

## Question Bank (G scheme)

Name of subject: EIM

Subject code :17317

Semester : 3

Unit Test :1

Course : EJ/IS/IE

### Chapter1. Basics of measurement(12M)

#### 3 MARKS

1. Define (any 3)
  - a. Accuracy
  - b. Precision
  - c. Reproducibility
  - d. Linearity
  - e. Static error
  - f. Dead zone
  - g. Tolerance
2. Define
  - a. Dynamic error
  - b. Speed of response
  - c. Lag
3. Define error? Write formula for % error
4. What do you mean by calibration? Give the types(
5. Give the comparison between primary & secondary standard
6. The value of voltage of across resistor is 50v. but in measurement voltage is 49.5 v so calculate a. static error, b. % error, c. relative accuracy, d. % accuracy

#### 4 marks

7. Explain the classification of error. Why do they occur?
8. State & explain classification of standard.
9. Describe the calibration of transducers.

### Chapter2. Analog DC & AC Meters (24M)

#### 3 marks

10. Describe basic DC voltmeter with value of series resistance

**4 marks**

**11. Define**

**a. RMS value b. Average value with formula.**

12. Describe construction & working of PMMC with advantages & disadvantages.

13. Explain basic DC ammeter with ckt. Diagram.

14. Explain Multi range DC Ammeter ckt. Diagram.

15. Explain Universal DC Ammeter ckt. Diagram.

16. Draw the neat circuit multi range DC voltmeter. Explain it measure different voltages.

17. Draw & explain AC voltmeter

18. Convert basic meter with internal resistance of  $50\ \Omega$  & full scale deflection current of  $2\text{mA}$  into multi range dc voltage with voltage ranges of  $0\text{-}10\text{V}$ ,  $0\text{-}50\text{V}$ ,  $0\text{-}100\text{V}$ ,  $0\text{-}250\text{V}$

19. Convert basic meter with internal resistance of  $50\ \Omega$  & full scale deflection current of  $2\text{mA}$  into multi range dc voltage with voltage ranges of  $0\text{-}10\text{V}$ ,  $0\text{-}50\text{V}$ ,  $0\text{-}100\text{V}$ ,  $0\text{-}250\text{V}$  with sensitivity formula

20. Design a multi range DC millie ammeter using basic movement having internal resistance of  $100\ \Omega$  and full scale deflection current of  $2\text{mA}$ . The required current ranges are  $0\text{-}20\text{mA}$ ,  $0\text{-}100\text{mA}$  &  $0\text{-}200\text{mA}$

21. Design a universal shunt to provide ammeter with the current ranges  $2\text{A}$ ,  $10\text{A}$ , &  $15\text{A}$ . The basic meter has internal resistance  $R_m=50\ \Omega$  and full scale deflection current of  $1\text{mA}$

### **Chapter 3 Digital Meter 3 marks(10M)**

**3 marks**

22. Define accuracy, sensitivity of digital display

23. Give advantages of digital instrument over analog instrument.

24. Comparison between digital voltmeter over analog voltmeter.

**4 marks**

25. Explain block diagram of DFM

26. Describe the working of SAR with block diagram.