Q : 01 - Which of the following material does not allow the current to flow in it?

Options:
1) Conductor
2) Insulator
3) Semiconductor
4) Superconductor

Correct Answer: Insulator

Q : 02 - How much power (in W) will be dissipated by a 5 Ohm resistor in which the value of current is 2 A?

Options:
1) 10
2) 30
3) 20
4) 40

Correct Answer: 20

Q : 03 - Which property of an electrical conductor opposes a change in the current?

Options:
1) Resistance
2) Capacitance
3) Conductance
4) Inductance
Correct Answer: Inductance

Q : 04 - What is the resistivity (in Ohms-m) of a 2 Ohm cylindrical wire when the length and the diameter of the wire are 10 m and 0.4 m respectively?
Options:
1) 0.025
2) 0.0025
3) 0.25
4) 0.05
Correct Answer: 0.025

Q : 05 - Farad is the S.I unit of__________.
Options:
1) Inductance
2) Resistance
3) Capacitance
4) Reluctance
Correct Answer: Capacitance

Q : 06 - What is the equivalent capacitance (in \( \mu F \)) for the circuit given below?

\[ \text{Options:}
1) 4.56
2) 4.32
3) 54.65 \]
4) 54.28  
**Correct Answer:** 4.32

**Q : 07 -** What will be the resistance (in Ohms) of a lamp rated at 220 V, 200 W?  
**Options:**  
1) 220  
2) 224  
3) 244  
4) 242  
**Correct Answer:** 242

**Q : 08 -** What will be the equivalent resistance (in Ω) for the circuit given below?  

![Circuit Diagram](image)

**Options:**  
1) 5  
2) 7  
3) 10  
4) 4  
**Correct Answer:** 7

**Q : 09 -** Two wires of same resistivity have equal length. The cross sectional area of first wire is two times to the area of the other. What will be the resistance (in Ohms) of the wire that has a large cross sectional area, if the resistance of the other wire is 20 Ohms?  
**Options:**  
1) 40  
2) 20  
3) 30
4) 10

Correct Answer: 10

Q: 10 - What will be the resistance (in Ohms) of bulb A for the circuit given below?

Correct Answer: 3.3

Q: 11 - Which of the following statement is CORRECT?

Options:
1) Norton’s theorem is same as superposition theorem.
2) Norton’s theorem is the converse of superposition theorem.
3) Norton’s theorem is same as Thevenin’s theorem.
4) Norton’s theorem is the converse of Thevenin’s theorem.

Correct Answer: Norton’s theorem is the converse of Thevenin’s theorem.

Q: 12 - The algebraic sum of the electric currents meeting at a common point is ________.

Options:
1) Infinity
2) Zero
3) One
4) Negative
Q : 13 - Which of the following law is based on the conservation of energy?

Options:
1) Kirchhoff’s Current Law
2) Kirchhoff’s Voltage Law
3) Ohm’s Law
4) Coulomb’s Law

Correct Answer: Kirchhoff’s Voltage Law

Q : 14 -
What is the value of current $I_4$ (in A) for the given junction?

![Diagram with currents](Image)

Options:
1) 4
2) -4
3) 6
4) -6

Correct Answer: 6

Q : 15 -
What is the value of Norton resistance (in Ω) between the terminal A and B for the given Norton’s equivalent circuit?

Options:
1) 2
2) 4
3) 4.66
4) 5.6
Correct Answer: 4.66

Q : 16 -
Determine the value of current (in A) through both the resistors of the given circuit.

दिए गए परिक्षण में दोनों प्रतिरोधों में विद्युत धारा का मान (एम्प्युएल में) जान करें।
Questions:

17. Determine the value of current $I_1$ (in A) and $V_1$ (in V) respectively, for the circuit given below.

Options:
1) 4, 32
2) -4, 32
3) 6, 30
4) -6, 30

Correct Answer: 4, 32

18. 

Options:
1) 4, 32
2) -4, 32
3) 6, 30
4) -6, 30

Correct Answer: 2, 1.5
What will be the value of Thevenin's voltage (in V), Thevenin's resistance (in Ω) and the load current (in A) respectively, across the load resistor in the given electrical circuit?

Options:
1) 40, 22, 2.22
2) 50, 32, 1.11
3) 60, 22, 2.22
4) 60, 32, 1.50

Correct Answer: 60, 22, 2.22

Q : 19
Determine the value of maximum power (in W) transferred from the source to the load in the circuit given below.

Options:
1) 30
2) 25
3) 20
4) 35
**Correct Answer:** 35

Q : 20 - 
Determine the Norton's current (in A) and Norton's resistance (in $\Omega$) respectively, for the given electrical circuit across the load resistance, $R_L$.

निचे दिए गए विद्युत परिस्थित में लोड प्रतिसम $R_L$ के आर्थिक मान नाउटन विद्युत धारा (एम्प्युयर में) और नाउटन प्रतिसम (ओम में) का मान क्रमशः निर्धारित करें।

![Electrical Circuit Diagram](image)

Options:
1) 2.09, 7.66
2) 2.34, 3.45
3) 4.43, 3.26
4) 2.34, 2.55
**Correct Answer:** 2.09, 7.66

Q : 21 - The S.I unit of magnetic flux is__________.

Options:
1) Henry
2) Coulomb
3) Tesla
4) Weber
**Correct Answer:** Weber

Q : 22 - The relative permeability of diamagnetic materials is__________.

Options:
1) Greater than 1
2) Greater than 10
3) Less than 1
4) Greater than 100  
**Correct Answer:** Less than 1

**Q:** 23 - Which of the following is the reciprocal of reluctance?

**Options:**
1) Permeability  
2) Susceptibility  
3) Permeance  
4) Reluctivity  
**Correct Answer:** Permeance

**Q:** 24 - Which of the following is the CORRECT formula for permeance?

**Options:**
1) \( \frac{I}{H} \)  
2) \( \frac{\phi}{H} \)  
3) \( \frac{F_m}{L} \)  
4) \( \frac{F_m}{L} \)  
**Correct Answer:**

**Q:** 25 - Determine the intensity of magnetization (in A/m) of a magnet when it has a pole strength of 60 A-m and a pole area of 20 sq. m.

**Options:**
1) 9  
2) 4  
3) 6  
4) 3
**Correct Answer:** 3

Q : 26 - What will be the magnitude of induced EMF (in V) in a coil that has 200 square loops, each of side 5 cm and placed normal to a magnetic field? The magnetic field increases at the rate of 4 Weber per sq. meter.  
**Options:**  
1) 1  
2) 2  
3) 3  
4) 4  
**Correct Answer:** 2

Q : 27 - What will be the value of current (in A) in a 40 cm long solenoid in free space, if it has 400 turns, 2 cm of diameter and produces a magnetic field of 4 mT at its center?  
**Options:**  
1) 4.23  
2) 5.15  
3) 3.18  
4) 2.34  
**Correct Answer:** 3.18

Q : 28 - What will be the self-inductance (in H) of a 2 m long air-core solenoid, if the diameter of the solenoid is 25 cm and has 600 turns?  
**Options:**  
1) 0.011  
2) 0.045  
3) 0.132  
4) 0.645  
**Correct Answer:** 0.011

Q : 29 -
What will be the mutual inductance (in mH) between the two coils, if a current of $2\sin(100\pi t)$ passes through one of the coil, which induces a maximum EMF of $10\pi V$ in the second coil?

Options:
1) 40
2) 20
3) 50
4) 60

Correct Answer: 50

Q : 30 - Determine the magnitude of the EMF (in V) induced between the axis of rotation and the rim of the disc, when the disc of diameter 40 cm rotates with an angular velocity of 40 revolutions per second and placed in a magnetic field of 1 T acting parallel to the rotation of the disc.

Options:
1) 6
2) 3.6
3) 4.8
4) 5

Correct Answer: 5

Q : 31 - What will be the instantaneous value of the alternating current (in A) which is represented by $i(t) = 20\sin(13t - 20)$ A, when the value of $t$ is 5?

Options:
1) 0
2) 10
3) 14.14
Q : 32 - What is the peak value of the alternating voltage (in V) having an average value of 180 V?

Options:
1) 254.59
2) 282.57
3) 333.34
4) 359.96

Correct Answer: 282.57

Q : 33 - The capacitive reactance of a circuit is 60 Ohms, when it is supplied with a 50 Hz supply. What will be the value of capacitive reactance (in Ohms) of the same circuit, if it is supplied with a 60 Hz supply?

Options:
1) 50
2) 60
3) 75
4) 125

Correct Answer: 50

Q : 34 -
A parallel RLC circuit is being supplied by a DC source as shown in the figure below. What is the value of current flowing through the capacitor (in A)?

Options:
1) 0
2) 0.5
3) 1
4) 2
Correct Answer: 0

Q : 35 - Calculate the value of phase angle (in Degrees) in a series RC circuit having a resistance of 50 Ohms and a capacitive reactance of 86.6 Ohms, when supplied with a frequency of 50 Hz.
Options:
1) 15
2) 30
3) 45
4) 60
Correct Answer: 60

Q : 36 - What is the value of the total impedance (in ohms) of a tank circuit working at resonant frequency having a capacitance of 0.01 mF and an inductance of 0.01 mH?
Options:
1) 0
2) 10
3) 100
4) $\infty$

Correct Answer: $\infty$

Q : 37 - Calculate the time (in seconds) taken by a series RL circuit having inductance of 0.6 H and resistance of 30 Ohms to reach a steady state value.

Options:
1) 0.02
2) 0.05
3) 0.1
4) 0.5

Correct Answer: 0.1

Q : 38 - Which of the following is NOT correct about a star connected balanced 3-phase circuit?

Options:
1) The phase current is equal to the line current.
2) The phase voltage is less than the line voltage.
3) The system does not contain a neutral point.
4) It is a four wire system.

Correct Answer: The system does not contain a neutral point.

Q : 39 - A 3-phase delta connected system is supplied by a line voltage of 400 V. The value of phase current is 70 A. What is the power (in kW) consumed by the system, if the current lags the voltage by 60 degrees?

Options:
1) 16.8
2) 42
3) 67.2
4) 84

Correct Answer: 42

Q : 40 - What is the apparent power of a 3-phase star connected system having a line voltage of 250 V and a line current of 40 A and the phase difference between the voltage and current is 36.87 degrees?

Options:
1) 13.856 kW
2) 13.856 kVA
3) 17.32 kW
4) 17.32 kVA

Correct Answer: 17.32 kVA

Q : 41 - Which of the following is the dimension of resistance?
Options:
1) \( ML^2 \over Q^2 T \)
2) \( Q^2 T^2 \over ML^2 \)
3) \( ML^2 \over QT^2 \)
4) \( ML \over QT^2 \)

Correct Answer:

Q : 42 - A factory runs in 3 shifts of 8 hours each, in which it consumes 30 kW, 15 kW and 25 kW in each shift respectively. Calculate the energy (in kWh) consumed by the factory per day.
Options:
1) 186.67
2) 373
3) 560
4) 746.67

Correct Answer: 560

Q : 43 - In two wattmeter method of power calculation of a 3-phase balanced star connected system, what is the power factor of the system if one of the wattmeter shows zero reading and the other shows a positive reading?
Options:
1) 0
2) Greater than 0 but less than 0.5
3) 0.5
4) Greater than 0.5 but less than 1
Correct Answer: 0.5

Q : 44 - Which of the following is NOT an advantage of PMMC type instruments?
Options:
1) Frictional error is low.
2) Single instrument can be used for multi range measurements of voltage and current.
3) Uniformly divided scale.
4) Stray magnetic field error is small.
Correct Answer: Frictional error is low.

Q : 45 - Which of the following quantities cannot be measured using a multimeter?
Options:
1) AC Voltage
2) DC Current
3) Phase Angle
4) Resistance
Correct Answer: Phase Angle

Q : 46 - Which of the following can measure the resistance having value below 1 Ohms most precisely?
Options:
1) Kelvin's Double Bridge
2) Megger
3) Multimeter
4) Wheatstone Bridge
Correct Answer: Kelvin's Double Bridge

Q : 47 - Which of the following materials when used as the viewing surface of a CRO gives a bluish glow?
Options:
1) Zinc Sulfide with copper as impurity
2) Zinc Sulfide with silver as impurity
3) Yttrium Oxide
4) Pure Zinc Sulfide

**Correct Answer:** Zinc Sulfide with silver as impurity

Q : 48 - What is the percentage voltage error of a potential transformer with system voltage of 11,000 V and having turns ratio of 100, if the measured secondary side voltage is 105 V?

**Options:**
1) 2.75
2) 3.55
3) 4.54
4) 9.09

**Correct Answer:** 4.54

Q : 49 - Which of the following is the cause of a speed error in induction type energy meter?

**Options:**
1) Incorrect position of brake magnets.
2) Incorrect adjustment of the position of shading bands.
3) Slow but continuous rotation of aluminum disc.
4) Temperature variations

**Correct Answer:** Incorrect position of brake magnets.

Q : 50 - A circuit having power factor of 0.8 consumes 20 W. What is the value of reactive power (in VAR) of the circuit?

**Options:**
1) 10
2) 15
3) 20
4) 25

**Correct Answer:** 15

Q : 51 - During plugging, external resistance is also introduced into a circuit to limit the flow of ________.

**Options:**
1) current
2) voltage
3) current and voltage both
Q : 52 - A Transformer
Options:
1) Changes AC to DC.
2) Changes DC to AC.
3) Steps up or down DC Voltages & Current.
4) Steps up or down AC Voltages & Current.
Correct Answer: Steps up or down AC Voltages & Current.

Q : 53 - The overall power factor of an On-load transformer _______.
Options:
1) depends on the power factor of the load.
2) is always lagging.
3) is always unity.
4) is always leading.
Correct Answer: depends on the power factor of the load.

Q : 54 - Dynamic braking can be used for which of the following?
Options:
1) Shunt motors
2) Series motors
3) Compound motors
4) All options are correct
Candidate Answer: [ NOT ANSWERED ]

Q : 55 - The parts of the armature electric circuit which take active part in e.m.f. generation are _____.
Options:
1) The coil sides inside the slots
2) The overhangs
3) both the coil sides inside the slots and the overhangs
4) the commutator segments
Correct Answer: The coil sides inside the slots

Q : 56 - The interpoles in dc machines have a tapering shape in order to
Options:
1) reduce the overall weight
2) reduce the saturation in the interpole
3) economise on the material required for interpoles
4) increase the acceleration of commutation

Correct Answer: reduce the saturation in the interpole

Q : 57 - Maximum efficiency will occur, when copper loss and iron loss are
Options:
1) unity
2) zero
3) unequal
4) equal

Correct Answer: equal

Q : 58 - The higher the voltage in the transmission line, the current which will flow through the transmission line for a given power to be transmitted will be
Options:
1) higher
2) equal
3) lower
4) Unity

Correct Answer: lower

Q : 59 - No-load test on induction motor is conducted to find which of the following losses?
Options:
1) stator core loss
2) rotational loss
3) stator copper loss
4) All options are correct

Correct Answer: All options are correct

Q : 60 - If the torque of the induction motor decreases, the
Options:
1) speed of rotor increases
2) speed of rotor decreases
3) current of the rotor decreases
4) power of the motor decreases
Correct Answer: speed of rotor increases

Q : 61 - Reduction in the capacitance of a capacitor- start motor results in reduced______.
Options:
1) Noise
2) Speed
3) Starting torque
4) Armature reaction
Correct Answer: Starting torque

Q : 62 - A single-phase induction motor with only the main winding excited would exhibit the following response at synchronous speed
Options:
1) Rotor current is zero
2) Rotor current is non-zero and is at slip frequency
3) Forward and backward rotating fields are equal
4) Forward rotating field is more than the backward rotating field
Correct Answer: Forward rotating field is more than the backward rotating field

Q : 63 - The electric motor used in portable drills is________.
Options:
1) capacitor run motor
2) hysteresis motor
3) universal motor
4) repulsion motor
Correct Answer: universal motor

Q : 64 - In which single-phase motor, the rotor has no teeth or winding ?
Options:
1) Split phase motor
2) Reluctance motor
3) Hysteresis motor
4) Universal motor
Correct Answer: Hysteresis motor

Q : 65 - The range of efficiency for shaded pole motors is
Options:
1) 95% to 99%
2) 80% to 90%
3) 50% to 75%
4) 5% to 35%
Correct Answer: 5% to 35%

Q : 66 - The direction of rotation of universal motor can be reversed by reversing the flow of current through_______.
Options:
1) armature winding
2) field winding
3) either armature winding or field winding
4) None of these
Correct Answer: either armature winding or field winding

Q : 67 - Which of the following statement is incorrect?
Options:
1) As the temperature rises, the tension in the transmission line decreases
2) As temperature rises, the sag in transmission lines reduces
3) Tension and sag in transmission lines are complementary to each other
4) None of these
Correct Answer: As temperature rises, the sag in transmission lines reduces

Q : 68 - Series capacitors in transmission lines are of little use when
Options:
1) the load VAR requirement is small
2) the load VAR requirement is large
3) the load VAR requirement is fluctuating
4) None of these
Correct Answer: the load VAR requirement is small

Q : 69 - Stability of a system is not affected by_______.
Options:
1) reactance of line
2) losses
3) reactance of generator
4) output torque
**Correct Answer:** losses

**Q : 70** - Which of the following is not a constituent for making porcelain insulators?

**Options:**
1) Silica
2) Kaolin
3) Feldspar
4) Quartz

**Correct Answer:** Silica

**Q : 71** - Name the generating station where electrical energy is generated through steam.

**Options:**
1) Thermal power station
2) Diesel power station
3) Hydro power station
4) Nuclear power station

**Correct Answer:** Thermal power station

**Q : 72** - In a 3-phase 4-wire cable, the cross-sectional area of neutral conductor is

**Options:**
1) equal to phase conductor
2) more than phase conductor
3) half the phase conductor
4) None of these

**Correct Answer:** half the phase conductor

**Q : 73** - Fuse is always made up of alloys and metals having

**Options:**
1) high resistance and high melting points
2) High resistance and low melting points
3) low resistance and low melting points
4) low resistance and high melting points

**Correct Answer:** High resistance and low melting points

**Q : 74** - In case of stair case wiring which type of switch is used?

**Options:**
1) 2 one way switches
2) 1 one way switch
3) 2 two way switch
4) 1 two way switch

Correct Answer: 2 two way switch

Q : 75 - Two incandescent lamps of wattage 40W, 60W are connected in series with voltage of 230 V. Which out of the two lamps will glow brighter?
Options:
1) 40W
2) 60W
3) both brightly
4) both dim

Correct Answer: 40W

Q : 76 - Rating of fuse wire is expressed in terms of______.
Options:
1) ohms
2) mhos
3) amperes
4) watts

Correct Answer: amperes

Q : 77 - If a live wire comes in contact with metal casing, excess current moves to______.
Options:
1) power house
2) dynamos
3) earth
4) transformers

Correct Answer: earth

Q : 78 - A 3-phase, 4 wire system is commonly used on______.
Options:
1) primary transmission
2) secondary transmission
3) primary distribution
4) Secondary distribution
Correct Answer: Secondary distribution

Q : 79 - Insulator that is used in low voltage distribution lines is known as_______.

Options:
1) shackle
2) strain
3) pin
4) suspension
Correct Answer: shackle

Q : 80 - Which of the following type of lamp gives more illumination from low wattage ?

Options:
1) Incandescent lamp
2) Fluorescent lamp
3) Compact fluorescent lamp
4) LED lamp
Correct Answer: LED lamp

Q : 81 - The fuse is installed in which of the following wire?

Options:
1) Neutral
2) Phase
3) earth
4) All options are correct
Correct Answer: Phase

Q : 82 - The wave form of the armature m.m.f. in DC machine is_______.

Options:
1) square
2) rectangular
3) triangular
4) sinusoidal
Correct Answer: triangular

Q : 83 - Light waves travel with a velocity of______.
Options:
1) 3X10^{10} cm/s
2) 3X10^{12} cm/s
3) 3X10^{15} cm/s
4) 3X10^{18} cm/s
Correct Answer: 3X10^{10} cm/s

Q : 84 - Light is produced in electric discharge lamps by_______.
Options:
1) Heating effect of current
2) Magnetic effect of current
3) Ionisation in a gas or vapour
4) Carbon electrodes
Correct Answer: Ionisation in a gas or vapour

Q : 85 - A DC generator can be termed as _________.
Options:
1) rotating amplifier
2) prime mover
3) power pump
4) None of these
Correct Answer: rotating amplifier

Q : 86 - Arc blow is a welding defect which is encountered in
Options:
1) Arc welding using DC current
2) Arc welding using AC current
3) Gas welding
4) Thermit welding
Correct Answer: Arc welding using DC current

Q : 87 - Which of the following has the highest value of thermal conductivity?
Options:
1) Aluminium
2) Brass
3) Copper
4) Iron
Correct Answer: Copper

Q: 88 - During resistance welding heat produced at the joint is proportional to_______.
Options:
1) Current
2) Voltage
3) I^2R
4) Volt-amperes
Correct Answer: I^2R

Q: 89 - Which of the following is tetravalent?
Options:
1) Quartz
2) Diamond
3) Germanium
4) Antimony
Correct Answer: Germanium

Q: 90 - The acceptor type of impurity is_______.
Options:
1) phosphorous
2) aluminium
3) boron
4) iron
Correct Answer: boron

Q: 91 -
The reverse bias characteristics of a semiconductor diode is shown in

_options:
1) (a)
2) (b)
3) (c)
4) (d)

Correct Answer: (b)

**Q:** 92 - The peak inverse voltage, in case of a bridge rectifier, for each, diode is:
(where, $Em =$ Peak value of input voltage)

**Options:**
1) $Em$
2) $2Em$
3) $3Em$
4) $4Em$

Correct Answer: $Em$

**Q:** 93 - In an electronic circuit transistor is used for switching ON and OFF a relay, when the transistor switches OFF the relay, a higher voltage appears across the transistor. How can a transistor be protected from this voltage?
Options:
1) A capacitor in series to the relay
2) A resistor in series to the relay
3) An inductor parallel to the relay
4) A diode parallel to the relay
Correct Answer: A diode parallel to the relay

Q : 94 - The efficiency of the class B amplifier is approximately:
Options:
1) 10% to 30%
2) 30% to 50%
3) 50% to 60%
4) 70% to 100%
Correct Answer: 70% to 100%

Q : 95 - The oscillations in a synchronous motor can be damped out by
Options:
1) maintaining constant excitation
2) providing damper bars in the rotor pole faces
3) running the motor on leading power factors
4) oscillations cannot be damped
Correct Answer: providing damper bars in the rotor pole faces

Q : 96 - An over excited synchronous motor is used for_________.
Options:
1) variable speed loads
2) low torque loads
3) power factor corrections
4) high torque loads
Correct Answer: power factor corrections

Q : 97 - Synchronous motors are_______.
Options:
1) essentially self-starting
2) not-self starting
3) self-starting
4) None of these
Correct Answer: not-self starting

Q: 98 - When any one-phase of a 3-phase synchronous motor is short-circuited, the motor _____.

Options:
1) will overheat in spots
2) will refuse to start
3) will not come upto speed
4) will fail to pull into step

Correct Answer: will overheat in spots

Q: 99 - Which of the following can be measured by conducting insulation resistance test on a synchronous motor?

Options:
1) Phase to phase winding resistance
2) Rotor winding to earthed shaft
3) Stator winding to earthed frame
4) All options are correct

Correct Answer: All options are correct

Q: 100 - The under-excited synchronous motor takes_______.

Options:
1) leading current
2) lagging current
3) both leading current and lagging current
4) None of these

Correct Answer: lagging current