Hall Ticket Number:

Code No.: 14112 AS N/O(C)

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (CBCS) IV-Semester Advanced Supplementary (Old) Examinations, July-2019

Sensors for Engineering Applications

(Open Elective-III)

Time: **3** hours Max. Marks: **60**

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

Part-A (10 × 2 = 20 Marks)

1. Define transfer function.
2. List out the different criteria's to be considered in the classification of sensors.
3. What are the advantages of semiconductor strain gauges?
4. What is piezoelectric effect?
5. Define seebeck and peltier effects.
6. Distinguish between contact and non contact temperature sensors.
7. Write the acronym for SQUID.
8. Classify the types of magneto resistors.
9. Give any two applications of capacitive sensors.
10. Mention any two sensors operating at micro wave frequencies.

Part-B (5 × 8 = 40 Marks)

11.a) Briefly explain the static characteristics of sensors. [5]

b) Distinguish between active and passive sensors. [3]

12.a) Explain the operation of LVDT for measurement of displacement. [4]

b) Derive an expression for gauge factor in strain gauge. [4]

13.a) Give constructional details of Geiger Muller counter. How it can be used as radiation detector? [5]

b) Distinguish between pn junction diode and photo diode. [3]

14.a) Explain working principle of hall sensor and give one application. [4]

b) Briefly classify acoustic sensors and explain any two of them. [4]

15.a) Explain zero order and first order sensors with suitable examples. [4]

b) Draw and explain working principle of potentiometric sensors. [4]

16.a) Compare between thermistor, thermocouple and RTD. [4]

b) How conventional volt meter and ammeter can be used as electrical sensors? [4]

17. Write short notes on any ***two*** of the following:

a) RVDT [4]

b) CCD Vs CMOS sensors [4]

c) MEMs based sensors [4]