCD'+AB'c'$

(iii) $F=A'C+A'B+AB'C+BC$

(b) Write down the comparision between 1's and 2's complement.

(c) Describe the principle, construction and working of venturi flowmeter.

**6** Attempt any two. **8×2=16**

(a) pH meter.

(b) Tilting trap meter.

(c) Decoder.