Printed Pages: 02 **Sub Code: NME403**
Paper Id: 140409 **Roll No.** | | | | | | | | | | |

B. TECH.
(SEM IV) THEORY EXAMINATION 2017-18
MEASUREMENT AND METROLOGY

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. Define calibration.
b. What is the function of transducer?
c. Define gauge pressure.
d. Define gauge factor.
e. Name any two instruments for measuring fluid flow rate.
f. Define line standard.
g. Define straightness.
h. What do you mean by best wire size?
i. Define accuracy.
j. What do you mean by surface roughness?

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a. State and explain any five static performance characteristics of measurement devices.
b. Using neat sketch, explain the procedure for time measurement using stroboscope.
c. Explain the construction and working of rotameter.
d. Using a neat sketch, explain the working of tool maker's microscope. What are its applications?
e. Explain the procedure for measurement of displacement using LVDT. Support with neat sketches.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) With a block diagram, explain the generalized measuring system and functional elements.
(b) What are the different signal recording devices? Explain any one in detail.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is the function of manometer? List its types and explain any one in detail.
(b) Using neat sketches, explain temperature measurement using optical pyrometer.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) Describe the procedure for measuring fluid velocity using hot wire anemometer.

(b) What is the use of GO-NOGO gauges? Describe the Taylor's principle of gauge design.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the construction and working of micro optic auto-collimator.

(b) Elaborate the two-wire method for measurement of effective diameter of screw thread.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) With neat sketch, explain the construction and working of Johansson's microkrator.

(b) What is the purpose of using a comparator? Briefly explain the construction of sigma comparator.