Hall Ticket Number:

Code No. : 15401 O(B)

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (ECE) III Year I-Semester Old Examinations, May-2019

Electronic Instrumentation

Time: **3** hours Max. Marks: **70**

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks)

1. A 200 V Voltmeter is accurate within +/- 2% .Calculate limiting error when the Voltmeter is measuring 50 V?
2. Define accuracy and precision of an instrument. How do they differ?
3. Give examples of active and passive transducers.
4. Write the applications of Strain gauge.
5. List the different types of microphones.
6. Classify the types of temperature transducers.
7. Distinguish between delayed time base oscilloscope and digital Storage oscilloscope.
8. Name different types of Analog to Digital Converters. Which of them is faster in conversion.
9. Define action potential and give its importance.
10. Write the principle of ultrasonic imaging system.

Part-B (5 × 10 = 50 Marks)
(All sub-questions carry equal marks)

11. a) Write different types of Errors that occur during measurement and the methods to overcome it.
    b) Explain the standards of measurement and compare with IEEE standards.
12. a) How flow of fluid is measured. Discuss how flow of Hot wire anemometer is used to monitor flow of fluid.
    b) Discuss advantages of active transducers. Compare performance parameters of photo conductive, photo voltaic, photo emissive transducers.
13. a) Discuss different types of temperature measurement. Describe the principle of platinum resistance thermometer and precautions to be taken in the measurement.
    b) Discuss the working principle of capacitive type microphone with the help of suitable circuit diagram.
14. a) Discuss the applications of Virtual instrumentation. List the advantages of Virtual instruments.
    b) Describe Supervisory Control and Data Acquisition (SCADA) system using block diagram.
15. a) Compare the advantages and limitations of X-ray and CT scan systems and explain one application for each in the body diagnosis.
    b) Explain the MRI system details with the help of block diagram and describe its advantages compared to other techniques.

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