

PAPER – I
ELECTRICIAN
(THEORY)
SEMESTER – III

TIME: 3 Hrs.

MARKS : 150

Note: Attempt all the questions.

All questions carry equal marks.

This paper carries negative marking. 25% marks will be deducted for each wrong answer.

Choose the correct answer:

1. Which of the following devices does not belong to the transistor family?
a) IGBT b) MOSFET c) GTO d) BJT
2. A power transistor is a -
a) Three layer, three junction device b) Three layer, two junction device
c) Two layer, one junction device d) Four layer, three junction device
3. In a power transistor, _____ is the controlled parameter.
a) V_{BE} b) V_{CE} c) I_B d) I_C
4. An SCR behaves as a Switch.
a) Unidirectional b) Bidirectional c) Mechanical d) None of these
5. An SCR is made of
a) Germanium b) Silicon c) Carbon d) None of these
6. The control element of an SCR is
a) Cathode b) Anode c) Anode supply d) Gate
7. Identify the symbol –



- a) SCS b) PUT c) LASCR d) Diac

8. The _____ can be externally programmed to turn on at a desired anode-to-gate voltage level.
a) UJT b) PUT c) SCR d) SCS
9. The frequency of the induced emf in an induction motor is -
a) Greater than the supply frequency b) Lesser than the supply frequency
c) Same as the supply frequency d) None of these
10. The advantage of skewing in induction motor is / are -
a) Motor runs smoothly as the magnetic hum is reduced
b) The tendency of the rotor teeth to remain under the stator teeth due to direct magnetic attraction is reduced
c) More uniform torque is obtained while running
d) All of these
11. Which relay is used for feeders?
a) MHO relay b) Translay relay
c) Merz price protection d) Buchholz relay
12. Which of the following relays is used on transformers?
a) Buchholz relay b) MHO relay
c) Merz price relay d) None of these
13. MHO relay is used for -
a) Rectifiers b) Circuit breakers
c) Transmission lines d) Feeders
14. Which of the following is not a part of the circuit breaker?
a) Explosion pot b) Fixed and moving contacts
c) Conservator d) Operating mechanism
15. A circuit breaker will normally operate -
a) When the switch is put on b) When the line is to be checked
c) When the power is to be supplied d) Whenever fault in the line occurs
16. LED lamp has a power factor –
a) Unity b) Leading
c) Lagging d) None of these
17. Why are the inter sheaths in cables used?
a) Provides proper stress distribution
b) Minimises the stress
c) Provides protection against moisture, current and voltage surges
d) To improve the insulation

18. A layer similar to bedding is provided on the armouring to protect the whole cable from all atmospheric conditions. Which layer is this?
a) Insulation b) A layer of jute c) Serving d) Sheath
19. The handle of iron box is made up of -
a) Bakelite b) Ebonite c) Chromium d) Only (a) and (b)
20. The tube of a tube light is filled with -
a) Fluorescent paste b) Low pressure inert gas
c) Mercury d) Only (b) and (c)
21. Electrical energy can be converted into -
a) Light energy b) Electromagnetic energy
c) Electrochemical energy d) All of these
22. Out of the following which one is not a unconventional source of energy?
a) Tidal power b) Geothermal energy
c) Nuclear energy d) Wind power
23. Pulverized coal is -
a) Coal free from ash b) Non-smoking coal
c) Coal which bums for long time d) Coal broken into fine particles
24. Pressure of steam in condenser is -
a) Atmospheric pressure b) More than pressure
c) Slightly less than pressure d) Much less than pressure
25. Equipment used for pulverizing the coal is known as -
a) Ball mill b) Hopper c) Burner d) Stoker
26. Turn around efficiency of pump hydro-schemes seldom exceeds -
a) 10% b) 15% c) 25% d) 65%
27. Which power plant is free from environmental pollution problems?
a) Thermal power plant b) Nuclear power plant
c) Hydro-power plant d) Geothermal energy power plant
28. Which of the following fuel material occurred naturally?
a) U^{235} b) Pu^{239} c) Pu^{241} d) U^{233}
29. The function of a moderator is to -
a) Absorb the part of the Kinetic energy of the neutrons
b) Extract the heat
c) Reflect back some of the neutrons
d) Start the reactor

- 17/B/C/S-3/4/E
30. Which of the following is not used as moderator?
a) Water b) Heavy water c) Graphite d) Boron
31. Energy from gravitational field is energy obtained from -
a) Wind b) Biomass c) Coal d) Tides
32. Which of the following is not the transmission voltage in America?
a) 66 kV b) 132kV c) 264 kV d) 400 kV
33. Which of the following is usually not the generating voltage?
a) 6.6 kV b) 9.9 kV c) 11kV d) 13.2 kV
34. Boosters are basically -
a) Inductors b) Capacitors
c) Transformers d) Synchronous motors
35. Which of the following is not the distribution system normally used -
a) 3 phase-4 wire b) 3 phase-3 wire
c) Single phase - 3 wire d) Single phase -4 wire
36. Conductors for high voltage transmission lines are suspended from towers -
a) To reduce clearance from ground
b) To increase clearance from ground
c) To reduce wind and snow loads
d) To take care of extension in length during summer
37. Transmission efficiency increases as -
a) Voltage and power factor both increase
b) Voltage and power factor both decrease
c) Voltage increases but power factor decreases
d) Voltage decreases but power factor increases
38. The generating voltage and frequency in India is about?
a) 11 kV and 60 Hz b) 11 kV and 50 Hz
c) 220 kV and 60 Hz d) 220 kV and 50 Hz
39. The most economical area of conductor is that for which the total annual cost of transmission line is minimum. Which law states this?
a) Lenz's law b) Kelvin's law c) Faraday's law d) Ohm's law
40. Which among these is not the component of over head transmission lines?
a) Conductors b) Cross arms c) Danger plates d) Transformers
41. Which among these properties are not suitable for the conductor material?
a) High electrical conductivity b) High specific gravity
c) Lower cost d) High tensile strength

42. Why are the conductors used for higher voltage transmission stranded?
a) Ease of handling
b) Cheaper cost
c) Reduced resistivity
d) Increase in tensile strength
43. Which material is used for the manufacture of ground wire?
a) Aluminium
b) Galvanised steel
c) Cast iron
d) Stainless steel
44. Armouring is provided above the bedding. The armouring consists of one or two layers of which wire or tape?
a) Galvanised steel wire
b) Thin wires of copper
c) Wires of aluminium
d) Wire made of both copper and cadmium
45. Standard wattage of 3 ft fluorescent tube is—
a) 10 W
b) 40 W
c) 65 W
d) 100 W
46. Lumen / watt is the unit of—
a) Light flux
b) Luminous intensity
c) Brightness
d) Luminous efficiency
47. A circuit breaker is -
a) Power factor correcting device
b) A device to neutralize the effect of transients
c) A waveform correcting device
d) A current interrupting device
48. The function of protective relay in a circuit breaker is -
a) To reach any stray voltages
b) To close the contacts when the actuating quantity reaches a certain predetermined value
c) To limit arcing current during the operation of circuit breaker
d) To provide additional safety in the operation of circuit breaker
49. Low voltage circuit breakers have rated voltage of less than -
a) 220 V
b) 400V
c) 1000 V
d) 10,000 V
50. SF₆ gas is -
a) Sulphur fluoride
b) Sulphur difluoride
c) sulphur hexafluorine
d) sulphur hexafluoride
