

PAPER-I
ELECTRICIAN
(THEORY)
SEMESTER-II

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. The maximum value of sine wave of AC voltage is 10V. What is its RMS value?
a) 1.414 V
b) 6.060 V
c) 7.070 V
d) 14.140 V
2. Which of the following oscillators is suitable for frequencies in the range of mega hertz?
a) RC phase shift
b) Wien bridge
c) Hartley
d) Both (a) and (c)
3. In a BJT circuit a pnp transistor is replaced by npn transistor. To analyse the new circuit-
a) All calculations done earlier have to be repeated
b) Replace all calculated voltages by reverse values
c) Replace all calculated currents by reverse values
d) Replace all calculated voltages and currents by reverse values
4. When the value of capacitance is increased in series resonance circuit, the frequency will-
a) Decrease
b) Increase
c) No change
d) Becomes zero
5. The output indicated on the name plate of any motor is always the-
a) Gross power
b) Power drawn in volt amperes
c) Power drawn in watts
d) Output power at the shaft
6. To protect the diodes in a rectifier and capacitor input filter circuit it is necessary to use-
a) Surge resistor
b) Surge inductor
c) Surge capacitor
d) Both (a) and (b)
7. The D.C shunt motor speed is to be varied from zero to above normal with reversing facility having inherent stability of speed at all loads. What speed control method is to be used?
a) Supply voltage speed control method
b) Ward-Leonard system of speed control
c) Shunt field control method
d) Armature speed control method
8. An RC oscillator uses-
a) One RC combination
b) Two RC combinations
c) At last three RC combinations
d) Either (a) or (b)

9. You notice that a D.C motor starts with jerk when starting the motor. What may be the fault for this effect?
- a) Line voltage too high
b) Short circuit of the field winding
c) Pitted starter contact terminals
d) Wrong grade of carbon brushes
10. The gain of an FET amplifier can be changed by changing-
- a) r_m
b) g_m
c) R_d
d) None of these
11. The direction of rotation of a D.C motor is determined by _____.
- a) Fleming's right hand rule
b) Fleming's left hand rule
c) Ampere's right hand grip rule
d) Maxwell's cork screw rule
12. A 220V, DC machine has an armature resistance of 0.5 ohm. If the armature current is 20 amps, the induced emf when the machine work as-
- (i) Generator
(ii) Motor will be respectively
- a) 220V, 210V
b) 210V, 230V
c) 200V, 230V
d) 190V, 240V
13. The D.C motor works on the principle that the-
- a) Current carrying conductor placed in a uniform magnetic field experiences a force on it
b) Conductor moves when kept in a uniform magnetic field
c) Magnetic field set up by varying current which produces force in the conductor
d) Combined magnetic field set up by two current carrying conductors produces a force between them
14. A DC shunt motor is running on no-load. If the field winding gets opened, what will be the condition of the motor?
- a) The motor will stop
b) The motor will burn out
c) The motor will run at high speed
d) The motor will make noise
15. The starting current of a 220V, 10 HP shunt motor having an armature resistance of 0.2 ohms, without starter is _____.
- a) 11 amps
b) 110 amps
c) 1100 amps
d) 11000 amps
16. The starting resistance of 3 point starter in D.C motor is connected with _____.
- a) Parallel across the armature
b) Series with the armature
c) Parallel across the field winding
d) Series with the field winding
17. The standard rated value of secondary current of current transformer as per IS 2705 (Part 1) – 1981 shall be either _____.
- a) 5 Ampere or 10 Ampere
b) 2.5 Ampere or 5 Ampere
c) 1.5 Ampere or 6 Ampere
d) 1 Ampere or 5 Ampere

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28. When the coil moves at right angle to the magnetic flux, the induced emf will be _____.
a) Oscillating
b) Minimum
c) Zero
d) Maximum
29. Which among these is a method of wiring?
a) Joint box
b) Tee system
c) Loop in system
d) All of these
30. The magnitude of the induced emf. at zero degree angle is given by the formula
 $E_0 = BLV \sin \theta$.
a) Induced voltage
b) Velocity of loop rotation
c) Value of the magnetic flux density
d) Velocity of the cutting force by magnetic lines
31. The direction of rotation of dc shunt motor can be reversed by interchanging-
a) The supply terminals
b) The field terminals
c) The armature terminals only
d) Either field or armature terminals
32. With the increase in the speed of a dc motor-
a) Both back emf as well as line current increase
b) Both back emf and line current fall
c) Back emf increases but the line current falls
d) Back emf falls and line current increases
33. According to the IS recommendation the clearance between the bottom part of the ceiling fan and the floor should not be less than –
a) 1.3 m
b) 2.0 m
c) 2.25 m
d) 2.40 m
34. Two pin sockets should not be used in domestic wiring unless the appliance to be connected is –
a) Double earthed
b) Double insulated
c) Controlled by ELCB
d) Controlled by MCB
35. D.C. shunt motors are commonly used in-
a) Cranes
b) Electric traction
c) Elevators
d) Lathe machines
36. Size of the plate electrode used for plate earthing should not be less than –
a) 12.5 x 12.5 x 0.12 cm
b) 20 x 20 x 0.25 cm
c) 30 x 30 x 0.28 cm
d) 60 x 60 x 0.315 cm
37. In which principle, the earth resistance tester does work?
a) Fall of resistivity method
b) Fall of potential method
c) Wheatstone bridge principle
d) Fall of conductivity method

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38. What is the function of current reverses which is used in earth resistance tester?
- To convert AC voltage into DC voltage
 - To convert DC voltage into AC voltage
 - To reduce the vibration of the pointer
 - To reduce the effect of electrolytic emf
39. You have to select a PF meter suitable for connecting in a circuit for PF measurements on what basis you will select its range?
- Suitability for the type of load (Inductive / capacitive/ Resistance)
 - PF range of meter (Lagging / Leading)Unity
 - Voltage and current range of meter suitable to load
 - Current and PF range of meter matching to load
40. Ammeters used for current measurements in circuits with short over load time, differs from other application. Ammeter used in short overload time circuit have –
- Non-linear scale
 - Extended scale
 - Linear scale
 - Fine scale
41. Instruments which must not be used in the circuit when the power is ON are –
- Watt meter and PF meter
 - Frequency meter and Tong tester
 - Phase sequence meter and energy meter
 - Ohmmeter and Megger
42. Two types of multimeters are in use. Analog type and Digital type. Chose the correct statement applicable for both the types. Both the meters –
- Have moving elements, hence must be used in horizontal position
 - Can be used for current and voltage measurement without battery
 - Need manual zero setting for resistance measurement
 - Need battery for resistance measurements
43. Power drawn by a welding shop which has 3 phase, 415 V, 50Hz supply has to be measured. The following loads are connected. (a) 2 welding set of each 5KVA across L1,L2 and L3. (b) One set of 5KVA across L2 and L3. What is the type of wattmeter you would choose for this measurement?
- 3 element 3 wire type 3 phase wattmeter
 - One single phase wattmeter connected between any two phase and multiply reading by three
 - 3 element 4 wire 3 phase watt meter
 - 2 element types 3 phase watt meter
44. D.C shunt motor is also called as-
- Constant flux motor
 - Constant voltage motor
 - Variable voltage motor
 - Constant current motor
45. To keep the continuity of serial lamp set circuit even across the fuse bulb it is customary to connect a device across the each bulb as precaution. What is the name of such device?
- NTC thermistors
 - PTC thermistors
 - Voltage dependent resistor
 - Flasher

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