Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021

Course Name - –Electrical Measuring Instrument
Course Code - DEE402

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Answer all the questions. Each question carry one mark.

9. 1.Among the following, which is the right formula for inductance of N turns?

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- L=et/Ni
- L=N*i *e*t
- L=Ni/et
- L=N/iet

10. 2.The shunt resistance in an ammeter is usually

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- less than meter resistance
- equal to meter resistance
- more than meterresistance
- of any value

11. 3.wattmeter will be free from the effects of power factor and frequency variations in case

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- Voltage coil resistance is zero
- Damping is not provided
- Pressure coil inductance is zero
- A capacitance is connected in parallel to pressure coil

12. 4.Schering bridge can be used for measurement of

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- capacitance and dissipation factor
- dissipation factoronly
- inductance with inherent loss
- capacitor but not dissipation factor

13. 5.Electrodynamometer-type watt meters have a construction where

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- current coil is fixed
- voltage coil is fixed
- both voltage and current coils are movable
- both voltage and current coils are fixed

14. 6.Purely mechanical instruments cannot be used for dynamic measurements because they have

Mark only one oval.

- large time constant
- higher response time
- high inertia
- all of the above

15. 7.n a DC Circuit, Inductive reactance would be_____

Mark only one oval.

- Equal As in AC Circuits
- High
- Extremely high
- zero

16. 8.Dynamometer type wattmeter has

Mark only one oval.

- strong magnetic field
- intermediate magnetic field
- weak magnetic field
- no magnetic field

17. 9.Burden of a CT is expressed in terms of

Mark only one oval.

- secondary winding current
- VA rating of the transformer
- powerand powerfactorof the secondary winding circuit
- impedance of secondary winding circuit

18. 10.The unit of electrical energy is / are

Mark only one oval.

- Joules
- Watt - sec
- Kilowatt - hour
- All of these

19. 11.Power coil has a low value of

Mark only one oval.

- inductance
- capacitance
- resistance
- impedance

20. 12.Current in the primary winding of CT depends on

Mark only one oval.

- burden in the secondary winding of the transformer
- load connected to the system in which the CT is being used for measurement
- both burden of the secondary and load connected to the system
- none of the above

21. 13.Induction-type energy meters have aluminum disc as the rotating part so that

Mark only one oval.

- flux can pass through the rotating part
- eddy current can be induced in the rotating part
- creeping error can be avoided
- all of the above

22. 14.The main advantage of the null balance technique of measurement is that

Mark only one oval.

- it gives a quick measurement
- it does not load the medium
- it gives a centre zero value at its input
- it is not affected by temperature variation

23. 15.What happens to the inductance as the length of the magnetic circuit increases?

Mark only one oval.

- Increases
- Decreases
- Remains the same
- Becomes zero

24. 16.Harmonic distortions in power supply does not affect the performance of Maxwell's bridge since

Mark only one oval.

- filters are used to remove harmonics
- final expression for unknown inductance contain only fundamental frequency
- mechanical resonance frequency of null detectors are beyond the range of harmonic frequencies
- final expression for unknown inductance is independent of frequency

25. 17.Transformation ratio of a PT is defined as

Mark only one oval.

- ratio of primary winding voltage to secondary winding voltage
- ratio of rated primary winding voltage to rated secondary winding voltage
- ratio of primary number of turns to secondary number of turns
- all of the above

26. 18.In single-phase induction-type energy meters, friction compensation can be done by

Mark only one oval.

- placing shading bands in the gap between central limb and the disc
- drilling diametrically oppositeholes on the disc
- providing holes on the side limbs
- all of the above

27. 19.A voltage of 200 V produces a deflection of 0° in a PMMC spring-controlled instrument. If the same instrument is provided with gravity control, what would be the deflection?

Mark only one oval.

- 45°
- 65°
- 90°
- cannot be determined by the given data

28. 20.As the number of turns in the coil increases, what happens to the inductance of the coil?

Mark only one oval.

- Increases
- Decreases
- Remains the same
- Becomes zero
- Option 2

29. 21.Braking torque provided by the permanent magnet in an induction-type energy meter is proportional to

Mark only one oval.

- speed of the rotating disc
- square of the flux of the permanent magnet
- distance of the permanent magnet with respect to centre of the disc
- all of the above

30. 22.In A.C. circuits, power is measured using

Mark only one oval.

- voltmeter
- ammeter
- ohmmeter
- wattmeter

31. 23.Phantom loading for testing of energy meters is used

Mark only one oval.

- for meters having low current ratings
- to isolate current and potential circuits
- to test meters having a large current rating for which loads may not be available in the laboratory
- all of the above

32. 24.The frequency range of moving-iron instruments is

Mark only one oval.

- audio-frequency band 20 Hz to 20 kHz
- very low-frequency band 10 Hz to 30 kHz
- low-frequency band 30 Hz to 300 kHz
- power frequencies 0 to 125 Hz.

33. 25.The unit for inductance is _____

Mark only one oval.

- Ohm
- Henry
- A/m
- A/s

34. 26.Thermocouple instruments can be used for a frequency range

Mark only one oval.

- up to 500 Hz
- up to 5 MHz
- up to 100 Hz
- up to 1 MHz

35. 27.A dynamometer type wattmeter has

Mark only one oval.

- Square law scale
- Non-linear scale
- Logarithmic scale
- Uniform scale

36. 28.The advantage of Anderson's bridge over Maxwell's bridge is that

Mark only one oval.

- its final balance equations are independent of inductor losses
- it reduces cost by not making capacitor or inductoras the variable parameters
- number of bridge components required are less
- attaining balance condition is easier and less time consuming

37. 29.Which meter has the highest accuracy in the prescribed limit of frequency range?

Mark only one oval.

- PMMC
- Moving iron
- Electrodynamometer
- Rectifier

38. 30.The measurement of a quantity

Mark only one oval.

- is an act of comparison of an unknown quantity with a predefined acceptable standard which is accurately known
- is an act of comparison of an unknown quantity with another quantity
- is an act of comparison of an unknown quantity with a known quantity whose accuracy may be known or may not be known
- none of these

39. 31.The algebraic sum of currents meeting at a junction is equal to

Mark only one oval.

- 1
- -1
- 0
- None of these

40. 32.The advantages of instrument transformers are

Mark only one oval.

- the readings of instruments used along with instrument transformers rarely depend on the impedance of the instrument
- due to availability of standardised instrument transformers and associated instruments, there is reduction in cost and ease of replacement
- the metering circuit is electrically isolated from the power circuit
- all of the above

41. 33.In electrodynamometer-type watt meters, pressure coil inductance produce error which is

Mark only one oval.

- constant irrespective of load powerfactor
- higher at low power factors of load
- lower at low power factors of load
- same at lagging and leading power factors of load

42. 34.In any network of wires carrying currents, the algebraic sum of all currents meeting at a point is equal to

Mark only one oval.

- Sum of all the currents
- Zero
- Sum of outgoing current
- Sum of incoming current

43. 35.What is the effect of frequency on the torque of a moving system?

Mark only one oval.

- torque is half of the frequency
- torque is twice the frequency
- torque is thrice the frequency
- torque is four times the frequency

44. 36.Ratio error in a CT can be reduced by

Mark only one oval.

- using good quality, low loss steel forcore
- placing primary and secondary windings closer to each other
- using thick conductors for secondary winding
- all of the above

45. 37.In induction-type energy meters, the speed of rotation of the disc is proportional to the

Mark only one oval.

- energy consumption
- power consumption
- derivative of power consumption
- none of the above

46. 38.In some temperature measurement, the reading is recorded as 0°C. The reading has

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- five significant figures
- four significant figures
- three significant figures
- none of the above

47. 39.What is the unit of admittance?

Mark only one oval.

- ohm
- mho
- farad
- Option 4

48. 40.DeSauty's bridge is used for measurement of

Mark only one oval.

- high Q inductances
- low Q inductances
- loss less capacitors
- capacitors with dielectric losses

49. 41.A short-circuiting link is provided on the secondary side of a CT to

Mark only one oval.

- allow high current to flow in the primary when the secondary winding of the CT is short circuited with the link
- allow adjustments to be made in the secondary side, like replacing the ammeter, with the primary energized but the short circuiting link in use
- enable primary current to drop down to zero when the secondary is open circuited with the short circuiting link in use
- all of the above

50. 42.In single-phase induction-type energy meters, lag adjustments can be done by

Mark only one oval.

- shifting the copper shading band along the axis of the central limb
- varying the external resistance connected to the shading coil placed on the central limb
- either of (a) or (b) as the case may be
- none of the above

51. 43.Power is

Mark only one oval.

- rate of doing work
- rate of producing voltage
- rate of generating current
- rate of overcoming friction

52. 44.Increase in operating temperature in an induction-type energy meter will

Mark only one oval.

- reduce pressure coil flux
- reduce braking torque
- reduce driving torque
- all of the above

53. 45.The heater wire of thermocouple instrument is made very thin in order

Mark only one oval.

- to have a high value of resistance
- to reduce skin effects at high frequencies
- to reduce the weight of the instrument
- to decrease the over-ranging capacity of the instrument

54. 46.If either the inductance or the rate of change of current is doubled, the induced e.m.f?

Mark only one oval.

- Remains constant
- Becomes zero
- Doubles
- Becomes half

55. 47.Electrostatic-type instruments are primarily used as

Mark only one oval.

- ammeters
- voltmeters
- wattmeter
- ohmmeters

56. 48.When a current carrying coil is placed in the magnetic field?

Mark only one oval.

- no force is exerted
- voltage is produced
- power is generated
- a force is exerted

57. 49.The advantage of Hay's bridge over Maxwell's inductance–capacitance bridge is that

Mark only one oval.

- its final balance equations are independent of frequency
- it reduces cost by not making capacitor or inductor as the variable parameters
- it can be used measuring low Q inductors
- it can be used measuring high Q inductors

58. 50.In electrodynamometer-type wattmeters, current coils carrying heavy currents are made of stranded wire

Mark only one oval.

- to reduce iron loss
- to reduce Eddy-current loss in conductor
- to reduce hysteresis loss
- all of the above

59. 51.A null-type instrument as compared to a deflection-type instrument has

Mark only one oval.

- a lower sensitivity
- a faster response
- a higher accuracy
- all of the above

60. 52.Systematic errors are

Mark only one oval.

- environmental error
- observational error
- instrumental error
- all of the above

61. 53.What is the effect of capacitance on wattmeter reading?

Mark only one oval.

- aiding the inductance
- opposite to that of inductance
- aiding the capacitance
- opposite to that of resistance

62. 54.Frequency can be measured using

Mark only one oval.

- Anderson's bridge
- Maxwell's bridge
- De Sauty's bridge
- Wien's bridge

63. 55.Energy meters do not have a control spring to

Mark only one oval.

- avoid unnecessary friction losses
- enable continuous rotation of the disc
- avoid damping during movement
- all of the above

64. 56.In measurement systems, which of the following static characteristics are desirable?

Mark only one oval.

- Sensitivity
- Accuracy
- Reproducibility
- All of the above

65. 57.Which among the following is true about ohm's law?

Mark only one oval.

- $I \propto V$
- $I = V/R$
- $V = IR$
- All of these

66. 58.Wattmeters are compensated for errors due to inductance by

Mark only one oval.

- using a series capacitor
- using a parallel capacitor
- using a series resistance
- using a parallel resistance

67. 59.Errors in instrument transformers can be aggravated by

Mark only one oval.

- leakage flux
- core saturation
- transients in main power line
- all of the above

68. 60.The smallest change in a measured variable to which an instrument will respond is

Mark only one oval.

- resolution
- precision
- sensitivity
- accuracy