Reg.No.:								

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 8017

B.E. / B.Tech. DEGREE SUPPLEMENTARY EXAMINATIONS – FEB. / MAR. 2020
Third Semester
Electrical and Electronics Engineering
U15EE304 - ELECTRICAL MEASUREMENTS AND INSTRUMENTATION
(Regulation 2015)

Time: Three Hours Maximum: 100 Marks

Answer ALL the questions

PART – A

(10 x 2 = 20 Marks)

1. State the essentials torque required for successful operation of instruments.
2. Differentiate null and deflection type measurement.
3. Write down the deflecting torque equation in dynamometer type wattmeter.
4. State the advantages of instrument transformers.
5. Name the sources of errors in ac bridge.
6. Write the principle of Hall effect transducer.
7. List the advantages of digital X-Y recorder.
8. What is sweep in CRO?
9. Mention any four signal generating instruments.
10. What are the two types of multiplexing operation?

PART – B

(5 x 13 = 65 Marks)

11. a) Describe the construction and working of a permanent magnetic moving coil instruments (PMMC). Derive the equation for deflection if the instrument is spring controlled.

(OR)

b) Analyze the working of attraction type moving iron instruments with neat diagrams.

12. a) With a neat diagram explain the construction and working of electrodynamometer type instruments. Also derive its torque equation.

(OR)

b) Give the construction and principle of operation of single phase induction type energy meter.

13. a) Examine the working principle of Schering Bridge and also derive its balance equations.

(OR)

b) Explain the principle of piezo electric transducers and categorize any two piezo electric materials.

14. a) With neat block diagram explain the operation of CRO.

(OR)

b) With neat block diagram explain the operation of DSO.

15. a) Explain instrumentation amplifier with neat diagram.

(OR)

b) Explain closed loop microprocessor based instrumentation system with neat diagram.

PART – C

(1 x 15 = 15Marks)

16. a) Expected value of voltage across resistor is 100v, However the measurements gives a value of 98V.
Calculate
   i. absolute error
   ii. % error
   iii. relative accuracy
   iv. % accuracy

(OR)

b) Explain with neat diagram the working of linear ramp & integrating type DVM.
