



B.E DEGREE EXAMINATIONS: MAY 2015

(Regulation 2013)

Third Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U13EET304: Measurements and Instrumentation

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The deflection torque in a meter at balanced condition
 - a) Is equal to controlling torque
 - b) Less than controlling torque
 - c) Greater than controlling torque
 - d) None of the above
2. The controlling torque equation of PMMC instrument is _____
3. A Kelvin's double bridge is used for measuring
 - a) Low resistance
 - b) Medium resistance
 - c) High resistance
 - d) Both a and b
4. The purpose of megger is _____
5. The digital measurement display is
 - a) Relay
 - b) LCD
 - c) Buzzer
 - d) LED
6. The resolution of digital instrument is ___ time higher than analog instruments
7. Which transducer is used to measure temperature and speed respectively
 - a) LVDT & thermistor
 - b) RTD & opto coupler
 - c) Flow sensor & strain gauge
 - d) Proximate sensor & thermistor
8. The proximate sensor to measure _____
9. The purpose of S/H unit in data acquisition system is
 - a) To amplify the signal
 - b) To convert analog to digital signal
 - c) To hold the sample for a period
 - d) None of the above
10. The expansion of MEMS is _____

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. Define the term resolution and sensitivity of an instrumentation system.
12. Differentiate between MI instruments with MC.
13. List the need for bridges.
14. Differentiate between Anderson's and Schering bridges.
15. List the needs for harmonic analyzer.
16. Differentiate between digital instruments with analog instruments.
17. Define transducer. Also list any four examples.
18. List the applications of flow sensors.
19. List the need for data acquisition system.
20. What is a MEMS sensor?

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. Explain the construction and working of induction type energy meter. Also mention its merits and demerits.

22. a) i) Enumerate the Wheastone's bridge to estimate the unknown resistance. (7)
ii) Determine the unknown capacitance using maxwell's bridge. (7)

(OR)

- b) Explain the Kelvin's double bridge to find unknown resistance and derive the bridge sensitivity.

23. a) Explain the construction and working principle of any two types of digital voltmeter.

(OR)

- b) i) Explain the construction and working of digital frequency meter. Also mention its applications. (7)
ii) Enumerate the construction details of spectrum analyzer with neat diagrams. (7)

24. a) Explain the construction and working principle of LVDT. Also mention its merits and demerits.

(OR)

- b) i) Explain the construction and working transducer and flow measurement. Also mention its applications. (7)

ii) Discuss the construction and principle of temperature transducer. Also list its applications. (7)

25. a) Enumerate the various block of multi channel data acquisition system.

(OR)

b) Explain the nano and MEMS sensors.
