B S-1

18/B/C/S-3/4/E

Booklet Series - A

033/231

**PAPER –I**
**ELECTRICIAN**
**(THEORY)**
**SEMESTER – III**

**TIME: 3 HRS.** **MARKS: 150**

**Note: Attempt all the questions.**
**All questions carry equal marks.**

---

**Choose the correct answer: -**

1. When the Growler is connected with 230 V, AC supply and armature is placed over it, the arrangement behaves like a.....
   (a) Potential Divider (b) AC Motor
   (c) Transformer (d) DC Bridge

2. A motor normally fitted to a domestic vacuum cleaner is..... motor.
   (a) Universal (b) Cage Induction
   (c) Wound rotor (d) Shunt Wound

3. The type of single-phase induction motor having the highest power factor at full load is.....
   (a) Shaded pole type (b) Split-phase type
   (c) Capacitor-start type (d) Capacitor-run type

4. The method of braking an induction motor by interchanging the supply to two of the stator phase windings is called.....
   (a) Plugging (b) Stopping
   (c) Commutation (d) Retarding

5. If a three phase induction motor is switched on with one phase disconnected, the motor will.....
   (a) Run at low speed (b) Burn Out
   (c) Run at High Speed (d) Not Run

6. The running of induction motors at slow and steady speed much less than the actual speed is known as.
   (a) Crawling (b) Damping
   (c) Sinking (d) Ageing

7. The distribution of load between two alternators operating in parallel can be changed by changing.....
   (a) Phase sequence (b) Field excitation of alternators
   (c) Current direction (d) Driving torques of prime movers

Contd 2/-

8. A 3-phase synchronous motor connected to AC mains is running at full load and unity power factor. If its shaft load is reduced by half, with field current held constant, its new power factor will be.....
   (a) Unity (b) Leading
   (c) Lagging (d) Dependent upon motor parameters

9. The starting torque of slip-ring induction motor can be increased by inserting a suitable..... in series with the rotor circuit of the motor.
   (a) Capacitor (b) Resistance
   (c) Inductor (d) Overload relay

10. The Growler instrument is made in..... type of iron core.
   (a) E & I (b) Shell
   (c) T&U (d) H

11. The voltage regulation of an alternator with power factor of 0.8 lagging is.....at unity power factor.
   (a) Greater than (b) The same as
   (c) Smaller than (d) 100%

12. A ceiling fan uses .....
   (a) Capacitor start motor (b) Universal motor
   (c) Capacitor start and capacitor run motor (d) Split-phase motor

13. The voltage regulation of an alternator is larger than that of a DC generator because of.....
   (a) Large armature resistance (b) Large leakage reactance
   (c) Complex effects of armature reaction (d) Small armature resistance

14. If the excitation an alternator operating in parallel with other alternators, is increased above the normal value of excitation, its.....
   (a) Output current decreases (b) Power factor becomes more lagging
   (c) Power factor becomes more leading (d) Output KW decreases

15. Which of the following is not a part of the Alternator's specification plate ?
   (a) Voltage (b) Phase
   (c) KVA (d) Type of winding

16. A single phase Hysteresis motor can run at.....
   (a) Synchronous speed only
   (b) Sub synchronous speed only
   (c) Synchronous and super synchronous speed
   (d) Synchronous and sub synchronous speed

17. The direction of rotation of Hysteresis motor is reversed by.....
   (a) Reversing supply leads (b) Shift shaded pole with respect to main pole
   (c) Both (a) & (b) (d) None of these

Contd 3/-

18. The motor used in domestic mixer grinder is.....
(a) DC motor (b) Induction motor
(c) Universal motor (d) Synchronous motor

19. A Stepper motor is a.....
(a) DC motor (b) Two phase motor
(c) Single phase motor (d) Multi phase motor

20. The difference between the speed of a rotating magnetic field and the associated rotor is called.....
(a) Split (b) Salient pole
(c) Slip (d) Pull out torque

21. The slip ring induction motors have.....rotor.
(a) Phase wound (b) Squirrel cage
(c) Squirrel cage with winding (d) Diamond coil wound

22. In a three phase induction motor running at slip 's', the mechanical power developed in terms of air gap power $P_g$ is.....
(a) $(s-1).P_g$ (b) $P_g / (1-s)$
(c) $s. P_g$ (d) $(1-s).P_g$

23. In a three phase induction motor the maximum torque.....
(a) Is directly proportional to rotor resistance r
(b) Does not depend on r
(c) Is directly proportional to $\sqrt{r}$
(d) Is directly proportional to $r^2$

24. If the voltage is reduced to half, the torque developed by an induction motor will be reduced to.....
(a) ¼ of original torque (b) ½ of original torque
(c) ⅛ of original torque (d) ⅜ of original torque

25. In a three phase induction motor, the cage bars of the rotor are arranged in an offset pattern to the axis of rotation in order to prevent.....
(a) Torque fluctuation (b) Over heating
(c) Speed variation (d) Voltage drop on load

26. The variation of power factor with respect to the field current is called.....
(a) V curve (b) Inverted curve
(c) Hysteresis curve (d) Circle diagram

27. When asynchronous motor is running at synchronous speed, the damper winding produces.....
(a) Damping torque (b) Eddy current torque
(c) Torque aiding the developed torque (d) No torque

Contd...4/-

28. A motor which can conveniently be operated at lagging as well as leading power factor is the.....
(a) Squirrel cage induction motor (b) Wound rotor induction motor
(c) Synchronous motor (d) DC shunt motor

29. A synchronous motor is operating on no load at unity power factor. If the field current is increased, power factor will become.....
(a) Leading and current will decrease
(b) Leading and current will increase
(c) Lagging and current will decrease
(d) Lagging and current will increase

30. The frequency of ripple in the output voltage of a three phase Half controlled bridge rectifier depends on the.....
(a) Firing angle (b) Load inductance
(c) Load resistance (d) Supply frequency

31. A PWM switching scheme is used in a three phase inverter to.....
(a) Reduce total harmonic distortion with modest filtering
(b) Reduce low order harmonics and increase high order harmonics
(c) Minimize the load on DC side
(d) Increase the life of the batteries

32. Which of the following is a Shell type of transformer lamination?
(a) T & I type (b) E & T type
(c) U & I type (d) T & U type

33. For a given number of poles(2) and armature conductors, a lap winding will carry.....a wave winding.
(a) More current than (b) Same current as
(c) Less current than (d) Half the current than

34. An Eight pole duplex lap winding will have.....parallel paths.
(a) 8 (b) 12 (c) 32 (d) 16

35. In a simplex wave winding the number of parallel paths is equal to.....
(a) Number of poles in the machine (b) Two
(c) Number of pair poles (d) One

36. The number of parallel paths in simplex lap winding is equal to.....
(a) Two (b) Number of poles
(c) Number of pair poles (d) One

37. In a lap winding, the number of brushes required is equal to.....
(a) Number of coils (b) Number of pairs of poles
(c) Number of poles (d) Commutator pitch

Contd...5/-

38. In a wave winding, the commutator pitch is approximately equal to.....
(a) Twice the pole pitch (b) Thrice the pole pitch
(c) Half the pole pitch (d) Pole pitch

39. The AC armature winding of an alternator operates at.....the field winding.
(a) The same voltage as (b) Much higher voltage than
(c) Much less voltage than (d) Half the voltage than

40. The stator of an alternator is wound for.....on the stator.
(a) A more number of poles than
(b) Less number of poles than
(c) The same number of poles as
(d) Twice the number of poles

41. The Damper windings are used in the alternators to.....
(a) Reduce eddy current loss
(b) Achieve synchronism
(c) Reduce winding losses
(d) Prevent hunting

42. The AC armature winding of an alternator is.....
(a) Always star connected (b) Star delta connected
(c) Generally delta connected (d) Pi connected

43. While testing a Fluorescent tube starter with series testing board, the starter is considered good if the lamp.....
(a) Glows continuously
(b) Does not glow at all
(c) Continuously flickers
(d) Glows initially then turns off permanently

44. The illumination power of a lighting source is measured in.....
(a) Lumen (b) Candela
(c) Foot candle (d) Candle power

45. As per IE rules, the lighting load in a sub-circuit of the house wiring should not be more than.....watts.
(a) 1500 W (b) 1200 W (c) 1000 W (d) 800 W

46. As per IE rules, the load in a power sub-circuit in house wiring is normally restricted to.....watt and number of outlets to.....
(a) 5000 , two (b) 3000 , two
(c) 4000 , three (d) 4500 , four

47. In a Fluorescent tube fixture, if the tube does not strike a glow but both filaments glow red, the possible defect is.....
(a) Opened choke coil
(b) Short circuited choke coil
(c) Starter contacts permanently opened
(d) Starter contacts permanently shorted

48. The electrical wiring in factories and industries is done by.....
(a) Cleats (b) Casing capping
(c) Surface metal conduit (d) Surface PVC conduit

49. The magnetic operating limit of C-type of MCBs is.....times of the rated current.
(a) 5 to 10 (b) 20 to 30 (c) 3 to 5 (d) 10 to 20

50. Which one of the following lamps has the longest operating life?
(a) LED lamp (b) Fluorescent tube light
(c) CFL (d) Incandescent lamp

*****