**Printed Pages: 3** **NCH-604**

| (Following Paper ID and Roll No. to be filled in your Answer Books) | |
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| **Paper ID :151614** | **Roll No.** |

**B. TECH.**

**Theory Examination (Semester-VI) 2015-16**

**PROCESS INSTRUMENTATION**

***Time : 3 Hours*** ***Max. Marks : 100***

**Section-A**

**1. Attempt all questions. All parts carries equal marks.** (2×10 = 20)

(a) Name the various static and dynamic characteristics of instruments.

(b) What are the main elements of a measuring system?

(c) Name the various instruments used to measure temperature and pressure.

(d) How will you measure the humidity of air? Name the instrument.

(e) Explain principle of electro-pneumatic transducer.

(f) Describe the characteristic of control valve.

(g) What are the final control elements of control system?

(h) Write down the difference between pneumatic and electronic controller.

(i) Name the various types of heat exchanger.

(j) Enlist the difference between single effect and multiple effect.

## Section-B

**2. Attempt any five question from this section** (10×5 = 50)

(a) What are, in general, the functional elements in a measuring system? For a bourdon tube pressure gauge, identify various functional elements.

(b) Write brief description of various static performance parameters of instruments. Giving example, state what specifications should be made for the static characteristics.

(c) Describe the methods used for the measurement of Humidity and moisture content in gases and solids.

(d) List various devices for measuring liquid level. Discuss any one method for measuring liquid level in a closed vessel. Draw a neat diagram of the instrument.

(e) Describe the construction and working of a pneumatic controller.

(f) List various devices for measuring flow rate. Discuss any one method for measuring flow from a tank. Draw a neat diagram of the instrument.

(g) Describe the working principle, construction and operation of inclined tube manometer with the help of neat diagram.

(h) Describe the classification of temperature devices based on the nature of changed produced. Indicate the approximate temperature range of each category.

## Section-C

**Attempt any two question from this section** (15×2 = 30)

3. Describe the process instrumentation diagram for a distillation column and absorber.

4. Discuss the working mechanism and construction of motorized valve with the help of neat sketch.

5. Describe the various types of instruments to measure temperature with its ranges. Explain the construction and working of Bimetallic Thermometer.