



Department of Electrical and Electronics Engineering
EE 8403 - Measurements and Instrumentation

Unit I - MCQ Bank

1. In an Anderson bridge, the unknown inductance is measured in terms of

- (A) Known inductance and resistance
- (B) **Known capacitance and resistance**
- (C) Known resistance
- (D) Known inductance

Answer : (B)

2. The resistance in the circuit of the moving coil of a dynamometer wattmeter should be

- (A) Almost zero
- (B) Low
- (C) **High**
- (D) None of the above

Answer : (C)

3. Which of the following devices may be used for extending the range of instruments?

- (A) Shunts
- (B) Multipliers
- (C) Current transformers
- (D) **All of the above**

Answer : (D)

4. Which of the following essential features is possessed by an indicating instrument?

- (A) Deflecting device

- (B) Controlling device
- (C) Damping device
- (D) **All of the above**

Answer : (D)

5. In a Meggar controlling torque is provided by

- (A) Spring
- (B) Gravity
- (C) **Coil**
- (D) Eddy current

Answer : (C)

6. The ratio of maximum displacement deviation to full scale deviation of the instrument is called

- (A) Static sensitivity
- (B) Dynamic deviation
- (C) **Linearity**
- (D) Precision or accuracy

Answer : (C)

7. Various adjustments in an energy meter include

- (A) Light load or friction
- (B) Lag and creep
- (C) Overload and voltage compensation
- (D) **All of the above**

Answer : (D)

8. E.m.f. of a Weston cell is accurately measured by

- (A) **Electrostatic voltmeter**
- (B) Hot wire voltmeter

- (C) Isothermal voltmeter
- (D) Electrodynamic voltmeter

Answer : (A)

9. An ammeter is a

- (A) **Secondary instrument**
- (B) Absolute instrument
- (C) Recording instrument
- (D) Integrating instrument

Answer : (A)

10. The stator of phase shifting transformer for use in conjunction with an A.C. potentiometer usually has a

- (A) Single-phase winding
- (B) **Two-phase winding**
- (C) Three-phase winding
- (D) Any of the above

Answer : (B)

11. In a Weston synchronoscope, the fixed coils are connected across

- (A) Bus-bars
- (B) **Incoming alternator**
- (C) A lamp
- (D) None of the above

Answer : (B)

12. In a Weston frequency meter, the magnetic axes of the two fixed coils are

- (A) Parallel
- (B) **Perpendicular**

- (C) Inclined at 60°
- (D) Inclined at 120°

Answer : (B)

13. If an instrument has cramped scale for larger values, then it follows

- (A) Square law
- (B) **Logarithmic law**
- (C) Uniform law
- (D) None of the above

Answer : (B)

14. Alternating current is measured by

- (A) **Induction ammeter**
- (B) Permanent magnet type ammeter
- (C) Electrostatic ammeter
- (D) Moving iron repulsion type voltmeter

Answer : (A)

15. The power of a n-phase circuit can be measured by using a minimum of

- (A) **(n - 1) wattmeter elements**
- (B) n wattmeter elements
- (C) (n + 1) wattmeter elements
- (D) 2n wattmeter elements

Answer : (A)

16. To measure radio frequency, the suitable frequency meter is

- (A) Weston frequency meter
- (B) Reed vibrator frequency meter
- (C) **Heterodoxy frequency meter**

(D) Electrical resonance frequency meter

Answer : (C)

17. Induction type single phase energy meters measure electric energy in

(A) kW

(B) Wh

(C) **kWh**

(D) VAR

Answer : (C)

18. In majority of instruments damping is provided by

(A) Fluid friction

(B) Spring

(C) **Eddy currents**

(D) All of the above

Answer : (C)

19. A moving iron instrument can be used for

(A) D.C. only

(B) A.C. only

(C) **Both D.C. and A.C.**

(D) None of the above

Answer : (C)

20. In a 3-phase power measurement by two wattmeter method, both the watt meters had identical readings. The power factor of the load was

(A) **Unity**

(B) 0.8 lagging

(C) 0.8 leading

(D) Zero

Answer : (A)

21. It is required to measure the true open circuit e.m.f. of a battery. The best device is

(A) D.C. voltmeter

(B) Ammeter and a known resistance

(C) **D.C. potentiometer**

(D) None of the above

Answer : (C)

22. In order to achieve high accuracy, the slide wire of a potentiometer should be

(A) **As long as possible**

(B) As short as possible

(C) Neither too small not too large

(D) Very thick

Answer : (A)

23. For measurement of mutual inductance we can use

(A) Anderson bridge

(B) Maxwell's bridge

(C) **Heaviside bridge**

(D) Any of the above

Answer : (C)

24. A power factor meter has

(A) **One current circuit and two pressure circuits**

(B) One current circuit and one pressure circuit

(C) Two current circuits and one pressure circuit

(D) None of the above

Answer : (A)

25. In Weston synchroscope the moving coil is connected across

- (A) **Bus-bars**
- (B) Incoming alternator
- (C) Fixed coils
- (D) Any of the above

Answer : (A)

26. Operating torques in analogue instruments are

- (A) Deflecting and control
- (B) Deflecting and damping
- (C) **Deflecting, control and damping**
- (D) Vibration and balancing

Answer : (C)

27. A sensitive galvanometer produces large deflection for a

- (A) **Small value of current**
- (B) Large value of current
- (C) Large value of power
- (D) Large value of voltage

Answer : (A)

28. In an energy meter braking torque is produced to

- (A) Safe guard it against creep
- (B) Brake the instrument
- (C) Bring energy meter to stand still
- (D) **Maintain steady speed and equal to driving torque**

Answer : (D)

29. The principle on which vector voltmeter is based is

- (A) That it works on the principle of complex variation
- (B) That it measures the response of linear ramp voltage
- (C) Same as digital meter
- (D) **That it measures the amplitude of a single at two points and at the same time measures their phase difference**

Answer : (D)

30. Commonly used instruments in power system measurement are

- (A) **Induction**
- (B) Moving coil or iron
- (C) Rectifier
- (D) Electrostatic

Answer : (A)

31. The power factor of a single phase load can be calculated if the instruments available are

- (A) One voltmeter and one ammeter
- (B) **One voltmeter, one ammeter and one wattmeter**
- (C) One voltmeter, one ammeter and one energy meter
- (D) Any of the above

Answer : (B)

32. In a single phase power factor meter the phase difference between the currents in the two pressure coils is

- (A) Exactly 0°
- (B) Approximately 0°
- (C) **Exactly 90°**
- (D) Approximately 90°

Answer : (C)

33. For measurements on high voltage capacitors, the suitable bridge is

- (A) Wien bridge
- (B) Modified De Santy's bridge
- (C) **Schering Bridge**
- (D) Any of the above

Answer : (C)

34. To measure a resistance with the help of a potentiometer it is

- (A) Necessary to standardize the potentiometer
- (B) **Not necessary to standardize the potentiometer**
- (C) Necessary to use a volt ratio box in conjunction with the potentiometer
- (D) None of the above

Answer : (B)

35. The operating voltage of a Meggar is about

- (A) 6 V
- (B) 12 V
- (C) 40 V
- (D) **100 V**

Answer : (D)

36. An ohmmeter is a

- (A) Moving iron instrument
- (B) **Moving coil instrument**
- (C) Dynamometer instrument
- (D) None of the above

Answer : (B)

37. A dynamometer wattmeter can be used for

- (A) **Both D.C. and A.C.**
- (B) D.C. only
- (C) A.C. only
- (D) Any of the above

Answer : (A)

38. The disc of an instrument using eddy current damping should be of

- (A) Conducting and magnetic material
- (B) Non-conducting and magnetic material
- (C) **Conducting and nonmagnetic material**
- (D) None of the above

Answer : (C)

39. The use of _____ instruments is merely confined within laboratories as standardizing instruments.

- (A) **Absolute**
- (B) Indicating
- (C) Recording
- (D) Integrating

Answer : (A)

40. An instrument transformer is used to extend the range of

- (A) **Induction instrument**
- (B) Electrostatic instrument
- (C) Moving coil instrument
- (D) Any of the above

Answer : (A)

41. The gravity controlled instrument has crowded scale because current is proportional to

- (A) Balancing weight
- (B) Deflection angle
- (C) **Sine of deflection angle**
- (D) None of these

Answer : (C)

42. Systematic errors are

- (A) Instrumental errors
- (B) Environmental errors
- (C) Observational errors
- (D) **All of the above**

Answer : (D)

43. In a dynamometer 3-phase power factor meter, the planes of the two moving coils are at

- (A) 0°
- (B) 60°
- (C) 90°
- (D) **120°**

Answer : (D)

44. A universal RLC bridge uses

- (A) Maxwell bridge configuration for measurement of inductance and De Santa's Bridge for measurement of capacitance
- (B) **Maxwell Wien Bridge for measurement of inductance and modified De Santy's bridge for measurement of capacitance**
- (C) Maxwell Wien Bridge for measurement of inductance and Wien Bridge for measurement of capacitance

(D) Any of the above

Answer : (B)

45. A voltage of about 200 V can be measured

(A) Directly by a D.C. potentiometer

(B) A D.C. potentiometer in conjunction with a volt ratio box

(C) A D.C. potentiometer in conjunction with a known resistance

(D) None of the above

Answer : (B)

46. In a 3-phase power measurement by two wattmeter method the reading of one of the wattmeter was zero. The power factor of the load must be

(A) Unity

(B) 0.5

(C) 0.3

(D) Zero

Answer : (B)

47. The scale of a rectifier instrument is

(A) Linear

(B) Nonlinear

(C) Either (A) or (B)

(D) Neither (A) nor (B)

Answer : (A)

48. The household energy meter is

(A) An indicating instrument

(B) A recording instrument

(C) An integrating instrument

(D) None of the above

Answer : (C)

49. Most common form of A.C. meters met with in every day domestic and industrial installations are

(A) Mercury motor meters

(B) Commutator motor meters

(C) **Induction type single phase energy meters**

(D) All of the above

Answer : (C)

50. Resistances can be measured with the help of

(A) Watt-meters

(B) Voltmeters

(C) Ammeters

(D) **Ohmmeters and resistance bridges**

Answer : (D)