

# Assignment Questions

## Chapter-1 Measuring Instrument

(16)

Scb'. Electrical Measurement & Instrumentation.

Sem - 4th, 2nd year

Branch - Electrical Engg.

Q-1 Define all the following terms associated with measurement

- (a) Accuracy 1/2
- (b) precision 1/2
- (c) sensitivity 1/2
- (d) Resolution 1/2
- (e) Error 1/2
- (f) Tolerance 1/2

Q-2 What is indicating type instrument ? nine  
two example of it. 1/2

Q-3 What is recording type instrument ?  
nine two example of it. 1/2

Q-4 What is integrating type instrument ?  
nine two example of it .

Q-5 Explain Deflecting, controlling & damping  
arrangement in indicating type  
instrument 10

Q-6 Explain (a) Eddy current damping [5]  
(b) Air friction Damping [5]  
(c) Fluid friction Damping [5]

Q-7 What do you mean by calibration  
of instrument? [2].

Assignment  
Chapter-2 Analog Ammeters & Voltmeter.

PMMC Instrument

Short Questions

- ① Full form of PMMC 12
- ② Why swamping resistance is used in PMMC Inst? 12  
    > what is its material?
- ③ What is shunts & multipliers? 12

Long Questions

- ① Describe construction & working & Application  
of PMMC instrument? 10

- ② Explain Advantages, Disadvantages & Errors  
in PMMC instrument 10

- ③ What are the errors in PMMC instrument  
state their remedial measures 5

M.I. instrument

Short Question

- ① Full form of M.I
- ② Application of M.I instrument (Give two example)
- ③ What are the errors in M.I Inst?

Long Questions

- ① Explain construction, & working of Attraction  
type M.I instrument 5

- ② Explain construction & working of  
Repulsion type M.I instrument 5

- ③ What are the errors in MT instrument ?  
Explain them with their remedial measures

### Electrodynamometer type instruments

#### Short Questions

- ① Write two applications of Dynamometer type instrument [2]
- ② Draw connection diagram of 1-φ Wattmeter [2]

#### Long Question

- Explain construction & working of Dynamometer type instrument [10] & Application.
- Explain Advantages, disadvantages & Error of Electrodynamometer type instrument [10]

### Induction type instrument

- ① Write application of induction type instrument [2]
- ② Explain construction & working of induction type instrument [10]

### Rectifier type instrument

- ① What is rectifier type Ammeter ?  
Define its principle. [5]

## Assignment

Chapter - 3 : Wattmeters & Measurement of power

- (1) Explain construction & working principle of Electro dynamometer type instrument [10]
- (2) Explain errors in dynamometer type instrument with their remedies.
- (3) Explain measurement of power by  
① 1-wattmeter method  
② 2-wattmeter method [5]  
③ 3-wattmeter method
- (4) Shows that in 2-wattmeter method of power measurement  
 $\tan \phi = \sqrt{3} \left( \frac{W_1 - W_2}{W_1 + W_2} \right)$  [5]
- (5) Explain construction & working principle of LPF type wattmeter. [5]
- (6) What is the necessity of using copper shading bands in pressure coil magnet of an induction type instrument? [5]
- LPF & VPF type [5]
- (7) Differentiate wattmeter?

## Assignment

### Chapter-9 Energymeter & Measurement of Energy

Q-1 Explain construction & working of 1-Φ induction type energy meter. [10]

Q-2 What are the 1-Φ Energy meter compensation & Adjustment [5].

Q-3 What do you mean by testing of energy meter? What are the apparatus required for meter testing? [5]

Q-4 What is speed error in energy meter & how it will be compensated? [5]

Q-5 Which type of instrument suffer from creeping error? [2]

Q-6 What is creeping error in energy meter & how it will be reduced?

Q-7 A 1-Φ revolutions per kWh meter makes 500 revs per kWh. It is found as making 100 revolutions per kWh. to see at 5 kW full load. And get the % error.

Q-8

Explain briefly about the errors in  
energy meter. 15

## Assignment

Chapter-5 Measurement of speed, frequency,  
& power factor

Q-1 What is Tachometer? [8]

Q-2 How many types of tachometers are there?  
Explain the working principle of tachometer. [5]

Q-3 Explain construction & operating principle  
of mechanical resonance type frequency meter [5]

Q-4 Explain construction & operating principle  
of electrical resonance type frequency meter. [5]

Q-5 Draw the circuit diagram & explain  
the operation of 1-Φ electro-  
dynamometer type power-factor meter. [5]

## Assignment

### Chapter-6

### Measurement of Resistance, Inductance & Capacitance

Q-1 classify resistance according to range? [2]  
i.e Low, medium & high resistance.

Q-2 why Kelvin's double bridge is used? [2]

Q-3 explain the measurement of ~~low~~<sup>medium</sup> resistance by using Wheatstone bridge? [5]

Q-4 state two applications of Megger? [2]

Q-5. With a neat diagram explain construction & working of Megger [10]

Q-6 Explain measurement of high resistance method [10]  
by using loss of charge

Q-7 Explain the construction & working principle neat diagram. [10]  
of Earth tester with

Q-8 state two advantages of digital multimeter over analog multimeter [2]

Q-9 what is the function of multimeters? [2]

Q-10 Explain construction & principle of Digital multimeter [10]

Q-11 for what measurement shoring  
is used? [2]

Q-12 explain the method of measurement of  
inductance by maxwell's bridge method? [10]

Q-13 write short notes on

(i) Digital voltmeter [5]

(ii) measurement of capacitance by shoring  
bridge. [5]

Q-14

## Chapter-7

## Assignment

### Sensors and Transducers

- Q1. Give brief classification of transducers?
2. Explain the operation of strain gauge?
3. Name any two elastic pressure sensor?
4. Explain the process of temp. measurement by using thermocouple?
5. -short notes on LVDT & working principle of it.?
6. What is transducer?
7. Explain about potentiometer transducer?
8. What is strain gauge?
9. What are the advantages & disadvantages of capacitive transducer?
10. What are the different types of piezoelectric material?
11. Explain about piezoelectric transducer with its application?
12. Name any two resistive transducers?
13. Give the resistance temperature characteristics of thermistor.
14. Name any two passive sensor?

15. What is Thermo couple?
16. Explain with neat sketch, the operation of capacitive transducer?
- (17) Name the parameter measured & the affected in LVDT.
18. Explain the working of Hall effect transducer with its application.
19. What is Hall effect in transducers?
20. Explain principle of LVDT & its application.

# Assignment

## Chapter-8

## OSCILLOSCOPE

1. Name the parameter that can be measured using CRO? 8
2. Explain CRO with Block diagram? 10
3. Draw the Block diagram of CRO & explain each & every block? 10
4. Explain the measurement of voltage & frequency using CRO? 15
5. What is time base signal in CRO? 8
6. What do you mean by Lissajous figures? 12
7. What do you mean by focusing an electron beam in a CRO? 15