# UPPCL JE 25 November 2019 Shift 1

Section : **Technical_Electrical Engineering**

**Q.1** One lumen per square metre is termed as:

**Ans**

✗ A. Candle power

✗ B. MHCP

✓ C. One lux

✗ D. MSCP

Question ID : **8970322404**
Status : **Answered**
Chosen Option : **3**

**Q.2** Which of the following control devices is used to provide protection against accidents by rapidly interrupting dangerous contact voltages that may be present in the faulty electrical equipments as a result of ground faults, insufficient insulation, insulation failure, or misuse and sabotage.

**Ans**

✗ A. Optical switch

✗ B. Push-button control switch

✗ C. Float switch

✓ D. ELCB

Question ID : **8970322508**
Status : **Answered**
Chosen Option : **4**

**Q.3** Determine the pitch factor for winding: 36 stator slots, 4-poles, coil span 1 to 8.

**Ans**

✓ A. $\cos 20^\circ$

✗ B. $\cos 40^\circ$

✗ C. $\cos 30^\circ$

✗ D. $\cos 80^\circ$

Question ID : **8970322439**
Status : **Answered**
Chosen Option : **1**

**Q.4** In the case of alternator cooling, a large quantity of air is passed through subslots, which are just below the main slots. Such type of cooling is known as:

**Ans**

✗ A. Closed circuit ventilation

✗ B. Radial ventilation

✗ C. Multiple inlet system of ventilation

✓ D. Axial ventilation

Question ID : **8970322432**
Status : **Answered**
Chosen Option : **2**

**Q.5** A hydroelectric generating station is supplied form a reservoir of capacity 6 million $m^3$ at a head of 170 m. Determine the potential energy stored in this water.

**Ans**

✗ A. $10^{10}$ J

✗ B. $10^{9}$ J

✗ C. $10^{8}$ J

✓ D. $10^{12}$ J

Question ID : **8970322470**
Status : **Answered**
Chosen Option : **1**

**Q.6** With respect to damping system in instruments, choose the incorrect statement.

**Ans**

✓ A. It should always oppose the activating torque

✗ B.
Damping system should produce damping torque only when position is in motion

✗ C.
Damping torque should be proportional to the velocity of pointer but independent of operating current

✗ D. It must not affect the controlling torque

Question ID : **8970322545**
Status : **Not Answered**
Chosen Option : **--**

**Q.7** Which of the following device/system is capable of operating in high temperature with poor power conditions in dusty, dirty, corrosive atmospheres and withstand shock and vibration?

**Ans**

✗ A. Laptop

✗ B. iPad

✗ C. Personnel computer

✓ D. PLC

Question ID : **8970322444**
Status : **Answered**
Chosen Option : **4**

**Q.8** Which of the following standards has to be followed for drawing electrical installation plan?

**Ans**

✗ A. IS: 375-1985

✗ B. IS: 675-1955

✗ C. IS: 575-1951

✔ D. IS: 375-1951

Question ID : **8970322492**
Status : **Not Answered**
Chosen Option : **--**

**Q.9** Which of the following statements is not true with regard to the cleat wiring systems?

**Ans**

✘ A. The inspection, alteration and addition can be made easily

✘ B. The installation and dismantling is easy and thick

✘ C. It is very inexpensive and can be reused

✔ D. It is used for permanent wiring

Question ID : **8970322420**
Status : **Answered**
Chosen Option : **1**

**Q.10** What is the 1's complement of $(-01101_2)$?

**Ans**

✘ A. $01010_2$

✘ B. $10011_2$

✔ C. $10010_2$

✘ D. $01011_2$

Question ID : **8970322525**
Status : **Answered**
Chosen Option : **3**

**Q.11** There exist three terminals in a relay called C, NO, NC. In an application, it is desired that whenever the relay is active the load must be connected to supply, otherwise the load will be disconnected from supply. Which of the following connection type in relay will provide solution to the stated problem?

**Ans**

✘ A. Supply to the NC terminal and load to the C terminal

✔ B. Supply to the C terminal and load to the NO terminal

✘ C. Supply to the C terminal and load to the NC terminal

✘ D. Supply to the NC terminal and load to the NO terminal

Question ID : **8970322506**
Status : **Answered**
Chosen Option : **3**

**Q.12** If the effective mass of the rain = $M_e$ ton, acceleration = $\alpha$ km/ sec$^2$, then the tractive force $F_a$ is equal to:

**Ans**

✔ A. $M_e \times \alpha \times 10^6$ N

✘ B. $M_e \times \alpha \times 10^3$ N

✘ C. $M_e \times \alpha \times 10^5$ N

✘ D. $M_e \times \alpha \times 10^4$ N

Question ID : **8970322410**

Status : **Answered**
Chosen Option : **4**

**Q.13** The required properties of traction batteries are:

**Ans**

✗ A. High volumetric capacity and less service life

✗ B. Low volumetric capacity and long service life

✓ C.
Constant output voltage, high resistance to vibration, and high volumetric and long service life

✗ D. Constant output voltage, low resistance to vibration

Question ID : **8970322466**
Status : **Answered**
Chosen Option : **3**

**Q.14** In a moving iron instrument, the deflecting torque is:

**Ans**

✗ A. $\propto i$, where $i$ is the current through the instrument

✗ B. $\propto 1/i^2$, where $i$ is the current through the instrument

✓ C. $\propto i^2$, where $i$ is the current through the instrument

✗ D. $\propto 1/i$, where $i$ is the current through the instrument

Question ID : **8970322547**
Status : **Answered**
Chosen Option : **3**

**Q.15** The cost of conductor material required can be reduced with the reduction in the volume of conduction material. This is possible with an:

**Ans**

✗ A. increase in the frequency of the supply

✗ B. increase in the transmission current

✓ C. increase in the transmission voltage

✗ D. increase in the transmission power

Question ID : **8970322476**
Status : **Answered**
Chosen Option : **3**

**Q.16** Find the decimal equivalent of the 6-bit binary number $101.101_2$.

**Ans**

✗ A. $5.25_{10}$

✗ B. $5.125_{10}$

✓ C. $5.625_{10}$

✗ D. $6.625_{10}$

Question ID : **8970322530**
Status : **Answered**
Chosen Option : **3**

Q.17 To improve earth resistance for protection which of the following methods is/are used?

(i) Use longer ground rods
(ii) Chemically treat the soil
(iii) Use multiple ground rods

Ans
✗ A. (i) and (ii)
✗ B. (iI) and (iii)
✗ C. (ii) only
✓ D. (i), (ii) and (iii)

Question ID : **8970322427**
Status : **Answered**
Chosen Option : **2**

Q.18 Consider the below points:

(i) Distance between stops
(ii) acceleration and retardation
(iii) gradient
(iv) train resistance

Which of the above factors affect the specific energy consumption in trains?

Ans
✗ A. (i) and (ii) only
✓ B. (i), (ii), (iii) and (iv)
✗ C. (ii) and (iii) only
✗ D. (i), (ii) and (iii) only

Question ID : **8970322409**
Status : **Answered**
Chosen Option : **2**

Q.19 The energy stored in a magnetic field of length $l$ metre and of cross-section $A$ sq-m is:

Ans
✗ A. $\frac{1}{2} \times A \frac{N^2}{\mu\, l} \times I^2$ J
✓ B. $\frac{1}{2} \times \mu A \frac{N^2}{l} \times I^2$ J
✗ C. $\mu A \frac{N^2}{l} \times I^2$ J
✗ D. $\frac{1}{2} \times \mu A \frac{N^2}{l} \times I$ J

Question ID : **8970322464**
Status : **Answered**
Chosen Option : **2**

Q.20 Which of the following elements has/have approximate linear characteristics for resistance?

Ans
✓ A. Carbon

✗ B. Thermistors

✗ C. Varistors

✗ D. Diodes

Question ID : **8970322535**
Status : **Answered**
Chosen Option : **3**

**Q.21** Which lightning stroke is most dangerous?

**Ans**

✗ A. Direct stroke on the ground wire

✓ B. Direct stroke on the line conductor

✗ C. Indirect stroke on the conductor

✗ D. Direct stroke on the tower top

Question ID : **8970322493**
Status : **Answered**
Chosen Option : **3**

**Q.22** Three capacitors of 2 μ F, 5 μ F and 10 μ F have breakdown voltage of 200 V, 500 V and 100 V respectively. The capacitors are connected in series and the applied direct voltage to the circuit is gradually increased. Determine the total applied voltage at the point of breakdown.

**Ans**

✓ A. 320 V

✗ B. 150 V

✗ C. 250 V

✗ D. 100 V

Question ID : **8970322469**
Status : **Answered**
Chosen Option : **4**

**Q.23** _____ is a temperature sensitive resistor, whose resistance decreases with increasing temperature.

**Ans**

✗ A. Proximity sensor

✗ B. Copper wire sensor

✗ C. Gold leaf sensor

✓ D. Thermistor

Question ID : **8970322504**
Status : **Answered**
Chosen Option : **4**

**Q.24** Which of the following are the requirements for a good lighting system?

(i) The illuminating source should have sufficient light.
(ii) The illumination source should not strike the eyes.
(iii) The illumination source should have suitable shades and reflectors.
(iv) The illumination source should be installed at such a place so as to give uniform light.

**Ans**

✗ A. (ii), (iii) and (iv)

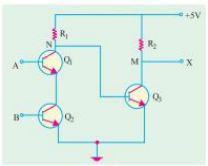
✗ B. (i), (iii) and (iv)

C. (i), (ii) and (iv)

D. (i), (ii), (iii) and (iv)

Question ID : **8970322412**
Status : **Answered**
Chosen Option : **4**

**Q.25** If A and B are the logical inputs to the following circuit, determine the logical relation between the inputs and the output X.



**Ans**

A. $X = AB$

B. $X = \overline{AB}$

C. $X = \overline{A + B}$

D. $X = A + B$

Question ID : **8970322527**
Status : **Not Answered**
Chosen Option : **--**

**Q.26** A capacitor consists of two:

**Ans**

A. conductors separated by an insulator

B. silver-coated insulators

C. ceramic plates and one mica disc

D. insulators separated by a dielectric

Question ID : **8970322532**
Status : **Answered**
Chosen Option : **4**

**Q.27** Which of the following sensors is used to measure the change in light quantity caused by the target crossing the optical axis?

**Ans**

A. A through-beam type sensor

B. LED

C. LASER

D. Reflective-type photoelectric sensor

Question ID : **8970322501**
Status : **Answered**
Chosen Option : **4**

**Q.28** Which of the following is the advantage of a joint box system?

**Ans**

A. The fault location is easy to detect

✔ B. The cost of wiring is saved

✘ C. It require least skilled labour

✘ D. No chance of short circuit

Question ID : **8970322419**
Status : **Answered**
Chosen Option : **2**

**Q.29** A steel-cored aluminium conductor consists of central core of _____ wires surrounded by a number of: _____.

**Ans**

✔ A. galvanised steel; aluminium stands

✘ B. copper; aluminium stands

✘ C. aluminium; copper stands

✘ D. aluminium; steel stands

Question ID : **8970322478**
Status : **Answered**
Chosen Option : **1**

**Q.30** Which of the following magnetic materials is preferred for very-high-frequency communication systems?

**Ans**

✔ A. Nickel-iron alloys containing up to 80% of nickel

✘ B. Rolled steel

✘ C. Forged steel

✘ D. Nickel-iron alloys containing up to 20% of nickel

Question ID : **8970322537**
Status : **Answered**
Chosen Option : **4**

**Q.31** Which of the following Indian Electrical Rules describes about the periodical inspection and testing of consumer's installation?

**Ans**

✘ A. Rule 56

✔ B. Rule 46

✘ C. Rule 54

✘ D. Rule 31

Question ID : **8970322423**
Status : **Answered**
Chosen Option : **1**

**Q.32** The symmetrical breaking current of a circuit breaker is determined as:

**Ans**

✔ A.

$\sqrt{3} \times$ rated symmetrical breaking current $\times$ rated service voltage

✘ B.

$\frac{1}{\sqrt{3}} \times$ rated symmetrical breaking current $\times$ rated service voltage

✘ C.

3 × rated symmetrical breaking current × rated service voltage

✗ D.

Rated symmetrical breaking current × rated service voltage

Question ID : **8970322454**
Status : **Answered**
Chosen Option : **4**

**Q.33** The energy stored in a coil with inductance $L$ is determined as:

**Ans**

✗ A. $\frac{L}{2I^2}$ J

✗ B. $\frac{L}{2} \times \frac{dq}{dt}$ J

✗ C. $2L \times \frac{dq}{dt}$ J

✓ D. $\frac{L}{2} \times \left(\frac{dq}{dt}\right)^2$ J

Question ID : **8970322462**
Status : **Answered**
Chosen Option : **4**

**Q.34** The CPU module in the PLC is used to:

**Ans**

✗ A. control the outputs only

✗ B. execute the control program only

✗ C. read inputs only

✓ D.

read inputs, execute the control program and update outputs

Question ID : **8970322445**
Status : **Answered**
Chosen Option : **4**

**Q.35** In a dc generator, let P be the number of poles, ϕ be the flux per pole, Z be the number of armature conductors and A be the number of parallel paths in armature. If the generator runs at N rpm, then the generated emf per parallel path is:

**Ans**

✗ A. $\frac{P\phi ZN}{\pi A}$ V

✗ B. $\frac{P\phi ZN}{120A}$ V

✗ C. $\frac{P\phi ZN}{A}$ V

✓ D. $\frac{P\phi ZN}{60A}$ V

Question ID : **8970322516**
Status : **Answered**
Chosen Option : **4**

**Q.36** The binary equivalent of decimal value $(20)_{10}$ is:

**Ans**

✔ A. $10100_2$

✘ B. $11100_2$

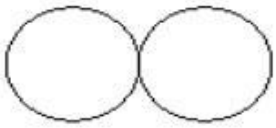
✘ C. $11000_2$

✘ D. $10110_2$

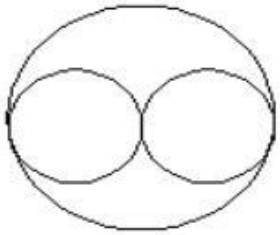
Question ID : **8970322524**
Status : **Answered**
Chosen Option : **1**

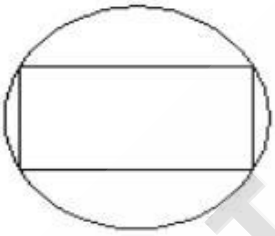
**Q.37** Which of the following options indicates the energy meter symbol in an electrical drawing?

**Ans**

✘ A. 

✘ B. 

✘ C. 

✔ D. 

Question ID : **8970322415**
Status : **Answered**
Chosen Option : **4**

**Q.38** How to convert a (0 to 1) mA meter to measure the current in the range of 0 to 100 mA? The internal resistance of the meter is $100\ \Omega$.

**Ans**

✘ A. Connect a $1.01\ \Omega$ resistance in series with the meter

✔ B. Connect a $1.01\ \Omega$ resistance in parallel with the meter

✘ C. Connect a $10.01\ \Omega$ resistance in series with the meter

✘ D. Connect a $10.01\ \Omega$ resistance in parallel with the meter

Question ID : **8970322549**
Status : **Answered**
Chosen Option : **2**

**Q.39** The heat curve in a motor is given as $\theta = \left(1 - e^{-\frac{t}{\tau}}\right)$. The heating time constant of motor is defined as the time required to heat up the motor upto:

Ans

✗ A. 0.333 times its final temperature rise, and it is equal to $T$

✓ B. 0.633 times its final temperature rise, and it is equal to $T$

✗ C. 0.333 times its final temperature rise, and it is equal to $T/2$

✗ D. 0.633 times its final temperature rise, and it is equal to $T/2$

Question ID : **8970322498**
Status : **Answered**
Chosen Option : **2**

**Q.40** The energy stored in a capacitor $C$ could be determined as:

Ans

✗ A. $\frac{V^2}{C}$ J

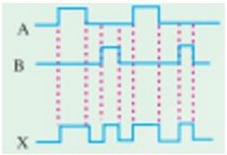
✗ B. $\frac{Q^2}{C}$ J

✗ C. $\frac{V^2}{2C}$ J

✓ D. $\frac{Q^2}{2C}$ J

Question ID : **8970322461**
Status : **Answered**
Chosen Option : **4**

**Q.41** The input waves of a logic block A, B provide the logic output X. Identify the logic operation performed by the logic block.




Ans

✗ A. $X = \overline{A + B}$

✗ B. $X = \overline{AB}$

✓ C. $X = A + B$

✗ D. $X = AB$

Question ID : **8970322528**
Status : **Answered**
Chosen Option : **2**

**Q.42** A hydro-electric generating station is supplied from a reservoir of capacity $5 \times 10^6$ cubic metre at a head of 200 metre. Find the total energy available in kWh if the overall efficiency is 75%.

Ans

✓ A. $2 \times 10^6$ kWh

✗ B. $2 \times 10^5$ kWh

✗ C. $2 \times 10^7$ kWh

✗ D. $2 \times 10^4$ kWh

Question ID : **8970322490**
Status : **Answered**
Chosen Option : **1**

**Q.43** Which of the following is not a peak load power plant?

**Ans**

✗ A. Gas plant

✗ B. Solar and wind power plant

✗ C. Diesel power plant

✓ D. Thermal power plant

Question ID : **8970322482**
Status : **Answered**
Chosen Option : **4**

**Q.44** The MVM instruction in PLC stands for:

**Ans**

✗ A. Move data from memory to memory

✗ B. Move data via direct memory access

✗ C. Move data from reg to memory

✓ D. Masked move

Question ID : **8970322450**
Status : **Answered**
Chosen Option : **1**

**Q.45** In case of programmable automation, are there any changes/is there any change possible to be done in the sequence of operations?

**Ans**

✗ A. Possible by changing the processor

✓ B. Possible by changing the program

✗ C. Possible by changing the embedded system

✗ D. Not possible

Question ID : **8970322441**
Status : **Not Answered**
Chosen Option : **--**

**Q.46** To generate emf, which of the following methods may be used?

(i) Stationary field system with rotating armature
(ii) Stationary armature with rotating field system
(iii) Stationary field and stationary armature

**Ans**

✗ A. (i), (ii) and (iii)

✗ B. (ii) only

✗ C. (i) only

✓ D. (i) and (ii)

Question ID : **8970322433**
Status : **Answered**
Chosen Option : **4**

**Q.47** A consumer has a maximum demand of 200 kW at 40% load factor. Find the units consumed per year.

**Ans**

✗ A. $\approx 7 \times 10^6$ kWh

✗ B. $\approx 7 \times 10^4$ kWh

✗ C. $\approx 7 \times 10^3$ kWh

✓ D. $\approx 7 \times 10^5$ kWh

Question ID : **8970322500**
Status : **Answered**
Chosen Option : **4**

**Q.48** It is decided that the copper rod earthing is to be installed, then the size of the rod required for earthing is:

**Ans**

✓ A. 12.5 mm

✗ B. 19 mm

✗ C. 12.5 cm

✗ D. 19 cm

Question ID : **8970322426**
Status : **Answered**
Chosen Option : **3**

**Q.49** In case of small power installations, the number of GI or copper plates required for earthing is:

**Ans**

✗ A. 2

✗ B. 3

✓ C. 1

✗ D. 4

Question ID : **8970322425**
Status : **Answered**
Chosen Option : **3**

**Q.50** In a half adder, the carry output is high if the inputs are:

**Ans**

✓ A. 1,1

✗ B. 0, 0

✗ C. 0, 1

✗ D. 1, 0

Question ID : **8970322522**
Status : **Answered**
Chosen Option : **1**

**Q.51** The cylindrical rotor type alternators are driven by:

**Ans**

✗ A. Water turbine
✗ B. Wind mill
✓ C. Steam turbine
✗ D. Solar cell

Question ID : **8970322431**
Status : **Answered**
Chosen Option : **3**

**Q.52** Which of the following has/have the highest stability and power rating?

**Ans**
✗ A. Metal film resistors
✓ B. Wire-wound resistors
✗ C. Semiconductor film
✗ D. Carbon composition resistors

Question ID : **8970322540**
Status : **Answered**
Chosen Option : **2**

**Q.53** A meter reads 125 V and the true value of the voltage is 125.5 V. Find the static error of the instrument.

**Ans**
✗ A. 125/0.5 V
✗ B. 125 V
✓ C. 0.5 V
✗ D. 0.5/125 V

Question ID : **8970322544**
Status : **Answered**
Chosen Option : **3**

**Q.54** Find the complement of $A + \overline{A}B$

**Ans**
✗ A. B
✗ B. $\overline{AB}$
✓ C. $\overline{A+B}$
✗ D. A

Question ID : **8970322529**
Status : **Answered**
Chosen Option : **1**

**Q.55** If a conductor is moved in a stationary magnetic field, then emf induced in it. Such an emf is known as:

**Ans**
✗ A. Self-induced emf
✗ B. Back emf
✗ C. Static-induced emf
✓ D. Dynamically-induced emf

Question ID : **8970322513**
Status : **Answered**
Chosen Option : **4**

**Q.56** The ratio of a power plant's actual output over a period of time to its potential output if it were possible for it to operate at full nameplate capacity continuously over the same period of time is known as:

**Ans**

✗ A. Demand factor

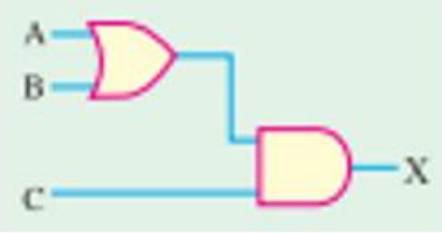
✗ B. Diversity factor

✗ C. Average load

✓ D. Plant capacity factor

Status : **Answered**
Chosen Option : **4**

**Q.57** Find the output X for the given logic circuit.




**Ans**

✗ A. $X = \overline{A + B}\,C$

✓ B. $X = (A + B)C$

✗ C. $X = \overline{AB} + C$

✗ D. $X = (AB) + C$

Question ID : **8970322521**
Status : **Answered**
Chosen Option : **2**

**Q.58** Which of the following devices has a typical analog output?

**Ans**

✗ A. Alarms

✗ B. Horns

✗ C. Pilot lights

✓ D. Pressure transmitter

Question ID : **8970322448**
Status : **Answered**
Chosen Option : **4**

**Q.59** In alternator, the ratio $\frac{\text{vector sum of the induced emf per coil}}{\text{arthimetic sum of the induced emf per coil}}$ is known as:

**Ans**

✗ A. Form factor

✗ B. Power factor

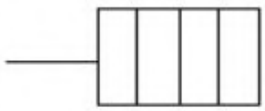
✔ C. Pitch factor

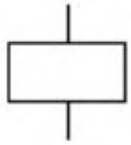
✘ D. RMS value

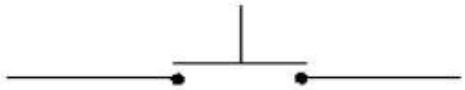
Question ID : **8970322435**
Status : **Answered**
Chosen Option : **3**

**Q.60** Identify the electrical symbol for isolator from the following options.

**Ans**

✘ A. 

✘ B. 

✘ C. 

✔ D. 

Question ID : **8970322491**
Status : **Answered**
Chosen Option : **4**

**Q.61** Which of the following faults occurs more frequently in power systems?

**Ans**

✘ A. Phase-to-phase fault

✘ B. Phase-to-phase and third phase to ground fault

✘ C. All the three phases are short circuited

✔ D. Line-to-ground fault

Question ID : **8970322452**
Status : **Answered**
Chosen Option : **4**

**Q.62** In a PMMC instrument, the final steady state deflection is:

**Ans**

✔ A. $\propto i$, where $i$ is the current through the coil

✘ B. $\propto 1/i$, where $i$ *is the* current through the coil

✘ C. $\propto i^2$, where $i$ is the current through the coil

✘ D. $\propto 1/i^2$, where $i$ is the current through the coil

Question ID : **8970322546**
Status : **Answered**

Chosen Option : **1**

**Q.63** The operating time values of fuse and circuit breakers are:

**Ans**

✗ A.
For fuse: around 0.02 second, and for circuit breaker: (0.002 to 0.005) second

✗ B.
For fuse: around 0.2 second, and for circuit breaker: (0.2 to 0.5) second

✓ C.
For fuse: around 0.002 second, and for circuit breaker: (0.02 to 0.05) second

✗ D.
For fuse: around 0.02 second, and for circuit breaker: (0.2 to 0.5) second

Question ID : **8970322458**
Status : **Answered**
Chosen Option : **1**

**Q.64** Which of the following control devices is used to control/operate industrial equipment?

**Ans**

✓ A. PLC

✗ B. Microprocessor

✗ C. Discrete analog devices

✗ D. DSP

Question ID : **8970322507**
Status : **Answered**
Chosen Option : **1**

**Q.65** The daily load factor is calculated as:

**Ans**

✗ A. $\frac{\text{No.of units consumed per day}}{\text{Max.demand of the day}}$

✓ B. $\frac{\text{No.of units consumed per day}}{24\times\text{Max.demand of the day}}$

✗ C. $\frac{24\times\text{Max.demand of the day}}{\text{No.of units consumed per day}}$

✗ D. $\frac{\text{Max.demand of the day}}{\text{No.of units consumed per day}}$

Question ID : **8970322495**
Status : **Answered**
Chosen Option : **2**

**Q.66** The _____ is a temporary storage area used by the CPU to store a relatively _____ amount of data for interim calculations and control.

**Ans**

✗ A. scratch pad area; large

✗ B. application memory; large

✗ C. executive area; small

✓ D. scratch pad area; small

Question ID : **8970322447**
Status : **Not Answered**
Chosen Option : **--**

**Q.67** Which of the following law states that "whenever the magnetic flux lining a conductor or coil changes, an emf is induced in it"?

**Ans**

✗ A. Fleming's right hand rule

✓ B. Faraday's first law of electromagnetic induction

✗ C. Lenz's law

✗ D. Faraday's second law of electromagnetic induction

Question ID : **8970322512**
Status : **Answered**
Chosen Option : **2**

**Q.68** The nature of emf induced in the armature of a dc generator is _____ and it is converted into _____ by means of split rings.

**Ans**

✗ A. dc; ac

✗ B. dc; dc

✗ C. ac; ac

✓ D. ac; dc

Question ID : **8970322514**
Status : **Answered**
Chosen Option : **4**

**Q.69** The submarines for underwater movement are powered with the help of:

**Ans**

✗ A. Wind engine

✓ B. Batteries

✗ C. Solar engine

✗ D. Geo-thermal engines

Question ID : **8970322494**
Status : **Answered**
Chosen Option : **2**

**Q.70** In an alternator, when the armature current increases, the terminal voltage drops due to:

**Ans**

✗ A. Armature reaction

✓ B.
Armature effective resistance, armature leakage reactance and armature reaction

✗ C. Armature effective resistance

✗ D. Armature leakage reactance

Question ID : **8970322437**
Status : **Answered**
Chosen Option : **2**

**Q.71** Once a synchronous machine is synchronised, it will tend to remain in synchronism with the other alternators. Any tendency to depart from the condition of synchronism is _____ produced due to circulating current flowing through the alternators.

**Ans**

✗ A. opposed by a motor torque

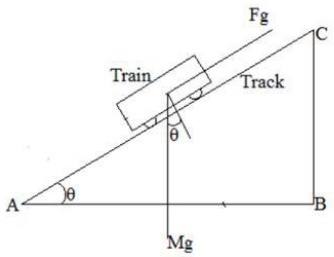
✗ B. opposed by a load torque

✓ C. opposed by a synchronising torque

✗ D. aided by a synchronising torque

Question ID : **8970322438**
Status : **Answered**
Chosen Option : **3**

**Q.72** Find the tractive effort required to balance the gravitational pull for the train on an up-gradient as given in the below figure.




**Ans**

✗ A. $F_g = Mg$ N

✗ B. $F_g = Mg\cos(\theta)$ N

✗ C. $F_g = Mg\tan(\theta)$ N

✓ D. $F_g = Mg\sin(\theta)$ N

Question ID : **8970322411**
Status : **Answered**
Chosen Option : **4**

**Q.73** Let $\alpha$ be the angle, in electrical degrees, by which the span of the coil is less than a pole pitch in alternator. At the fundamental frequency, the pitch factor is equal to:

**Ans**

✗ A. $\cos\alpha$

✓ B. $\cos\frac{\alpha}{2}$

✗ C. $\sin\alpha$

✗ D. $\sin\frac{\alpha}{2}$

Question ID : **8970322436**
Status : **Answered**
Chosen Option : **2**

**Q.74** With respect to dynamometer type measuring instruments, choose the incorrect statement.

**Ans**

✓ A. They have a uniform scale

✗ B. They can be used to measure both AC & DC

✗ C. They are free from hysteresis and eddy current losses

✗ D. They have Low torque/weight ratio

Question ID : **8970322548**
Status : **Answered**
Chosen Option : **3**

**Q.75** The rate of rise of restriking voltage ( $RRRV_{max}$ ) is defined as the slope of the steepness tangent of the restring voltage curve, and it is determined as:

**Ans**

✗ A. $RRRV_{max} = \frac{V_{max}}{\sqrt{RL}}$

✗ B. $RRRV_{max} = \frac{V_{max}}{\sqrt{RC}}$

✗ C. $RRRV_{max} = \frac{V_{max}}{\sqrt{RLC}}$

✓ D. $RRRV_{max} = \frac{V_{max}}{\sqrt{LC}}$

Question ID : **8970322459**
Status : **Answered**
Chosen Option : **4**

**Q.76** With respect to alternator rotor types, select the correct option.

**Ans**

✗ A.
Salient pole rotor type: - causes speed fluctuation and suitable for high-speed operation.
Cylindrical rotor type: - causes no speed fluctuation and suitable for low-and medium-speed operation.

✓ B.
Salient pole rotor type: - causes speed fluctuation and suitable for low-and medium-speed operation.
Cylindrical rotor type: - causes no speed fluctuation and suitable for high-speed operation.

✗ C.
Salient pole rotor type: - causes no speed fluctuation and suitable for high-speed operation.
Cylindrical rotor type: - causes speed fluctuation and suitable for low-and medium-speed operation.

✗ D.
Salient pole rotor type: - causes no speed fluctuation and suitable for low-and-medium speed operation.
Cylindrical rotor type: - causes speed fluctuation and suitable for high-speed operation.

Question ID : **8970322434**
Status : **Answered**
Chosen Option : **4**

**Q.77** The typical potential of a lead electrode is:

**Ans**

✓ A. $-0.122$ V

✗ B. $0.122$ V

✗ C. $-0.44$ V

✗ D. $0.44$ V

Question ID : **8970322465**
Status : **Answered**
Chosen Option : **1**

**Q.78** The electrically-controlled magnetic materials used in machines should have:

Ans

✗ A. low permeability and high saturation flux density

✓ B. high permeability and high saturation flux density

✗ C. low permeability and low saturation flux density

✗ D. high permeability and low saturation flux density

Question ID : **8970322536**
Status : **Answered**
Chosen Option : **2**

**Q.79** One calory heat energy is equal to the electrical energy of:

Ans

✗ A. $\frac{10^{-3}}{86}$ kWh

✗ B. $\frac{10^{-4}}{860}$ kWh

✗ C. $\frac{10^{-3}}{8.6}$ kWh

✓ D. $\frac{10^{-3}}{860}$ kWh

Question ID : **8970322485**
Status : **Answered**
Chosen Option : **4**

**Q.80** The loads in metal cutting and drilling tool drives, drives for fork lift trucks, mine hoist etc. are considered to be:

Ans

✓ A. Intermittent periodic duty in the starting

✗ B. Short time duty

✗ C. Continuous duty

✗ D. Continuous duty with staring and braking

Question ID : **8970322408**
Status : **Answered**
Chosen Option : **1**

**Q.81** The direction of the magnetic field around the current carrying conductor could be determined by:

Ans

✓ A. Right hand thumb rule

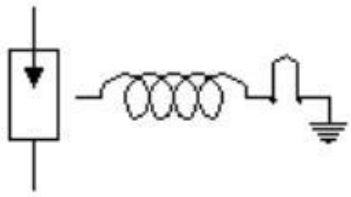
✗ B. Left hand thumb rule

✗ C. Lenz's law

✗ D. Fleming's right hand rule

Question ID : **8970322511**
Status : **Answered**
Chosen Option : **1**

**Q.82**



What does the above symbol indicate in an electrical drawing?

Ans
- ✔ A. Lightning arrestor
- ✘ B. Isolator
- ✘ C. Exhaust fan
- ✘ D. Current transformer

Question ID : **8970322416**
Status : **Answered**
Chosen Option : **1**

Q.83 The capacitance of a capacitor is NOT influenced by:

Ans
- ✘ A. Conductive plate separation
- ✔ B. Conductive plate thickness
- ✘ C. Conductive plate area
- ✘ D. Nature of the dielectric between the plates

Question ID : **8970322539**
Status : **Answered**
Chosen Option : **2**

Q.84 Which of the following is not run with the help of DC supply?

Ans
- ✘ A. Compound motor
- ✘ B. Series motor
- ✘ C. Shunt motor
- ✔ D. Squirrel cage motor

Question ID : **8970322401**
Status : **Answered**
Chosen Option : **4**

Q.85 The maintenance cost for the electrical equipment is called:

Ans
- ✘ A. Depreciation cost
- ✘ B. Investment cost
- ✘ C. Auxiliary cost
- ✔ D. Operating cost

Question ID : **8970322429**
Status : **Answered**

Chosen Option : **1**

**Q.86** In the measuring instruments, the degree of conformity and closeness to the true value is known as:

**Ans**

✗ A. Precision

✗ B. Deflecting torque

✗ C. Measuring scale

✓ D. Accuracy

Question ID : **8970322541**
Status : **Answered**
Chosen Option : **1**

**Q.87** The surge tanks are usually provided in high or medium head _____ power plants when considerably _____ is required.

**Ans**

✗ A. hydro-electric, short penstock

✓ B. hydro-electric, long penstock

✗ C. thermal, short penstock

✗ D. thermal, large steam turbine

Question ID : **8970322484**
Status : **Answered**
Chosen Option : **2**

**Q.88** An XNOR gate produces an output only when the two inputs are:

**Ans**

✗ A. high

✗ B. different

✗ C. low

✓ D. same

Question ID : **8970322523**
Status : **Answered**
Chosen Option : **4**

**Q.89** The generation of power in a power plant has to be controlled to meet the:

**Ans**

✗ A. demand of load and power factor

✗ B. demand of load only

✓ C. demand of load and frequency

✗ D. frequency and power factor

Question ID : **8970322483**
Status : **Answered**
Chosen Option : **3**

**Q.90** In an electrical wiring, the fuse should be placed:

**Ans**

A. in earth wire

B. in live or phase wire

C. in lamp directly

D. neutral wire

Question ID : **8970322418**
Status : **Answered**
Chosen Option : **2**

**Q.91** The overall efficiency of a steam power station is computed as:

**Ans**

A. $\frac{\text{steam energy}}{\text{heat of combustion of coal}}$

B. $\frac{\text{heat equivalent of electrical output}}{\text{Heat of combustion of coal}}$

C. $\frac{\text{heat equivalent of mech energy transmitted to turbine shaft}}{\text{Heat of coal combustion}}$

D. $\frac{\text{heat of combustion of coal}}{\text{mech energy}}$

Question ID : **8970322487**
Status : **Answered**
Chosen Option : **2**

**Q.92** In terms of energy bands, insulators have:

**Ans**

A. full conduction band

B. very small energy gap

C. full valence band

D. moderate energy gap

Question ID : **8970322533**
Status : **Answered**
Chosen Option : **3**

**Q.93** When a lead-acid cell is recharged, the $H_2$ ions move to cathode and $SO_4$ ions go to anode. The following changes then take place.

**Ans**

A. At Cathode: $PbSO_4 + H_2 \rightarrow Pb + H_2SO_4$
At Anode: $PhSO_4 + 2H_2O \rightarrow PbO_2 + 2H_2SO_4$

B. At Cathode: $PbSO_4 + H_2 \rightarrow Pb + H_2SO_4$
At Anode: $PhSO_4 + H_2O \rightarrow PbO_2 + H_2SO_4$

C. At Cathode: $PhSO_4 + H_2O \rightarrow PbO_2 + H_2SO_4$
At Anode: $PbSO_4 + H_2 \rightarrow Pb + H_2SO_4$

D. At Cathode: $PhSO_4 + 2H_2O \rightarrow PbO_2 + 2H_2SO_4$
At Anode: $PbSO_4 + H_2 \rightarrow Pb + H_2SO_4$

Question ID : **8970322468**

Status : **Answered**
Chosen Option : **1**

**Q.94** Let V be the terminal voltage, $I_a$ be the armature current and $I_{sh}$ be the shunt current. The power delivered to a load of a self-excited dc shunt generator is:

**Ans**

✗ A. $V \times I_{sh}$ W

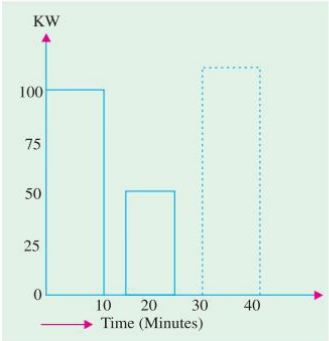
✗ B. $V \times I_a$ W

✓ C. $V \times (I_a - I_{sh})$ W

✗ D. $V \times (I_a + I_{sh})$ W

Question ID : **8970322517**
Status : **Answered**
Chosen Option : **4**

**Q.95** Determine the suitable size of a continuously rated motor for the following load curve. The load has a repeated pattern every 30 min.




**Ans**

✗ A. $\approx 81$ kW

✗ B. $\approx 51$ kW

✗ C. $\approx 77$ kW

✓ D. $\approx 67$ kW

Question ID : **8970322499**
Status : **Answered**
Chosen Option : **4**

**Q.96** If a single motor drives a number of machines through belts from a common shaft, such a type of drive system is known as:

**Ans**

✗ A. Individual drive

✗ B. Complex motor drive

✗ C. Multi motor drive

✓ D. Group drive

Question ID : **8970322405**
Status : **Answered**
Chosen Option : **4**

**Q.97**

Which of the following points represent the essential features of a switchgear?

(i) Complete reliability
(ii) Absolutely certain discrimination
(iii) Quick operation
(iv) Provision for manual control

Ans
✗ A. (ii), (iii) and (iv) only
✗ B. (i), (iii) and (iv) only
✓ C. (i), (ii), (iii) and (iv)
✗ D. (i), (ii) and (iii) only

Question ID : **8970322453**
Status : **Answered**
Chosen Option : **3**

**Q.98** Which of the following can be placed near the main board to protect the whole installation?

Ans
✓ A. ELCB
✗ B. Main switch
✗ C. MCB
✗ D. Energy meter

Question ID : **8970322424**
Status : **Answered**
Chosen Option : **3**

**Q.99** The initial temperature of machine is 45 °C. Calculate the temperature of machine after 1.2 hours, if its final steady temperature rise is 85 °C and the heating time constant is 2.4 hours. Consider ambient temperature ass 25 ° C.

Ans
✗ A. $(85 - 25e^{-0.5})\,^{\circ}C$
✗ B. $(25 - 65e^{-0.5})\,^{\circ}C$
✗ C. $(110 - 65e^{-0.5})\,^{\circ}C$
✓ D. $(85 - 65e^{-0.5})\,^{\circ}C$

Question ID : **8970322497**
Status : **Answered**
Chosen Option : **2**

**Q.100** Which option represents the correct sequence of the flow of the electrical power from the generating station to the load.

Ans
✗ A. Primary transmission, secondary distribution
✗ B. Primary transmission, primary distribution
✗ C. Primary transmission, secondary transmission
✓ D.
Primary transmission, secondary transmission, primary distribution and secondary distribution

Question ID : **8970322471**
Status : **Answered**
Chosen Option : **4**

**Q.101** The equipment that is used to disconnect the main under no-load condition for safety isolation and maintenance is called:

**Ans**

✗ A. Earthing switch

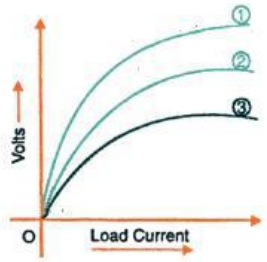
✓ B. Isolators

✗ C. Busbar

✗ D. Line trap

Question ID : **8970322430**
Status : **Answered**
Chosen Option : **2**

**Q.102** The V-I characteristics of a dc series generator are given in the following figure.




Choose the appropriate labels for the three plots.

**Ans**

✓ A.

1-OCC, 2- Internal Characteristics, and 3- External characteristics

✗ B.

1- Internal Characteristics, 2-OCC, and 3- External characteristics

✗ C.

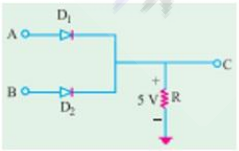
1-External Characteristics, 2-OCC, and 3-Internal characteristics

✗ D.

1-OCC, 2-External Characteristics, and 3-Internal characteristics

Question ID : **8970322520**
Status : **Answered**
Chosen Option : **2**

**Q.103** If A and B are the logical inputs to the following circuit, determine the logical relation between the inputs and the output C.




**Ans**

✗ A. $C = \overline{AB}$

✗ B. $C = AB$

✗ C. $C = A \text{ xor } B$

✓ D. $C = A + B$

Question ID : **8970322526**

Status : **Answered**
Chosen Option : **1**

**Q.104** Which of the following control methods is not preferred for ac drives?

**Ans**

✗ A. Changing the supply frequency

✗ B. Injecting resistance in the rotor circuit

✓ C. Field control method

✗ D. Changing the supply voltage

Question ID : **8970322407**
Status : **Answered**
Chosen Option : **3**

**Q.105** Which of the following characteristics is not an electrical characteristic considered during the selection of a motor?

**Ans**

✗ A. Running characteristics

✗ B. Starting characteristics

✓ C. Transmission of drive

✗ D. Speed control

Question ID : **8970322406**
Status : **Answered**
Chosen Option : **3**

**Q.106** In railway electrification, the voltage and frequency, respectively, of the three-phase ac system are:

**Ans**

✗ A. 25 kV and 50 Hz

✓ B. 3 to 3.5 kV and $16^{2/3}$ Hz

✗ C. 1500 V and 50 Hz

✗ D. 600 V and 50 Hz

Question ID : **8970322403**
Status : **Answered**
Chosen Option : **1**

**Q.107** In terms of energy bands, semiconductors can be defined as those materials that have:

**Ans**

✓ A.
almost an empty conduction band and almost filled valence band with a very narrow energy gap between the conduction and valence band

✗ B.
almost an empty conduction band and almost filled valence band with a very high energy gap between the conduction and valence band

✗ C.
almost an empty conduction band and low filled valence band with a very narrow energy gap between the conduction and valence band

✗ D.
almost full conduction band and almost filled valence band with a very narrow energy gap between the conduction and valence band

Question ID : **8970322538**
Status : **Answered**
Chosen Option : **1**

**Q.108** The objective of automation is to cause the work system to be automatic such that the system becomes:

**Ans**

✗ A. self-reliant only

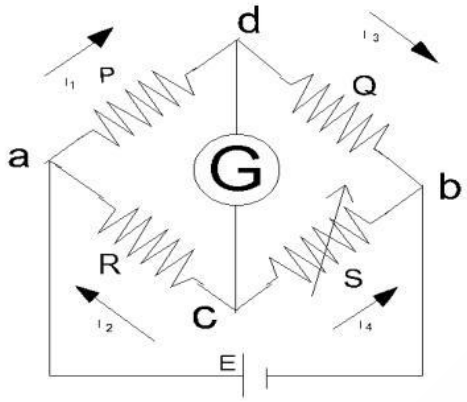
✓ B. self-acting, self-regulating and self-reliant all

✗ C. self-regulating only

✗ D. self-acting only

Question ID : **8970322443**
Status : **Answered**
Chosen Option : **2**

**Q.109** Determine the unknown resistance R in the given network, if the galvanometer reads zero.




**Ans**

✗ A. $R = \frac{P \times Q}{S}$

✗ B. $R = \frac{Q}{P} S$

✓ C. $R = \frac{P}{Q} S$

✗ D. $R = \frac{P - Q}{S}$

Question ID : **8970322550**
Status : **Answered**
Chosen Option : **3**

**Q.110** A 100 MW steam station uses coal of calorific value 6400 kcal/kg. Thermal efficiency of the station is 30% and electrical efficiency is 92%. Find the overall efficiency of the plant.

**Ans**

✗ A. 92%

✗ B. 30%

✓ C. 27.6%

✗ D. 62%

Question ID : **8970322489**
Status : **Answered**
Chosen Option : **3**

**Q.111** With respect to automation, choose the wrong statement.

Ans

✗ A. It provides better working conditions for workers

✓ B. It decreases unemployment

✗ C. There is an increase in productivity

✗ D. There is a reduction in the production cost

Question ID : **8970322442**
Status : **Answered**
Chosen Option : **2**

**Q.112** _____ is an electromechanical device that consists of an actuator mechanically linked to a set of contacts. When an object comes into the contact with the actuator, the device operates the contacts to make or break an electrical connection.

Ans

✗ A. A relay

✗ B. A photoelectric switch

✗ C. A circuit breaker

✓ D. A limit switch

Question ID : **8970322503**
Status : **Answered**
Chosen Option : **4**

**Q.113** Consider the below points:

(i) Minimum size of cable
(ii) Voltage drop
(iii) Current carrying capacity
(iv) Type of insulation used

Which of the above constitute specifications that need to be considered while selecting wires?

Ans

✓ A. (i), (ii), (iii) and (iv)

✗ B. (i) and (ii)

✗ C. (ii), (iii) and (iv)

✗ D. (i), (ii) and (iii)

Question ID : **8970322422**
Status : **Answered**
Chosen Option : **1**

**Q.114** Let $w$ be the weight per unit length of the conductor, $H$ be the horizontal tension, and $l$ be the span length, then the sag in a freely suspended conductor is determined as:

Ans

✗ A. $\delta = \frac{wl}{8H}$

✗ B. $\delta = \frac{wl}{4H}$

✓ C. $\delta = \frac{wl^2}{8H}$

✗ D. $\delta = \frac{wl^2}{4H}$

Question ID : **8970322479**

Status : **Answered**
Chosen Option : **3**

**Q.115** Which of the following Indian Electrical Rules describes the guarding in an electrical system?

**Ans**

✔ A. Rule 88

✘ B. Rule 84

✘ C. Rule 85

✘ D. Rule 75

Question ID : **8970322417**
Status : **Not Answered**
Chosen Option : **--**

**Q.116** The load side typical distribution system has:

**Ans**

✘ A. 3 wire 440 V

✘ B. 4 wire, 440 V

✔ C. 4wire, 440 V

✘ D. 1 wire, 230 V

Question ID : **8970322473**
Status : **Answered**
Chosen Option : **3**

**Q.117** In the overhead system, the maximum disruptive stress exists between the:

**Ans**

✘ A. phase conductor and neutral

✔ B. conductor and the earth

✘ C. conductors

✘ D. conductor and pole

Question ID : **8970322474**
Status : **Answered**
Chosen Option : **3**

**Q.118** The use of optical isolation in the input module side of a controller device is to:

**Ans**

✔ A.
reduce the effect of electrical noise and prevent damage to the processor due to line voltage transient

✘ B.
prevent damage to the processor due to line voltage transient

✘ C. provide common ground

✘ D. reduce the effect of electrical noise

Question ID : **8970322449**
Status : **Not Answered**
Chosen Option : **--**

**Q.119** Line-to-ground fault occurs:

Ans

✗ A. due to short circuit between two conductors

✓ B.
due to insulation breakdown between one of the phase and earth

✗ C.
due to the breakdown of insulation between two phases and simultaneous breakdown of insulation between the third phase and earth

✗ D.
due to fault breakdowns of insulation between two phases and earth occur

Question ID : **8970322451**
Status : **Answered**
Chosen Option : **2**

Q.120 The overall efficiency of a steam power plant is about

Ans

✗ A. 56%

✓ B. 29%

✗ C. 45%

✗ D. 66%

Question ID : **8970322488**
Status : **Answered**
Chosen Option : **2**

Q.121 The law that describes the economic choice of conductor size is:

Ans

✗ A. Fleming's Law

✗ B. Ohm's law

✗ C. Faraday's law

✓ D. Kelvin's law

Question ID : **8970322477**
Status : **Answered**
Chosen Option : **4**

Q.122 Which of the following statements is not true with respect to ac transmission systems?

Ans

✗ A.
The maintenance of ac sub-stations is easy and inexpensive.

✗ B.
The ac voltage can be stepped up or stepped down by transformers with ease and efficiency.

✓ C.
Due to skin effect in the ac system, the effective resistance of the line is decreased.

✗ D. The power can be generated at high voltages.

Question ID : **8970322475**
Status : **Answered**
Chosen Option : **1**

Q.123

What does the above symbol indicate in an electrical wiring drawing?

Ans
- ✗ A. Socket outlet 15 A
- ✗ B. Fuse
- ✓ C. Socket outlet 5A
- ✗ D. Bulk head

Question ID : **8970322413**
Status : **Answered**
Chosen Option : **3**

Q.124 Active materials of a lead-acid cell are:

Ans
- ✓ A. Lead peroxide, sponge lead and dilute sulphuric acid
- ✗ B. Lead peroxide and filler caps
- ✗ C. Lead peroxide and pillar
- ✗ D. Sponge lead and pillar

Question ID : **8970322467**
Status : **Answered**
Chosen Option : **1**

Q.125 The terminal voltage of a long shunt dc generator could be determined as:

Ans
- ✗ A. $V = E_g + I_a R_a$
- ✗ B. $V = E_g - I_a R_a$
- ✗ C. $V = E_g + I_a(R_a + R_s)$
- ✓ D. $V = E_g - I_a(R_a + R_s)$

Question ID : **8970322518**
Status : **Answered**
Chosen Option : **4**

Q.126 The $SF_6$ circuit breakers are preferred for the substation with:

Ans
- ✗ A. 33 kV
- ✗ B. 11 kV
- ✗ C. 110 kV
- ✓ D. 220 kV

Question ID : **8970322455**
Status : **Not Answered**
Chosen Option : **--**

Q.127

The fusing factor of a fuse is determined as:

Ans

✗ A. $\frac{\text{current rating of fuse}}{\text{fuse current}}$

✗ B. $\frac{\sqrt{3} \times \text{current rating of fuse}}{\text{fuse current}}$

✗ C. $\sqrt{3} \times \frac{\text{fuse current}}{\text{current rating of fuse}}$

✓ D. $\frac{\text{fuse current}}{\text{current rating of fuse}}$

Question ID : **8970322456**
Status : **Answered**
Chosen Option : **4**

**Q.128** A 25-kVA transformer has 500 turns on the primary and 50 turns on the secondary winding. The primary is connected to a 3000-V, 50-Hz supply. Find the full-load primary and secondary currents.

Ans

✗ A. $I_p = 83.3\ A, I_s = 83.3\ A$

✗ B. $I_p = 83.3\ A, I_s = 8.33\ A$

✗ C. $I_p = 833\ A, I_s = 83.3\ A$

✓ D. $I_p = 8.33\ A, I_s = 83.3\ A$

Question ID : **8970322519**
Status : **Answered**
Chosen Option : **4**

**Q.129** Which of the following materials has the least resistivity?

Ans

✓ A. Copper

✗ B. Iron

✗ C. Carbon

✗ D. Brass

Question ID : **8970322534**
Status : **Answered**
Chosen Option : **1**

**Q.130** With respect to liquid fuels, which statement of the following is incorrect?

Ans

✗ A. The combustion of liquid fuels is uniform.

✗ B.
The handling of liquid fuels is easier and they require less storage space.

✗ C. The firing of liquid fuels can be easily controlled.

✓ D.
Liquid fuels leave very large quantity of ash after burning as compared to solid fuels.

Question ID : **8970322486**
Status : **Answered**
Chosen Option : **1**

Q.131 Which of the following functionalities is not possible in the PLC during the "Run Mode"?

Ans
✗ A. Executes the ladder program and energises output devices.
✗ B. Prevents online program editing.
✗ C. Places the processor in the RUN mode.
✓ D. Allows you to perform program entry and editing.

Question ID : **8970322446**
Status : **Not Answered**
Chosen Option : **--**

Q.132 The typical voltage value of the transformer that connects the generator output to the grid is:

Ans
✗ A. 132 kV / 66 kV
✓ B. 11 kV / 132 kV
✗ C. 66 kV / 132 kV
✗ D. 33 kV / 3.3 kV

Question ID : **8970322472**
Status : **Answered**
Chosen Option : **2**

Q.133 A long transmission line has a large capacitance. If such a line is open-circuited or connected to the very light load at the receiving end, the magnitude of the voltage at the receiving end becomes higher than the voltage at the sending end. Such a phenomenon is called:

Ans
✗ A. Skin effect
✗ B. Corona loss
✓ C. Ferranti effect
✗ D. Sag in transmission lines

Question ID : **8970322480**
Status : **Answered**
Chosen Option : **3**

Q.134 The factors influencing costs and tariffs of electric supply are:

Ans
✓ A.
(i) Standing charges that are independent of the output and (ii) running or operating charges that are proportional to the output.

✗ B.
(i) Standing charges that are proportional to the output and (ii) running or operating charges that are independent of the output.

✗ C.
(i) Standing charges that are proportional to the output and (ii) running or operating charges that are proportional to the output.

✗ D.
(i) Standing charges that are independent of the output and (ii) running or operating charges that are independent of the output.

Question ID : **8970322496**

Status : **Answered**
Chosen Option : **1**

**Q.135** Very low resistance, which is less than one ohm, could be measured using:

**Ans**

✗ A. Earth tester

✗ B. Megger

✓ C. Kelvin's bridge

✗ D. Wheatstone bridge

Question ID : **8970322543**
Status : **Answered**
Chosen Option : **3**

**Q.136** Which of the following switches is used to detect the level of liquid within a tank?

**Ans**

✓ A. Float switch

✗ B. Relay-based switch

✗ C. Push-button switch

✗ D. Electrical ON/OFF switch

Question ID : **8970322505**
Status : **Answered**
Chosen Option : **1**

**Q.137** Which of the following methods is NOT used to develop damping torque in the measuring instruments?

**Ans**

✗ A. Eddy current

✓ B. Spring control

✗ C. Fluid friction

✗ D. Air friction

Question ID : **8970322542**
Status : **Answered**
Chosen Option : **2**

**Q.138** The height for the light points and junction boxes from the floor level should be:

**Ans**

✗ A. 3.0 m to 4.0 m

✓ B. 2.5 m to 3.0 m

✗ C. 2.0 m to 3.5 m

✗ D. 1.5 m to 2.5 m

Question ID : **8970322428**
Status : **Answered**
Chosen Option : **4**

**Q.139** The Laplace transform of $u(t) = 1, t \geq 0;\ u(t) = 0$ for $t < 0$ is:

**Ans**

✓ A. $\frac{1}{s}$

✗ B. $S$

✗ C. $\frac{1}{(s+1)}$

✗ D. $(s+1)$

Question ID : **8970322509**
Status : **Answered**
Chosen Option : **1**

**Q.140** Which of the following transmission systems has the maximum efficiency?

**Ans**

✗ A. Gear drive

✗ B. Belt drive

✗ C. Rope drive

✓ D. Direct drive

Question ID : **8970322402**
Status : **Answered**
Chosen Option : **4**

**Q.141** In an electric magnetic circuit, for establishing a magnetic field:

**Ans**

✗ A. the movement of coil is required.

✗ B.
energy need not be spent, though energy is required to maintain it.

✓ C.
energy must be spent, though no energy is required to maintain it.

✗ D. energy is not at all required.

Question ID : **8970322463**
Status : **Answered**
Chosen Option : **2**

**Q.142** In a dc motor, the commutator is used to:

**Ans**

✗ A.
convert dc current from armature conductor to ac current feedback to supply

✗ B.
convert ac current from armature conductor to dc current feedback to supply

✓ C.
convert dc current from supply to ac current in armature conductor

✗ D.
convert ac current from supply to dc current in armature conductor

Question ID : **8970322515**
Status : **Answered**
Chosen Option : **3**

**Q.143**

Let $L$ be the inductance of the system, $C$ be the capacitance of the system, $i$ be the instantaneous value of arc current, and $v$ be the instantaneous value of capacitor voltage, which appears across the breaker when it opens. The prospective voltage or arc voltage is determined as:

Ans

✗ A. $v = i/\sqrt{LC}$

✓ B. $v = i\sqrt{L/C}$

✗ C. $v = i\sqrt{LC}$

✗ D. $v = \frac{i}{\sqrt{\frac{L}{C}}}$

Question ID : **8970322460**
Status : **Answered**
Chosen Option : **2**

**Q.144** Identify the properties for neutral wire and earth wire from the given list.

(i) It is connected to the neutral point of the transformer that is earthed at the substation.
(ii) It is a solid earth at the substations
(iii) Unbalanced current flows through it
(iv) Only fault current flows through it

Ans

✗ A. Neutral wire: (i) and (iv); Earth wire: (ii) and (iii)

✗ B. Neutral wire: (i), (iii) and (iv); Earth wire: (ii)

✓ C. Neutral wire: (i) and (iii); Earth wire: (ii) and (iv)

✗ D. Neutral wire: (i) ; Earth wire: (ii), (iii) and (iv)

Question ID : **8970322421**
Status : **Answered**
Chosen Option : **4**

**Q.145** Calculate the distribution factor for a single layer 18 slots 2-pole three-phase stator winding.

Ans

✗ A. $\frac{3\times\sin 30^\circ}{\sin 10^\circ}$

✗ B. $\frac{3\times\sin 10^\circ}{\sin 30^\circ}$

✗ C. $\frac{\sin 10^\circ}{3\times\sin 30^\circ}$

✓ D. $\frac{\sin 30^\circ}{3\times\sin 10^\circ}$

Question ID : **8970322440**
Status : **Answered**
Chosen Option : **4**

**Q.146** The armature core in an electrical machine is made with the help of a/an:

Ans

✓ A. laminated electrically-conductive material

✗ B. semiconductive material

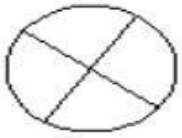
✗ C. electrically-conductive mono-solid material

✗ D. dielectric material

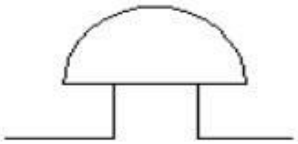
Question ID : **8970322531**
Status : **Answered**
Chosen Option : **1**

**Q.147** Identify the symbol for signal lamp in electrical drawing from the options.

**Ans**

✓ A. 

✗ B. 

✗ C. 

✗ D. 

Question ID : **8970322414**
Status : **Answered**
Chosen Option : **1**

**Q.148** The Inverse Laplace transform of $\left(\frac{1}{s+1}\right)$ is:

**Ans**

✓ A. $e^{-t}$

✗ B. $e^{t}$

✗ C. 1

✗ D. $e^{1}$

Question ID : **8970322510**
Status : **Answered**
Chosen Option : **1**

**Q.149** The electric switch to control any electrical equipment will act as a:

**Ans**

✗ A. PD controller

✗ B. Proportional controller

✗ C. PID controller

✓ D. ON/OFF controller

Question ID : **8970322502**
Status : **Not Answered**
Chosen Option : **--**

Q.150 The cut-off current in the fuse depends on:

(i) Current rating of the fuse
(ii) Value of the prospective current
(iii) Asymmetry of the fault current

Ans
✗ A. (ii) and (iii)
✗ B. (i) and (ii)
✓ C. (i), (ii) and (iii)
✗ D. (i) and (iii)

Question ID : **8970322457**
Status : **Answered**
Chosen Option : **2**

Section : **General Knowledge_Awareness**

Q.1 **The first Satyagraha was started in Champaran, Bihar in ____.**

Ans
✗ A. 1929
✗ B. 1907
✗ C. 1922
✓ D. 1917

Question ID : **8970322567**
Status : **Answered**
Chosen Option : **2**

Q.2 **In computer terminology, what does A stand for in ALU?**

Ans
✗ A. Allocate
✗ B. Automatic
✓ C. Arithmetic
✗ D. Access

Question ID : **8970322569**
Status : **Answered**
Chosen Option : **3**

Q.3 **What does the term 'MFN' mean in the context of the World Trade Organisation?**

Ans
✗ A. Most Finance-friendly Nation
✗ B. Most Friendly Neighbour
✗ C. Most Friendly Nation
✓ D. Most Favoured Nation

Question ID : **8970322558**
Status : **Answered**
Chosen Option : **4**

Q.4 **The Reserve Bank of India (RBI) rejected the proposed and much talked about merger plan between Indiabulls Housing Finance and _____ bank in October 2019.**

Ans
✗ A. Karnataka
✗ B. Dhanlaxmi
✗ C. Karur Vysya
✓ D. Lakshmi Vilas

Question ID : **8970322560**
Status : **Answered**
Chosen Option : **4**

**Q.5 India slipped down ten places to be ranked _____ in the annual Global Competitiveness Index 2019.**

Ans
✓ A. 68th
✗ B. 75th
✗ C. 55th
✗ D. 58th

Question ID : **8970322561**
Status : **Not Answered**
Chosen Option : **--**

**Q.6 2019 बुकर पुरस्कार, संयुक्त रूप से मार्गरेट एटवुड और _____ द्वारा जीता गया था।**

Ans
✗ A. लूसी एलमन
✗ B. चिगोजी ओबिओमा
✗ C. एलिफ शफाक
✓ D. बर्नार्डिन एवरिस्टो

Question ID : **8970322554**
Status : **Answered**
Chosen Option : **4**

**Q.7 India's debutant _____ scripted history when she became the first Indian female boxer in 18 years to enter the finals of Women's World Boxing Championship in her maiden appearance.**

Ans
✗ A. Lovlina Borgohain
✗ B. Mary Kom
✓ C. Manju Rani
✗ D. Jamuna Boro

Question ID : **8970322556**
Status : **Answered**
Chosen Option : **3**

**Q.8 Name the river which originates in Madhya Pradesh and crosses the Tropic of Cancer twice.**

Ans
✗ A. Ghaggar
✗ B. Luni
✗ C. Banas
✓ D. Mahi

Question ID : **8970322565**
Status : **Not Answered**

Chosen Option : --

Q.9 **Mukesh Ambani topped 'Forbes' Richest Indian 2019' list while _____ secured the second position.**

Ans
- ✗ A. Samprada Singh
- ✗ B. Uday Kotak
- ✗ C. Pallonji Mistry
- ✓ D. Gautam Adani

Question ID : **8970322559**
Status : **Answered**
Chosen Option : **4**

Q.10 **Justice Inderjit Mahanty of Bombay High Court became Chief Justice of _____ High Court in October 2019.**

Ans
- ✗ A. Haryana
- ✗ B. Punjab
- ✓ C. Rajasthan
- ✗ D. Allahabad

Question ID : **8970322563**
Status : **Not Answered**
Chosen Option : **--**

Q.11 **Which of the following name of a reptile is also a computer programming language?**

Ans
- ✗ A. Black Mamba
- ✗ B. King Cobra
- ✗ C. Black Viper
- ✓ D. Python

Question ID : **8970322570**
Status : **Answered**
Chosen Option : **4**

Q.12 **The Royal Swedish Academy of Sciences awarded the Nobel Prize in Economics 2019 to Indian-American Abhijit Banerjee, his wife, Esther Duflo, and Michael Kremer of United States for their 'experimental approach to alleviating _____.**

Ans
- ✗ A. global racism
- ✗ B. global terrorism
- ✗ C. global inequality
- ✓ D. global poverty

Question ID : **8970322552**
Status : **Answered**
Chosen Option : **3**

Q.13 **_____ earthquakes are produced due to sliding of rocks along a fault plane.**

Ans
- ✓ A. Tectonic
- ✗ B. Volcanic
- ✗ C. Explosive

✗ D. Collapse

Question ID : **8970322564**
Status : **Answered**
Chosen Option : **4**

**Q.14 As per the Constitution of India, to be eligible for appointment as High Court Judge a person should have _____ years of experience of holding judicial office in India.**

**Ans**

✗ A. 5

✓ B. 10

✗ C. 7

✗ D. 3

Question ID : **8970322562**
Status : **Answered**
Chosen Option : **3**

**Q.15 In October 2019, Prince William and Kate Middleton, Britain's Duke and Duchess of Cambridge, arrived in _____ upon the request of the United Kingdom Foreign and Commonwealth Office.**

**Ans**

✗ A. Baluchistan

✗ B. Nepal

✗ C. Afghanistan

✓ D. Pakistan

Question ID : **8970322553**
Status : **Answered**
Chosen Option : **2**

**Q.16 During the lifetime of Gautam Buddha, _____ great Mahajanpadas existed in the 7th and early 6th centuries BC.**

**Ans**

✗ A. 19

✗ B. 13

✓ C. 16

✗ D. 17

Question ID : **8970322566**
Status : **Not Answered**
Chosen Option : **--**

**Q.17 भारत के 14 वर्षीय _____ अक्टूबर 2019 में विश्व युवा शतरंज चैम्पियनशिप के विजेता के रूप में उभरे। उन्होंने अंडर -18 ओपन वर्ग में स्वर्ण पदक जीता।**

**Ans**

✗ A. स्टीफन पोगोसियान

✓ B. आर प्रज्ञानंदनाधा

✗ C. आइडिन सुलेमानली

✗ D. रुदिक मकरियन

Question ID : **8970322557**
Status : **Answered**
Chosen Option : **1**

Q.18 The Swadeshi Movement was a consequence of the announcement of the partition of Bengal by _____.

Ans
✗ A. Lord Mountbatten
✓ B. Lord Curzon
✗ C. Lord Ripon
✗ D. Lord Wavell

Question ID : **8970322568**
Status : **Answered**
Chosen Option : **2**

Q.19 The 'India Sports Summit – Fitness: $10 Billion Opportunity' was held on 10 October 2019 in _____.

Ans
✗ A. Bengaluru
✗ B. Mumbai
✓ C. New Delhi
✗ D. Ahmedabad

Question ID : **8970322555**
Status : **Answered**
Chosen Option : **3**

Q.20 Who was elected as the new president of Tunisia after a landslide victory in October 2019?

Ans
✗ A. Beji Caid Essebsi
✓ B. Kais Saied
✗ C. Nabil Karoui
✗ D. Zine El Abidine Ben Ali

Question ID : **8970322551**
Status : **Answered**
Chosen Option : **4**

Section : **Reasoning**

Q.1 Which of the following interchange of signs would make the equation correct?

$15 + 5 \div 16 \times 3 - 10 = 41$

Ans
✗ A. + and −
✓ B. + and ÷
✗ C. × and ÷
✗ D. × and −

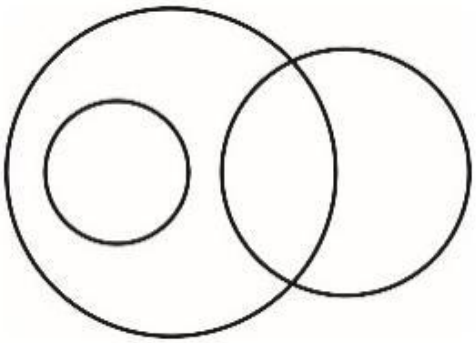
Question ID : **8970322580**
Status : **Answered**
Chosen Option : **2**

Q.2 Identify the Venn diagram that best represents the given item classes.

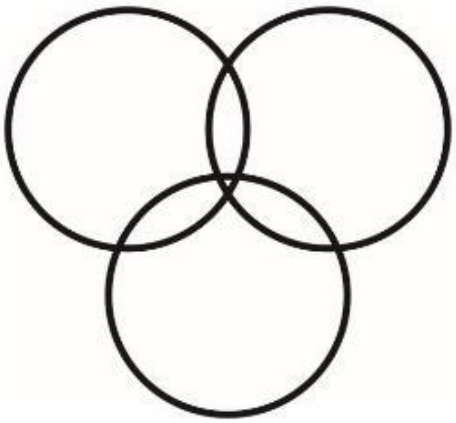
Cup, Plates, Cookers

Ans

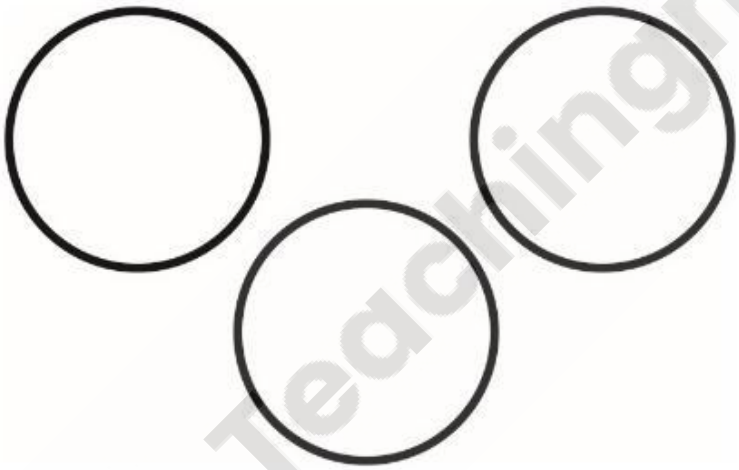
✗ A.



✗ B.



✓ C.



✗ D.

Question ID : **8970322588**
Status : **Answered**
Chosen Option : **4**

**Q.3 Sachin and Anil are brothers. Nikita's daughter is sister of Sachin. How Anil's father is related to Sonam?**

**Ans**

✗ A. Brother

✓ B. Husband

✗ C. Son in law

✗ D. Son

Question ID : **8970322584**
Status : **Not Answered**
Chosen Option : **--**

**Q.4** **Given below is a question followed by two statements. Analyse and decide whether the question can be answered from the given statements.**

**Question: Who is Ram's father?**

**Statement I: Ram is brother of Sohan.**
**Statement II: Manoj is father of Sohan's sister Anu.**

**Ans**

✗ A. Statement I and II together are not sufficient

✓ B. Statement I and II together are sufficient

✗ C. Statement II alone is sufficient

✗ D. Statement I alone is sufficient

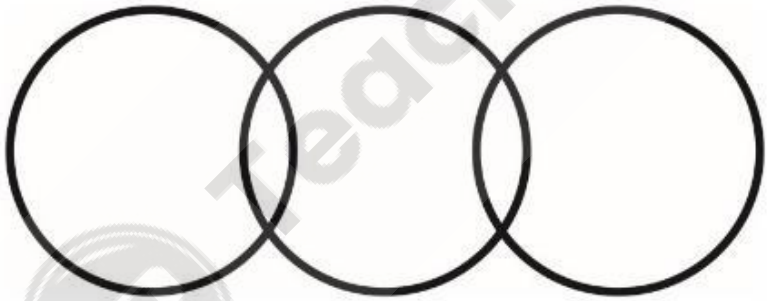
Question ID : **8970322574**
Status : **Answered**
Chosen Option : **2**

**Q.5** Identify the Venn diagram that best represents the given item classes.

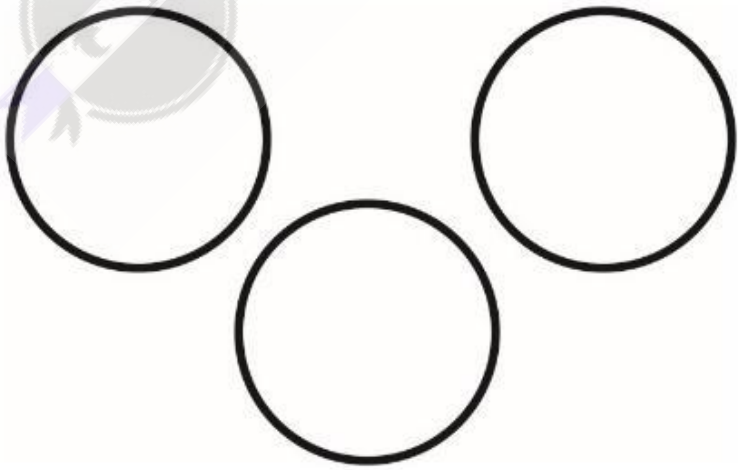
Birds, Nests, Eagle

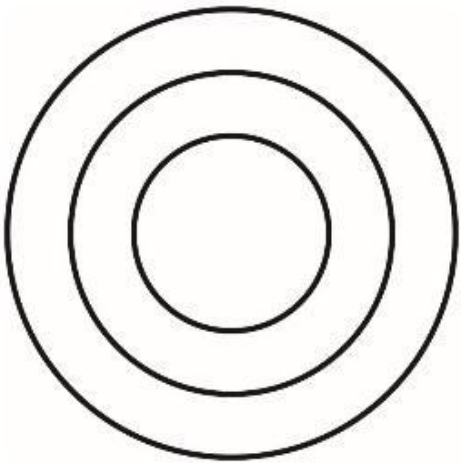
**Ans**

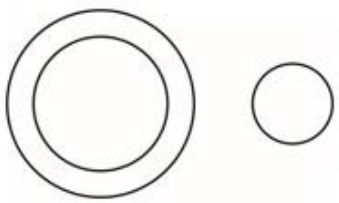
✗ A.



✗ B.



C. 

D. 

Question ID : **8970322590**
Status : **Answered**
Chosen Option : **3**

**Q.6** **Given below is a question followed by two statements. Analyse and decide whether the question can be answered from the given statements.**

**Question: What is the age of Prince?**

**Statement I: Prince is younger than Ramesh.Statement II: Sohan is elder brother than Prince**

**Ans**

A. Statement II alone is sufficient

B. Statement I and II together are sufficient

C. Statement I and II together are not sufficient

D. Statement I alone is sufficient

Question ID : **8970322575**
Status : **Answered**
Chosen Option : **3**

**Q.7** **In a certain code GARMENT is written as TNEMGAR. How will REPLACE be written in that code?**

**Ans**

A. ECALERP

B. EACLREP

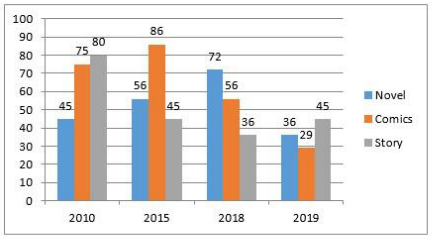
C. ECALREP

D. ECALRPE

Question ID : **8970322583**
Status : **Answered**
Chosen Option : **3**

**Q.8**

The bar graph given below shows the sales of books (in thousand number) from three branches of a publishing company during the years.




Which books selling is maximum over the years?

**Ans**

✔ A. Comics

✘ B. Novel

✘ C. Comics and Novel both

✘ D. Story

Question ID : **8970322572**
Status : **Answered**
Chosen Option : **1**

**Q.9** Study the following table and answer the questions based on it.
Production of different models of Mobile Phones of a Company (in Lakh) per annum over the given years.

| | A | B | C | D |
|---|---|---|---|---|
| 2004 | 45 | 75 | 40 | 70 |
| 2006 | 70 | 56 | 56 | 95 |
| 2008 | 78 | 82 | 79 | 65 |
| 2010 | 95 | 48 | 71 | 97 |

What is the average production (in lakh) of mobile phone 'C' over the given years?

**Ans**

✘ A. 63.6

✘ B. 49.9

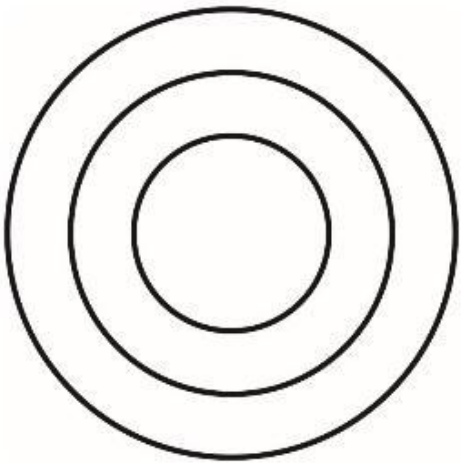
✘ C. 78.3

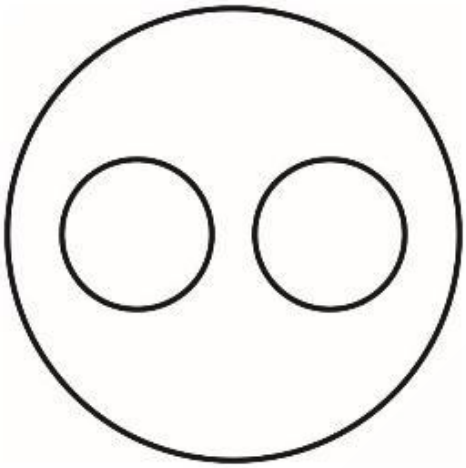
✔ D. 61.5

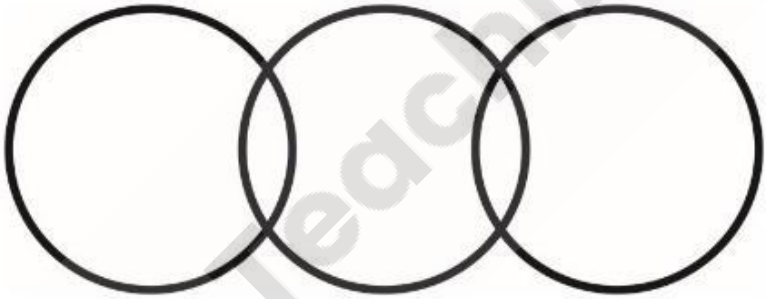
Question ID : **8970322573**
Status : **Answered**
Chosen Option : **4**

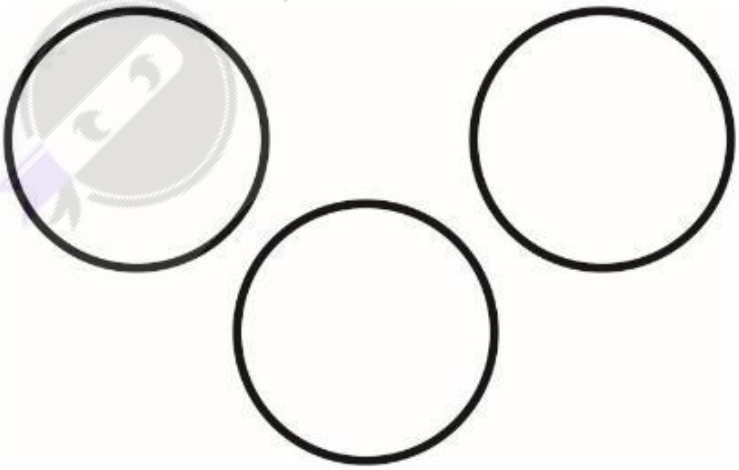
**Q.10** Identify the Venn diagram that best represents the given item classes.
Cars, Vehicles, Motorcycles

**Ans**

A. 

B. 

C. 

D. 

Question ID : **8970322587**
Status : **Answered**
Chosen Option : **2**

Q.11 **Given below are two statements followed by two conclusions labelled I and II. Assuming that the information in the statement is true, decide which conclusion(s) logically and definitely follow(s) from the information given in the statements.**

**Statements: All blades are motors.**
**All motors are jugs.**

**Conclusion I: All jugs are blades.**
**Conclusion II: Some blades are jugs.**

Ans
- ✗ A. Neither conclusion I nor conclusion II follows
- ✓ B. Only conclusion II follows
- ✗ C. Both conclusions I and II follow
- ✗ D. Only conclusion I follows

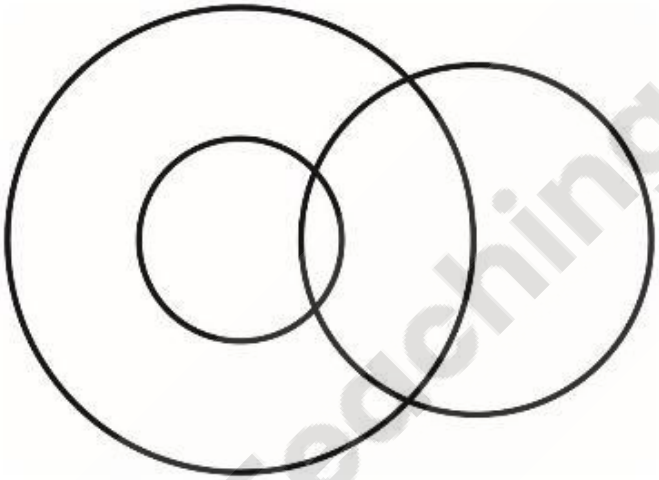
Question ID : **8970322585**
Status : **Answered**
Chosen Option : **3**

Q.12 Identify the Venn diagram that best represents the given item classes.

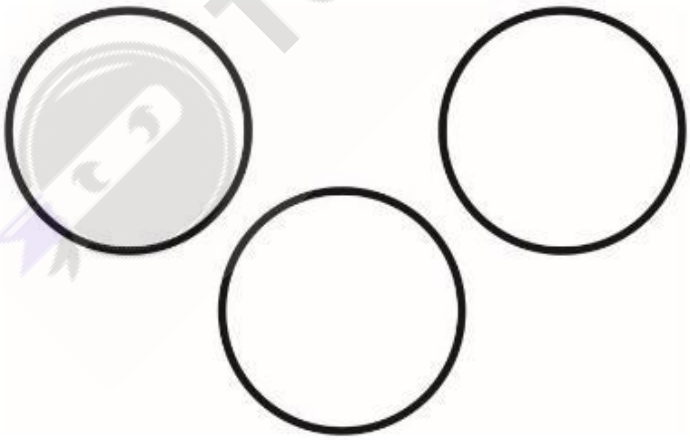
Pants, Shirts, Garments

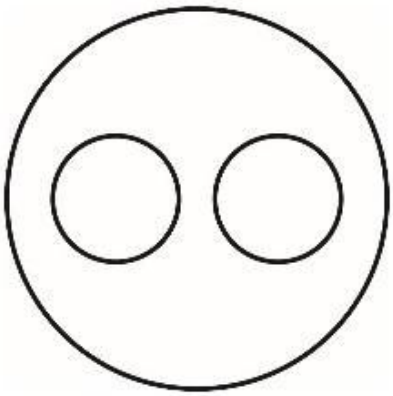
Ans

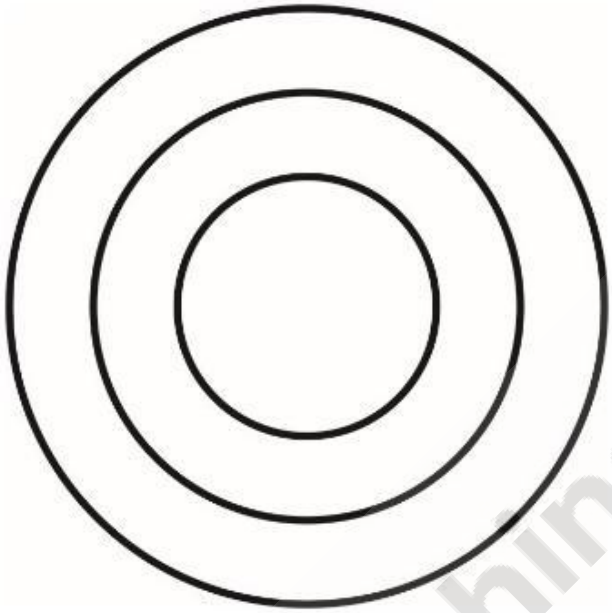
✗ A.



✗ B.



C. 

D. 

Question ID : **8970322589**
Status : **Answered**
Chosen Option : **3**

**Q.13** **Select the option that is related to the third word in the same way as the second word is related to the first word.**

**Force : Newton : : Potential : ?**

**Ans**

A. Volt

B. Pascal

C. Mho

D. Ohm

Question ID : **8970322582**
Status : **Answered**
Chosen Option : **1**

**Q.14** **Select the option that will correctly replace the question marks (?) in the series.**

**113, 148, 176, 197, ?**

**Ans**

A. 229

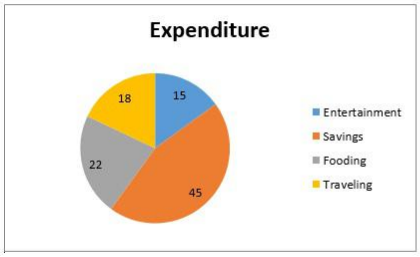
B. 227

C. 211

✗ D. 219

Question ID : **8970322579**
Status : **Answered**
Chosen Option : **3**

**Q.15** The following pie-chart shows the percentage distribution of the expenditure of a person per month. Study the pie-chart and the answer the question based on it.




If the person earns ₹25000 per month, what is his savings?

**Ans**

✗ A. ₹3750
✓ B. ₹11250
✗ C. ₹5500
✗ D. ₹4500

Question ID : **8970322571**
Status : **Answered**
Chosen Option : **2**

**Q.16** **Select the option that will correctly replace the question marks (?) in the series.**

**37, 52, 74, 103, ?**

**Ans**

✓ A. 139
✗ B. 145
✗ C. 149
✗ D. 119

Question ID : **8970322578**
Status : **Answered**
Chosen Option : **1**

**Q.17** **Select the option that is related to the third word in the same way as the second word is related to the first word.**

**Frog : Croak : : Monkey : ?**

**Ans**

✗ A. Chirp
✗ B. Beat
✓ C. Gibber
✗ D. Mew

Question ID : **8970322581**
Status : **Answered**
Chosen Option : **3**

**Q.18** **Select the option that will correctly replace the question mark (?) in the given series.**

A, G, M, S, ?

Ans
- ✗ A. Z
- ✗ B. W
- ✗ C. X
- ✓ D. Y

Question ID : **8970322576**
Status : **Answered**
Chosen Option : **4**

**Q.19** **Select the option that will correctly replace the question mark (?) in the series.**

BQ, DO, FM, HK, ?

Ans
- ✗ A. JJ
- ✓ B. JI
- ✗ C. IJ
- ✗ D. II

Question ID : **8970322577**
Status : **Answered**
Chosen Option : **2**

**Q.20** **Jyoti was facing North. She took left turn at 90° and walked 500 m, and then she took right turn and walked 450 m. Finally she took right and walked 900 m. Which direction she is facing now?**

Ans
- ✗ A. South
- ✗ B. West
- ✗ C. North
- ✓ D. East

Question ID : **8970322586**
Status : **Answered**
Chosen Option : **4**

Section : **General Hindi**

**Q.1** **दिए गए पद्यांश के आधार पर प्रश्न संख्या 11 से 15 तक के उत्तर दीजिए–**

**द्रुत झरो जगत के जीर्ण पत्र!**
**हे स्रस्त ध्वस्त ! हे शुष्क शीर्ण!**
**हिम ताप पीत, मधुवात भीत,**
**तुम वीतराग, जड़, पुराचीन !!**
**निष्प्राण विगत युग ! मृत विहंग !**
**जग नीड़ शब्द औ; श्वास हीन,**
**च्युत, अस्त व्यस्त पंखों से तुम**
**झर-झर अनंत में हो विलीन!**
**कंकाल जाल जग में फैले**
**फिर नवल रुधिर-पल्लव लाली।**

**'द्रुत झरो जगत के जीर्ण पत्र' में 'जीर्ण पत्र' का क्या अर्थ है।**

Ans
- ✗ A. पुरानी सोच
- ✗ B. पीले पड़े हुए पत्ते
- ✓ C. सड़ी-गली मान्यताएँ

✗ D. पुराना पत्र

Question ID : **8970322598**
Status : **Answered**
Chosen Option : **1**

**Q.2 'कंकाल जाल जग में फैले' में उपस्थित अलंकार बताइए।**

**Ans**
✓ A. रूपक
✗ B. श्लेष
✗ C. उपमा
✗ D. उत्प्रेक्षा

Question ID : **8970322600**
Status : **Answered**
Chosen Option : **4**

**Q.3 निम्न में से सही विलोम युग्म हैं।**

**Ans**
✗ A. ग्रामीण-गँवई
✓ B. विषयी-जितेंद्रिय
✗ C. आगमन-आवाहन
✗ D. कृष्ण-श्याम

Question ID : **8970322593**
Status : **Answered**
Chosen Option : **2**

**Q.4 शब्द समूह के लिए एक शब्द दीजिए- 'जो अमिष नहीं खाता'।**

**Ans**
✓ A. निरामिष
✗ B. मांसाहारी
✗ C. सर्वाहारी
✗ D. सामिष

Question ID : **8970322596**
Status : **Not Answered**
Chosen Option : **--**

**Q.5 'तुम वीतराग' का अर्थ स्पष्ट करें।**

**Ans**
✓ A. तुम अब प्रासंगिक नहीं रह गये
✗ B. तुम गाये हुए गान हो
✗ C. पुराने पड़ चुके राग हो
✗ D. तुम बीते हुए समय हो

Question ID : **8970322599**
Status : **Answered**
Chosen Option : **2**

**Q.6 निम्न में से विष्णु का पर्यायवाची कौन सा नहीं है।**

**Ans**
✗ A. अच्युत

✗ B. चक्रपाणि

✗ C. गरूड़ध्वज

✓ D. हिरण्यगर्भ

Question ID : **8970322591**
Status : **Answered**
Chosen Option : **1**

**Q.7 'मन में ठानना' मुहावरे का अर्थ बताइए।**

**Ans**

✗ A. कल्पना करना

✓ B. निश्चय करना

✗ C. साहस करना

✗ D. दुश्मनी बाँधना

Question ID : **8970322594**
Status : **Answered**
Chosen Option : **2**

**Q.8 'समुद्र में लगने वाली आग' के लिए एक शब्द।**

**Ans**

✗ A. दावानल

✗ B. अनल

✓ C. बड़वानल

✗ D. जठरानल

Question ID : **8970322597**
Status : **Answered**
Chosen Option : **4**

**Q.9 कल हमारे नए घर मेंप्रवेश की पूजा है। रिक्त स्थान के लिए उचित पर्यायवाची का चयन कीजिए।**

**Ans**

✓ A. गृह

✗ B. सदन

✗ C. ग्रह

✗ D. भवन

Question ID : **8970322592**
Status : **Answered**
Chosen Option : **2**

**Q.10 'नाच न जाने आँगन टेढ़ा' लोकोक्ति का सही अर्थ होगा।**

**Ans**

✗ A. नाच न जानना

✓ B. काम न जानना और बहाने बनाना

✗ C. काम न करने का बहाना

✗ D. दोष निकालना

Question ID : **8970322595**
Status : **Answered**
Chosen Option : **2**