

**B.VOC. AUTOMOTIVE MANUFACTURING  
and**

**B.VOC. AUTOMOTIVE MECHATRONICS**

**Subject: Measurement & Metrology**

**Subject Code: BBME-104**

**Semester: 2<sup>nd</sup> (Re-appear)**

**Batch: 2017-20**

**Theory (External): 35 Marks**

**Time: 03 hours**

**Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 6 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

**Roll Number**

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## SECTION -A (OBJECTIVE TYPE QUESTIONS)

(10x1=10 Marks)

Q1 All questions are compulsory

a) The degree of closeness of the measured value of a certain quantity with its true value is known as

- A. Accuracy
- B. Precision
- C. Standard
- D. Sensitivity

b) -Error of measurement =

- A. True value – Measured value
- B. Precision – True value
- C. Measured value – Precision
- D. None of the above

c) The ability by which a measuring device can detect small differences in the quantity being measured by it, is called its

- A. Damping
- B. Sensitivity
- C. Accuracy
- D. None of the above

d) In a measuring system quantity under measurement is termed as

- A. Measurand
- B. Controllers
- C. Sensors
- D. Indicators

e) The following term(s) is (are) associated with measuring devices

- A. Sensitivity
- B. Damping
- C. Both 'a' and 'b'
- D. None of the above

- The following is a line standard of measurement
- A. Measuring tape
  - B. Slip gauge
  - C. Micrometer
  - D. End bars
- g) To compare an unknown with a standard through a calibrated system is called
- A. Direct comparison
  - B. Indirect comparison
  - C. both 'a' and 'b'
  - D. None of the above
- h) The following is an internationally recognized and accepted unit system
- A. MKS
  - B. FPS
  - C. SI
  - D. All of the above
- i) One foot = \_\_\_\_\_ inch
- A. 36
  - B. 38
  - C. 40
  - D. 42
- j) In a measuring system what is the term used to specify a difference between higher and lower calibration values?
- A. Range
  - B. Span
  - C. Drift
  - D. Threshold

## SECTION -B (ESSAY TYPE QUESTIONS)

(5x5=25 Marks)

- Q1 What is the need of calibration? Explain the classification of various measuring methods.
- Q2 Describe the elements of a measuring system. How they affect accuracy and precision?
- Q3 How do you calibrate the slip gauges? List out any four angular measuring instruments used in metrology.
- Q4 Describe the mechanical comparator. Explain the least count of a mechanical comparator.
- Q5 Explain with neat diagram the purpose and operating principle of a venturi meter.
- Q6 Differentiate between Whitworth thread and British association thread with neat sketches.

\*\*\*\*\*END OF PAPER\*\*\*\*\*