Printed Pages: 02 **Subject Code:REC408**

Paper Id: **131293** **Roll No:** | | | | | | | | | | | |

BTECH
(SEM IV) THEORY EXAMINATION 2018-19
PROCESS INSTRUMENTATION

Time: 3 Hours ***Total Marks:70***

Notes: *Assume any Missing Data.*

SECTION – A

1 Attempt all questions in this section. All question carry equal marks (2 X 7 = 14)

(a) What do you mean by calibration?
(b) Give an example of direct and indirect measurement.
(c) What do you understand by self operated and power operated instrument?
(d) A thermometer is calibrated for the range of 100˚C to 150˚C. The accuracy is specified as 0.25%. What is the maximum static error?
(e) Define expansion thermometer
(f) What is Centigrade and Reaumur?
(g) Draw the double-side wire bridge.

SECTION – B

2. Attempt any three of the following: (7X3= 21)

(a) With the help of figure describe various parts and working of bubbler system for liquid-level measurement?
(b) Explain saybolt measurement method for viscosity?
(c) Describe orifice flow meter in detail with neat diagram also discuss its advantages and disadvantages?
(d) Explain anemometers in detail with their respective diagrams and working principle?
(e) Discuss Barometer with its proper diagram.

SECTION – C

3. Attempt any one part of the following: (7X1 = 7)

(a) What are various errors in measuring instruments, Explain each of them?
(b) Describe the following in detail.
  i. Static characteristics of an instrument.
  ii. Dynamic characteristics of an instrument.

4. Attempt any one part of the following: (7X1 = 7)

(a) Discus Pressure gauge using Bourdon Tube? The lowest and highest recorded weather temperatures in the world are -90˚F and 135˚F. Convert these temperatures to Kelvin and Reaumur.

(b) Describe the following in detail
   i. Pressure spring thermometer.
   ii. Mercury in glass thermometer.

5. Attempt any one part of the following: (7X1 = 7)

(a) Discuss the level measurement by capacitance with its working principle?
(b) Describe the following in detail with their advantages and disadvantages.
   i. Mc Leod gauge.
   ii. Ionization gauge.

6. Attempt any one part of the following: (7X1 = 7)

(a) Classify various types of instruments also mention functions fulfilled by an instrument?
(b) Classify different type of transducers. Also mention characterstics demanded from transducers?

7. Attempt any one part of the following: (7X1 = 7)

(a) Describe the following with neat sketch and working principle.
   i. Redwood viscometer.
   ii. Engler viscometer.
(b) Describe electromagnetic transducers in detail with suitable diagrams also mention their advantages and disadvantages?