Technical Knowledge (Electrical)

1. The power consumed in a circuit element will be least when the phase difference between the current and voltage is
(A) 180°
(B) 90°
(C) 60°
(D) 0°

2. Form Factor is the ratio of
(A) Average value/r.m.s. value
(B) Average value/peak value
(C) r.m.s. value/average value
(D) r.m.s. value/peak value

3. Capacitive reactance is more when
(A) Capacitance is less and frequency of supply is less
(B) Capacitance is less and frequency of supply is more
(C) Capacitance is more and frequency of supply is less
(D) Capacitance is more and frequency of supply is more

4. Pure inductive circuit
(A) Consumes some power on average
(B) Does not take power at all from a line
(C) Takes power from the line during some part of the cycle and then returns back to it during other part of the cycle
(D) None of the above

5. Power factor of the following circuit will be zero
(A) Resistance
(B) Inductance
(C) Capacitance
(D) Both (B) and (C)

6. The double energy transient occur in the
(A) Purely inductive circuit
(B) R-L circuit
(C) R-C circuit
(D) R-L-C circuit

7. In any A.C. circuit always
(A) Apparent power is more than actual power
(B) Reactive power is more than apparent power

(C) Actual power is more than reactive power
(D) Reactive power is more than actual power

8. Magnitude of current at resonance in R-L-C circuit
(A) Depends upon the magnitude of R
(B) Depends upon the magnitude of L
(C) Depends upon the magnitude of C
(D) Depends upon the magnitude of R, Land C

9. The safest value of current the human body can carry for more than 3 second is
(A) 4 mA
(B) 9 mA
(C) 15 mA
(D) 25 mA

10. The purpose of a parallel circuit resonance is to magnify
(A) Current
(B) Voltage
(C) Power
(D) Frequency

11. Which of the following refers to a parallel circuit?
(A) The current through each element is same
(B) The voltage across element is in proportion to it's resistance value
(C) The equivalent resistance is greater than any one of the resistors
(D) The current through any one element is less than the source current

12. The frequency of domestic power supply in India is
(A) 200 Hz
(B) 100 Hz
(C) 60 Hz
(D) 50 Hz

13. The frequency of an alternating current is
(A) The speed with which the alternator runs
(B) The number of cycles generated in one minute
(C) The number of waves passing through a point in one second
(D) The number of electrons passing through a point in one second

14. In a pure inductive circuit if the supply frequency is reduced to 1/2, the current will
(A) Be reduced by half

(B) Be doubled
(C) Be four times as high
(D) Be reduced to one fourth

15.Those magnetic materials are best suited for making armature and transformer cores which have _____permeability and _____hysteresis loss.
(A) High, high
(B) Low, high
(C) High, low
(D) Low, low

16. In a magnetic material hysteresis loss takes place primarily due to
(A) Rapid reversals of its magnetization
(B) Flux density lagging behind magnetizing force
(C) Molecular friction
(D) It high retentivity

17. Silicon steel is used in electrical machines because it has
(A) Low coercivity
(B) Low retentivity
(C) Low hysteresis loss
(D) High coercivity

18. Reciprocal of reluctance is
(A) Reluctivity
(B) Permeance
(C) Permeability
(D) Susceptibility

19. Hysteresis loss least depends on
(A) Volume of material
(B) Frequency
(C) Steinmetz's coefficient of material
(D) Ambient temperature

20. An air gap is usually inserted in magnetic circuits to
(A) Increase m.m.f.
(B) Increase the flux
(C) Prevent saturation
(D) None of the above

21. The rate of rise of current through an inductive coil is maximum
(A) At 63.2% of its maximum steady value
(B) At the start of the current flow
(C) After one time constant
(D) Near the final maximum value of current

22. Conductivity is analogous to
(A) Retentivity
(B) Resistivity
(C) Permeability
(D) Inductance

23. Which of the following is an advantage of hydrogen cooling?
(A) Increase in efficiency
(B) Increase in ratings
(C) Increase in life
(D) All of the above

24. _____ cooling is the process of dissipating the armature and field winding losses to a cooling medium circulating within the winding insulation wall
(A) Direct
(B) Indirect
(C) Conventional
(D) Any of the above

25. _____ electromagnets generally function as holding magnets.
(A) Tractive
(B) Portative
(C) Either of the above
(D) None of the above

26. Direct water cooling of rotor winding presents
(A) No mechanical difficulties
(B) Lesser mechanical difficulties
(C) Greater mechanical difficulties
(D) None of the above

27. The winding where dummy coils are used is sometimes called
(A) Duplex winding
(B) Triplex winding
(C) Forced winding

(D) None of the above

28. The heat dissipating capability of transformers of ratings higher than 30 kVA in increased by providing which of the following?
(A) Corrugations
(B) Fins
(C) Tubes
(D) All of the above

29. A current density of _____ is used for large power transformers with forced circulation of oil or with water cooling coils
(A) 1.5 to 2.5 A/mm2
(B) 3.5 to 4.5 A/mm2
(C) 4.0 to 5.0 A/mm2
(D) 5.4 to 6.2 A/mm2

30. D.C. servomotors are used in
(A) Purely D.C. control systems
(B) Purely AC. control systems
(C) Both D.C. and AC. control systems
(D) None of the above

31. In a D.C. machine the current per brush arm should not be more than
(A) 100 A
(B) 200 A
(C) 300 A
(D) 400 A

32. Which of the following methods may be adopted to reduce the effects of armature reaction?
(A) Increase in length of air gap at pole tips
(B) Increasing reluctance of pole tips
(C) Compensating windings
(D) All of the above

33. The spring material used in a spring control device should have the following property.
(A) Should be nonmagnetic
(B) Most be of low temperature coefficient
(C) Should have low specific resistance
(D) All of the above

34. For handling greater currents induction watt-meters are used in conjunction with

(A) Potential transformers
(B) Current transformers
(C) Power transformers
(D) Either of the above

35. The chemical effect of current is used in
(A) D.C. ammeter hour meter
(B) D.C. ammeter
(C) D.C. energy meter
(D) None of the above

36. The multiplier and the meter coil in a voltmeter are in
(A) Series
(B) Parallel
(C) Series-parallel
(D) None of the above

37. The pressure coil of a wattmeter should be connected on the supply side of the current coil when
(A) Load impedance is high
(B) Load impedance is low
(C) Supply voltage is low
(D) None of the above

38. When a capacitor was connected to the terminal of ohmmeter, the pointer indicated a low resistance initially and then slowly came to infinity position. This shows that capacitor is
(A) Short-circuited
(B) All right
(C) Faulty
(D) None of the above

39. Which of the following devices should be used for accurate measurement of low D.C. voltage?

(A) Small range moving coil voltmeter
(B) D.C. potentiometer
(C) Small range thermocouple voltmeter
(D) None of the above

40. To measure an A. C. voltage by using an A.C. potentiometer, it is desirable that the supply for the potentiometer in taken

(A) From a source which is not the same as the unknown voltage
(B) From a battery
(C) From the same source as the unknown voltage
(D) Any of the above

41. Wagner earthing device is used to eliminate errors due to
(A) Electrostatic coupling
(B) Electromagnetic coupling
(C) Both (A) and (B)
(D) None of the above

42. The two pressure coils of a single phase power factor meter have
(A) The same dimensions and the same number of turns
(B) The same dimension but different number of turns
(C) The same number of turns but different dimensions
(D) None of the above