Printed pages: 02 **Sub Code: NCH 604**

Paper Id: 151613 **Roll No:** | | | | | | | | | | |

B. TECH

(SEM VI) THEORY EXAMINATION 2017-18

PROCESS INSTRUMENTATION

Time: 3 Hrs. **Total Marks: 100**

Note: Attempt all sections. If require any missing data, then choose suitably.

SECTION A

Q1. Attempt ALL parts. Write short notes on the following: **(2x10=20)**

(a) Dynamic error
(b) Fidelity
(c) Bimetallic thermometer
(d) Thermistors
(e) Bellows
(f) Target flow meter
(g) Magnetic flow meter
(h) Inclined Manometer
(i) LVDT
(j) Bourdon Tube

SECTION B

Attempt any THREE of the following: **(10x3=30)**

(a) What are the various static characteristics of an instrument? Describe them in detail.
(b) Describe the working of Mcleod gauge with neat diagram. Also discuss its advantages and disadvantages.
(c) What are transducers? Describe the criteria required for selecting the transducer for a particular application.
(d) What are automatic controllers? Explain the basic functions of an automatic controller.
(e) Draw the instrumentation diagram for distillation column and explain its working.

SECTION C

3. Attempt any **ONE** part of the following: **(10x1=10)**

(a) Discuss various classifications of measuring instruments with suitable examples.
(b) What are basic functional elements of an instrument? Describe the various elements for any system with neat diagram.

4. Attempt any **ONE** part of the following: **(10x1=10)**

(a) Enumerate the various indirect level measuring instruments used in chemical industries and discuss the principle and working of Radiation Level Indicator with neat sketch.
(b) Enlist the various temperature measuring instruments used in industries? Explain the working of radiation pyrometer in detail giving its advantages and disadvantages with neat diagram.

5. Attempt any **ONE** part of the following: **(10x1=10)**

(a) What is finite control element? Explain the working of pneumatic control valve with neat diagram.
(b) Make the schematic diagram of any pneumatic control system and explain its working.

6. Attempt any **ONE** part of the following: **(10x1=10)**

(a) Draw a neat diagram of alphatron ionization gauge and explain its working principle and construction.
(b) What are electronic controllers? Discuss the various types of electronic controllers frequently used in industries.

7. Attempt any **ONE** part of the following: **(10x1=10)**

(a) Draw the instrumentation diagram for adsorption column and explain its working.
(b) Draw the instrumentation diagram for networking of heat exchangers and explain it working.