UPPCL
JE EE

Previous Year Paper
28 March 2022 Shift 1

UTTAR PRADESH POWER CORPORATION LTD.

Participant ID	
Participant Name	
Test Center Name	
Test Date	28/03/2022
Test Time	9:00 AM - 12:00 PM
Subject	Junior Engineer Trainee Electrical

Section : **Domain Knowledge**

Q.1 **Which part of the underground cable is intended to protect the cable from mechanical injuries while laying it or handling it?**

Ans

✗ A. Serving

✗ B. Insulation

✓ C. Armouring

✗ D. Metallic sheath

Question ID : **75322911408**

Status : **Answered**

Chosen Option : **C**

Q.2 **Which of the following statements is NOT true about the three-phase slip ring induction motor?**

Ans

✗ A. Slip ring induction motors are used in hoists, cranes and elevators.

✗ B. There is a possibility of adding additional resistance to control speed.

✗ C. It has high starting torque and low starting current.

✓ D. Slip ring motors are widely used.

Question ID : **75322911426**
Status : **Answered**
Chosen Option : **A**

Q.3 **Find the most suitable use of a hybrid stepper motor.**

Ans

✗ A. When step angles of 180°, 360° etc. are required

✗ B. When step angles of 90°, 270° etc. are required

✓ C. When step angles of 1.8°, 2.5° etc. are required

✗ D. When step angles of 18°, 25° etc. are require

Question ID : **75322911370**
Status : **Answered**
Chosen Option : **C**

Q.4 **A hall of size 25 m by 25 m is to be illuminated with 60 lux. If lamp efficiency is 50 lumens / watt, utilisation factor is 0.8 and candle power depreciation is 25%. The total wattage required is:**

Ans

✓ A. 3.75 kW

✗ B. 5.5 kW

✗ C. 4.25 kW

✗ D. 2.5 kW

Question ID : **75322911438**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.5 **Which of the following legislations came into effect in India in the year 1982?**

Ans
- ✗ A. EPBC (The Environment Protection and Biodiversity Conservation) Act
- ✓ B. Environmental Information System (ENVIS)
- ✗ C. International Association for Impact Assessment (IAIA)
- ✗ D. Environmental Impact Assessment (EIA)

Question ID : **75322911386**
Status : **Not Answered**
Chosen Option : **--**

Q.6 **Synchronous motors are mechanically coupled with another device, which is disconnected after the magnetic locking. What is that device?**

Ans
- ✗ A. Battery
- ✓ B. Another motor
- ✗ C. Inverter
- ✗ D. Generator

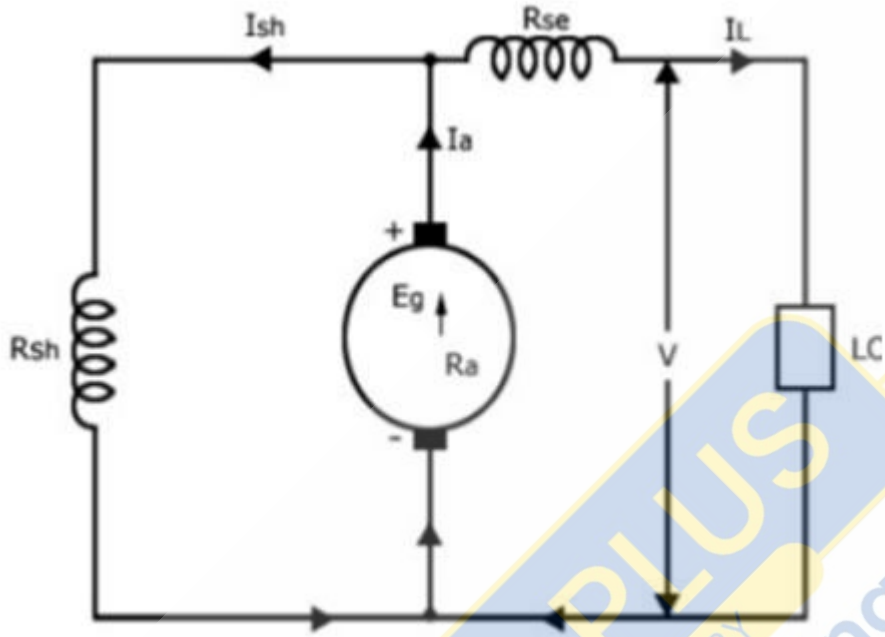
Question ID : **75322911427**
Status : **Marked For Review**
Chosen Option : **B**

Q.7 **प्राचीन मान्यता के अनुसार, पर्यावरण पांच मुख्य तत्वों यानी 'पंचभूतों' से बना था। ये पंचभूत क्या हैं?**

Ans
- ✗ A. वायु, जल, ऊर्जा, आत्मा और स्वर्ग
- ✗ B. जल, आत्मा, स्वर्ग, आकाश और वायु
- ✓ C. वायु, जल, भूमि, आकाश और ऊर्जा
- ✗ D. वायु, जल, आकाश, ऊर्जा और आत्मा

Question ID : **75322911382**
Status : **Answered**
Chosen Option : **C**

Q.8



Identify the type of generator represented in the given figure.

Ans

✗ A. Long shunt compound generator

✓ B. Short shunt compound generator

✗ C. Separately exited DC generator

✗ D. Series generator

Question ID : **75322911478**
Status : **Answered**
Chosen Option : **B**

Q.9 **Two wattmeters are used to measure the power of a three-phase balance load. The reading of the first and second wattmeter is 157.74 W and 100 W, respectively. What is the reactive power in the circuit?**

Ans
- ✗ A. 200 W
- ✓ B. 100 W
- ✗ C. 75 W
- ✗ D. 50 W

Question ID : **75322911356**
Status : **Answered**
Chosen Option : **B**

Q.10 **Where can we employ low resistance methods of arc extinction?**

Ans
- ✗ A. In AC circuit breakers and low-capacity DC circuit breakers
- ✓ B. Only in AC circuit breakers
- ✗ C. Only in DC circuit breakers
- ✗ D. In DC circuit breakers and low-capacity AC circuit breakers

Question ID : **75322911414**
Status : **Answered**
Chosen Option : **D**

Q.11 Evaluate: $\int_1^2 (x^2 + x)\, dx$

Ans

✗ A. $\frac{33}{6}$

✗ B. $\frac{7}{3}$

✗ C. $\frac{23}{12}$

✓ D. $\frac{23}{6}$

Question ID : **75322911470**
Status : **Answered**
Chosen Option : **D**

Q.12 **What is the maximum value of the input voltage to the IC 7805 voltage regulator?**

Ans

✗ A. 5 V

✗ B. 25 V

✗ C. 15 V

✓ D. 35 V

Question ID : **75322911366**
Status : **Answered**
Chosen Option : **A**

Q.13 A 250 V motor has an armature circuit resistance of 2 Ω. If the full load armature current is 10 A, find the back EMF induced in the armature.

Ans

✗ A. 210 V

✗ B. 250 V

✓ C. 230 V

✗ D. 240 V

Question ID : **75322911372**
Status : **Answered**
Chosen Option : **C**

Q.14 What is the command to display the data type of input in MATLAB?

Ans

✗ A. type

✗ B. Who

✓ C. whos

✗ D. lookfor

Question ID : **75322911443**
Status : **Marked For Review**
Chosen Option : **D**

Q.15 What is the purpose of shielding in nuclear power plant?

Ans

✗ A. It absorbs neutrons and stops the chain reaction to proceed further.

✗ B. It reduces the speed of the neutron by absorbing its energy.

✗ C. It converts the steam coming out of the turbine into water.

✓ D. It prevents radiation to reach outside the reactor.

Question ID : **75322911453**
Status : **Answered**
Chosen Option : **D**

Q.16 What is the value of $\frac{dy}{dx}$ at turning point?

Ans
- ✗ A. Positive
- ✗ B. Infinite
- ✗ C. Negative
- ✓ D. 0

Question ID : **75322911472**
Status : **Answered**
Chosen Option : **C**

Q.17 **Air filters are used to remove the dust particles present in the air during the entrance into the diesel engine. Which of the following CANNOT be the constituent of the air filter?**

Ans
- ✗ A. Felt
- ✗ B. Cloth
- ✗ C. Wool
- ✓ D. Charcoal

Question ID : **75322911455**
Status : **Answered**
Chosen Option : **D**

Q.18 **How many pressure coils and current coils are there in the dynamometer type three-phase wattmeter?**

Ans
- ✗ A. There is one pressure coil and one current coil.
- ✗ B. There is no pressure coil and no current coil.
- ✗ C. There are three pressure coils and three current coils.
- ✓ D. There are two pressure coils and two current coils.

Question ID : **75322911355**
Status : **Answered**
Chosen Option : **A**

Q.19 What is the voltage rating for a low voltage power cable?

Ans

✗ A. Less than 11 kV

✓ B. Less than 1 kV

✗ C. Less than 400 V

✗ D. Less than 32 kV

Question ID : **75322911407**
Status : **Answered**
Chosen Option : **B**

Q.20 Identify the option for which brushless servo motor is most suitable.

Ans

✗ A. Printers

✓ B. Aircraft control systems

✗ C. Disc drives

✗ D. Numerically controlled milling machines

Question ID : **75322911371**
Status : **Answered**
Chosen Option : **B**

Q.21 In which type of DC link configuration is the voltage between the conductors equal to two times the voltages between either of the two conductors and ground?

Ans

✗ A. Homopolar link

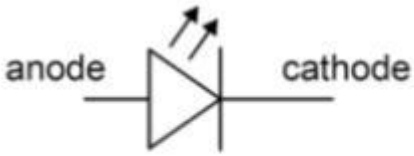
✗ B. Unipolar link

✗ C. Monopolar link

✓ D. Bipolar link

Question ID : **75322911405**
Status : **Answered**
Chosen Option : **D**

Q.22



Identify the diode for which the above symbol is used.

Ans

✗ A. Varactor diode

✓ B. Light emitting diode

✗ C. Photo diode

✗ D. Blocking diode

Question ID : **75322911491**
Status : **Answered**
Chosen Option : **B**

Q.23 **Which of the following are the qualities of the starting torque and power factor of a shaded pole single-phase induction motor?**

Ans

✗ A. Poor starting torque and high power factor

✗ B. Moderate starting torque and low power factor

✗ C. Moderate starting torque and high power factor

✓ D. Very poor starting torque and low power factor

Question ID : **75322911424**
Status : **Answered**
Chosen Option : **D**

Q.24 If $s = 3t^2 - 5t + 7$ find initial velocity.

Ans
✗ A. 2
✗ B. 5
✗ C. –2
✓ D. –5

Question ID : **75322911471**
Status : **Answered**
Chosen Option : **D**

Q.25 What is the equation for the calculation of breaking capacity for a circuit breaker?

Ans
✗ A.
Breaking capacity = 2 × Rated symmetrical breaking current × Rated service voltage

✗ B.
Breaking capacity = 3 × Rated symmetrical breaking current × Rated service voltage

✓ C.
Breaking capacity = Rated symmetrical breaking current × Rated service voltage x $\sqrt{3}$

✗ D.
Breaking capacity = Rated symmetrical breaking current × Rated service voltage x $\sqrt{2}$

Question ID : **75322911496**
Status : **Answered**
Chosen Option : **C**

Q.26 **Which of the following is NOT one of the classifications of energy conservation measures?**

Ans

✗ A. Medium cost – medium return

✗ B. Low cost – high return

✗ C. High cost – high return

✓ D. High cost – low return

Question ID : **75322911409**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.27 A transmission line has a span of 150 m between level supports. The conductor has a cross-sectional area of 2 cm^2. The tension in the conductor is 2500 kg. If the specific gravity of the conductor material is 9 gm/cm^3 and wind pressure is 0.87 kg/m length, what will be the sag?

Ans

✓ A. 2.25

✗ B. 2.67

✗ C. 1.8

✗ D. 3.16

Question ID : **75322911483**
Status : **Not Answered**
Chosen Option : **--**

Q.28 **Which of the following is NOT true for the power supply for the arc welding?**

Ans

✓ A. Power factor is high

✗ B. Heat is developed due to arc between electrode and work piece

✗ C. Power supply can be AC or DC

✗ D. High voltage power supply is required

Question ID : **75322911465**
Status : **Answered**
Chosen Option : **A**

Q.29 What is the most vital condition to be ensured throughout the period of drying out of transformer (which usually takes 3 to 4 weeks for large transformer)?

Ans
- ✗ A. The oil temperature should never exceed 50°C
- ✗ B. The oil temperature should never exceed 70°C
- ✓ C. The oil temperature should never exceed 90°C
- ✗ D. The oil temperature should never exceed 100°C

Question ID : **75322911430**
Status : **Not Answered**
Chosen Option : **--**

Q.30 What types of motors are normally fitted with appliances like blower and centrifugal pumps?

Ans
- ✓ A. Split phase induction motor
- ✗ B. Universal motor
- ✗ C. Shaded pole induction motor
- ✗ D. Synchronous motor

Question ID : **75322911425**
Status : **Answered**
Chosen Option : **A**

Q.31 A 50 KVA, single-phase transformer has 500 turns on the primary and 100 turns on the secondary. The primary is connected to 4000 V, 60Hz supply. Determine the maximum value of flux.

Ans
- ✗ A. 0.025 Wb
- ✓ B. 0.03 Wb
- ✗ C. 0.0225 Wb
- ✗ D. 0.003 Wb

Question ID : **75322911376**
Status : **Answered**
Chosen Option : **B**

Q.32 How is the switching circuit in the power section of an AC output module operated to switch power ON and OFF in PLC?

Ans

✗ A. Either by using a TRIAC or MOSFET

✗ B. Either by using DIAC or MOSFET

✓ C. Either by using a TRIAC or SCR

✗ D. Either by using DIAC or MOFSET

Question ID : **75322911418**
Status : **Not Answered**
Chosen Option : **--**

Q.33 When throwing a die what is the probability of getting a 3?

Ans

✗ A. $\frac{1}{2}$

✗ B. 1

✗ C. $\frac{1}{3}$

✓ D. $\frac{1}{6}$

Question ID : **75322911475**
Status : **Answered**
Chosen Option : **D**

Q.34 What is the biasing of junction in SCR in forward blocking state?

Ans

✗ A. J2 and J3 are forward biased, J1 is reverse biased

✗ B. J1 and J2 are forward biased, J3 is reverse biased

✓ C. J1 and J3 are forward biased, J2 is reverse biased

✗ D. J2 and J3 are reverse biased, J1 is forward biased

Question ID : **75322911452**
Status : **Answered**
Chosen Option : **C**

Q.35 Suspension type insulators are used in an overhead transmission system. How many discs in series will be provided on the string if the working voltage is 66 kV?

Ans
- ✗ A. 11
- ✗ B. 9
- ✓ C. 6
- ✗ D. 7

Question ID : **75322911406**
Status : **Answered**
Chosen Option : **C**

Q.36 The effective armature resistance and synchronous reactance of a 60 KVA, star-connected, 440 V, 3-phase, 50 Hz alternator are 0.2 Ω and 3 Ω per phase, respectively. Determine the percentage voltage regulation on full load at unity power factor.

Ans
- ✗ A. 56%
- ✗ B. 63%
- ✓ C. 41%
- ✗ D. 78%

Question ID : **75322911423**
Status : **Not Answered**
Chosen Option : **--**

Q.37 Which component in a wind power plant senses the direction of wind and passes the direction to the PLC, following which the PLC faces the blades in such a way that it cuts the maximum wind?

Ans
- ✗ A. Yaw drive
- ✗ B. Pitch drive
- ✗ C. Nacelle
- ✓ D. Wind vane

Question ID : **75322911400**
Status : **Answered**
Chosen Option : **D**

Q.38 Which of the following statements is NOT true about servo motors?

Ans

✗ A. Internally, a servo motor combines a motor, feedback circuit, controller and other electronic circuit.

✓ B. A servo motor is used for continuous energy conversion.

✗ C. A servo motor is a linear or rotary actuator that provides fast precision position control for closed-loop position control applications.

✗ D. Servo motors have a high speed response due to low inertia and are designed with small diameter and long rotor length.

Question ID : **75322911428**
Status : **Answered**
Chosen Option : **B**

Q.39 Which of the following statements is NOT true about an alternator with a cylindrical rotor?

Ans

✗ A. There is no need for damper winding.

✓ B. It is not suitable for high-speed operation.

✗ C. The rotor has no projecting pole.

✗ D. The rotor causes no speed fluctuation.

Question ID : **75322911422**
Status : **Answered**
Chosen Option : **B**

Q.40 Where are the shunt capacitors installed for improvement of power factor?

Ans

✗ A. Near supply points

✓ B. Near load points

✗ C. Parallel to transmission line

✗ D. Parallel to the distribution transformer

Question ID : **75322911439**
Status : **Answered**
Chosen Option : **B**

Q.41 **Which of the following is the distance between two adjacent poles in terms of number of armature conductors?**

Ans
- ✗ A. Coil pitch
- ✗ B. Back pitch
- ✗ C. Front pitch
- ✓ D. Pole pitch

Question ID : **75322911373**
Status : **Answered**
Chosen Option : **D**

Q.42 **The presence of certain pollutants can accelerate the breakdown of the ozone. What is the reason that the depletion of ozone affects human health, food productivity and climate?**

Ans
- ✓ A. The ozone works as an effective screen for UV light.
- ✗ B. The ozone works as a temperature dissipation media.
- ✗ C. The ozone works as agent for killing the insects.
- ✗ D. The ozone works as an absorber of pollution.

Question ID : **75322911388**
Status : **Answered**
Chosen Option : **A**

Q.43 **Why is Dynamometer type wattmeter is equipped with mirror type scales and knife edge pointers?**

Ans
- ✓ A. To remove reading errors due to parallax
- ✗ B. To facilitate controlling force
- ✗ C. To facilitate proper damping
- ✗ D. To remove eddy current and hysteresis loss

Question ID : **75322911354**
Status : **Answered**
Chosen Option : **A**

Q.44 When there is sudden reduction in load on the turbine in a hydel plant, the governor closes the gates of the turbine to reduce the water flow. This causes pressure to increase abnormally in the penstock. How is this prevented?

Ans
- ✗ A. By using feed water
- ✗ B. By using a control gate
- ✓ C. By using a surge tank
- ✗ D. By using an economiser

Question ID : **75322911398**
Status : **Answered**
Chosen Option : **C**

Q.45 A charged cell was completely discharged in 10 hours, the discharge current being constant at 5 A. The average terminal voltage during discharge was 1.9 V. A charging current of 4 A maintained constant for 15 hours was required to restore the cell to its initial state of charge, the average terminal voltage being 2.2 V. Calculate the watt-hour efficency.

Ans
- ✗ A. 66.67%
- ✗ B. 83.33%
- ✗ C. 86.36%
- ✓ D. 71.97%

Question ID : **75322911381**
Status : **Answered**
Chosen Option : **C**

Q.46 Find the slope of the tangent at $(1, -2)$ on the curve $y = x^4 - 3x^2$.

Ans
- ✗ A. 46
- ✗ B. –46
- ✓ C. –2
- ✗ D. –22

Question ID : **75322911473**
Status : **Answered**
Chosen Option : **C**

Q.47 **Eco-Mark is an eco-labelling scheme which was constituted by the Government of India in 1991. What was identified in this scheme?**

Ans
- ✗ A. Environment-friendly vehicles
- ✗ B. Environment-friendly power source
- ✗ C. Environment-friendly machineries
- ✓ D. Environment-friendly products

Question ID : **75322911450**
Status : **Answered**
Chosen Option : **D**

Q.48 **Which of the following is a data transfer instruction in PLC?**

Ans
- ✗ A. MIQ
- ✗ B. LUM
- ✓ C. MVM
- ✗ D. LIM

Question ID : **75322911419**
Status : **Answered**
Chosen Option : **C**

Q.49 **Control Variable is an element address that stores the output of the PID instruction. What is the range of the output value?**

Ans

✗ A. From 0 to 8191

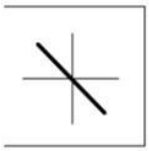
✓ B. From 0 to 16383

✗ C. From 0 to 4096

✗ D. From 0 to 32768

Question ID : **75322911420**
Status : **Not Answered**
Chosen Option : **--**

Q.50



The above Lissajous pattern is observed in CRO. What is the phase difference between the applied signals?

Ans

✗ A. $0°$

✗ B. $30°$ or $330°$

✓ C. $180°$

✗ D. $90°$ or $270°$

Question ID : **75322911489**
Status : **Answered**
Chosen Option : **C**

Q.51 Evaluate: $\int_1^2 \frac{1}{x} dx$

Ans
- ✗ A. $\text{Log}\, x$
- ✓ B. $\text{Log}\, 2$
- ✗ C. $\frac{x^2}{2}$
- ✗ D. $\frac{2}{x^{-2}}$

Question ID : **75322911468**
Status : **Answered**
Chosen Option : **B**

Q.52 **Identify the SCADA software developed by Honeywell.**

Ans
- ✗ A. Intellution iFIX
- ✗ B. RSView 32
- ✓ C. SCAN 3000 SCADA
- ✗ D. WinCC

Question ID : **75322911421**
Status : **Answered**
Chosen Option : **B**

Q.53 **Which of the following is a peak load power plant?**

Ans
- ✓ A. Diesel generator
- ✗ B. Coal power plant
- ✗ C. Biogas plant
- ✗ D. Geothermal plant

Question ID : **75322911454**
Status : **Answered**
Chosen Option : **A**

Q.54 A circuit breaker essentially consists of fixed and moving contacts. What are they called?

Ans
- ✗ A. Pivots
- ✗ B. Arcing points
- ✓ C. Electrodes
- ✗ D. Operators

Question ID : **75322911412**
Status : **Answered**
Chosen Option : **C**

Q.55 What should be the cross section when a copper strip is used as an earth wire?

Ans
- ✓ A. Not less than 25 mm × 1.6 mm
- ✗ B. Not less than 25 mm × 0.6 mm
- ✗ C. Not less than 15 mm × 1.6 mm
- ✗ D. Not less than 15 mm × 0.6 mm

Question ID : **75322911397**
Status : **Answered**
Chosen Option : **A**

Q.56 Dampness in winding can be removed by drying out the equipment thoroughly in a hot chamber or in an impregnating plant. What should be the inside temperature?

Ans
- ✗ A. 70° C to 80° C
- ✓ B. 80°C to 100°C
- ✗ C. 60° C to 70° C
- ✗ D. 100° C to 120° C

Question ID : **75322911464**
Status : **Not Answered**
Chosen Option : **--**

Q.57 A moving coil instrument of resistance 20 Ω gives a full-scale deflection of 50 mA. Explain how the meter can be used to measure current up to 5 A.

Ans
✗ A. By adding a shunt of 0.01 Ω
✓ B. By adding a shunt of 0.202 Ω
✗ C. By adding a shunt of 0.02 Ω
✗ D. By adding a shunt of 0.252 Ω

Question ID : **75322911353**
Status : **Answered**
Chosen Option : **B**

Q.58 Which of the following is NOT one of the factors upon which the arc resistance depends?

Ans
✗ A. Degree of ionisation
✗ B. Length of arc
✓ C. Duration of the arc
✗ D. Cross section of arc

Question ID : **75322911413**
Status : **Answered**
Chosen Option : **C**

Q.59 Lattice vacancies are created when certain atoms in a semiconductor are missing. What is this defect?

Ans
✗ A. Tunnel defect
✗ B. Avalanche defect
✗ C. Frenkel defect
✓ D. Schottky defect

Question ID : **75322911363**
Status : **Marked For Review**
Chosen Option : **D**

Q.60 **Excessive extraction of certain material can cause ground water pollution. Find the one from the given options.**

Ans

✗ A. Ferrous contamination

✓ B. Fluoride contamination

✗ C. Chloride contamination

✗ D. Bakelite contamination

Question ID : **75322911451**
Status : **Answered**
Chosen Option : **C**

Q.61 **By using _____, starting torque can be reduced to a minimum value, still able to start up the conveyor belt. The setting possibility of the starter makes it possible to adjust the torque to exactly the level that is necessary for the start.**

Ans

✗ A. direct-on-line starter

✗ B. auto transformer starter

✗ C. star-delta starter

✓ D. soft starter

Question ID : **75322911433**
Status : **Answered**
Chosen Option : **B**

Q.62 What are the conditions for a function f is said to be probability density function (pdf) of the continuous random variable X?

Ans

✗ A. $f(x) \geq 0$ for all $x \in R$ and $\int_{-\infty}^{\infty} f(x)\,dx = 0$

✗ B. $f(x) \leq 0$ for all $x \in R$ and $\int_{-\infty}^{\infty} f(x)\,dx = 1$

✓ C. $f(x) \geq 0$ for all $x \in R$ and $\int_{-\infty}^{\infty} f(x)\,dx = 1$

✗ D. $f(x) \leq 0$ for all $x \in R$ and $\int_{-\infty}^{\infty} f(x)\,dx = 0$

Question ID : **75322911474**
Status : **Not Answered**
Chosen Option : **--**

Q.63 **When a current is passed through the junction of two different metals, heat is absorbed or liberated depending on the direction of the current. What is this effect known as?**

Ans

✗ A. Seeback effect

✗ B. Hall effect

✗ C. Thomson effect

✓ D. Peltier effect

Question ID : **75322911360**
Status : **Answered**
Chosen Option : **C**

Q.64 **Which of the following is a paramagnetic material?**

Ans

✔ A. Lithium

✘ B. Silicon

✘ C. Bismuth

✘ D. Copper

Question ID : **75322911362**
Status : **Answered**
Chosen Option : **A**

Q.65 **To which points of the earth leakage circuit breaker are phase and neutral wire of power supply connected?**

Ans

✘ A. Anode and cathode of a thyristor

✘ B. Terminals of a snubber circuit

✔ C. Separate windings of a small transformer

✘ D. Terminals of a high pass filter

Question ID : **75322911396**
Status : **Answered**
Chosen Option : **C**

Q.66 **A 3-phase, 20 HP, 208 V, 6 pole, 50 Hz star connected induction motor delivers 15 kW at 5 % slip. Find the rotor speed.**

Ans

✔ A. 950 RPM

✘ B. 500 RPM

✘ C. 750 RPM

✘ D. 900 RPM

Question ID : **75322911460**
Status : **Answered**
Chosen Option : **A**

Q.67 **A minimum anode current must flow through the SCR in order for it to stay ON initially after the gate signal is removed. What is this current called?**

Ans

✗ A. Holding current

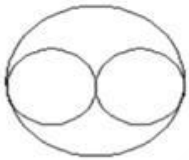
✗ B. Surge current

✓ C. Latching current

✗ D. Peak repetitive forward blocking voltage

Question ID : **75322911389**
Status : **Answered**
Chosen Option : **C**

Q.68



What does the given symbol used in electrical engineering drawing represent?

Ans

✗ A. Ceiling fan

✓ B. Exhaust fan

✗ C. Siren

✗ D. Energy meter

Question ID : **75322911481**
Status : **Answered**
Chosen Option : **B**

Q.69 **Sensors are devices used to provide information on the presence or absence of an object. Sensors are connected to the _____of a PLC.**

Ans
- ✗ A. logic section
- ✗ B. output
- ✗ C. isolator
- ✓ D. input

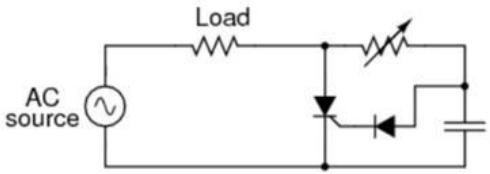
Question ID : **75322911457**
Status : **Answered**
Chosen Option : **D**

Q.70 **In which year did the Supreme Court directed to include environmental education in the curriculum right from the school stage to university level?**

Ans
- ✓ A. 1998
- ✗ B. 1978
- ✗ C. 1958
- ✗ D. 2008

Question ID : **75322911385**
Status : **Not Answered**
Chosen Option : **--**

Q.71



What is the purpose of resistance-capacitance triggering on SCR as shown in the given diagram?

Ans

✔ A. To achieve firing angle up to 180°

✘ B. To achieve firing angle up to 270°

✘ C. To achieve firing angle up to 360°

✘ D. To achieve firing angle up to 90°

Question ID : **75322911479**
Status : **Answered**
Chosen Option : **A**

Q.72 Which of the following is NOT an advantage of moving coil instruments?

Ans

✘ A. Uniform and long scale

✘ B. No hysteresis loss

✘ C. High torque-weight ratio

✔ D. Low cost

Question ID : **75322911351**
Status : **Answered**
Chosen Option : **D**

Q.73 **A 6-pole wave connected armature has 200 conductors and runs at 1000 rpm. The EMF generated is 500 V. Find the useful flux per pole.**

Ans
- ✗ A. 0.01 Wb
- ✗ B. 0.02 Wb
- ✗ C. 0.5 Wb
- ✓ D. 0.05 Wb

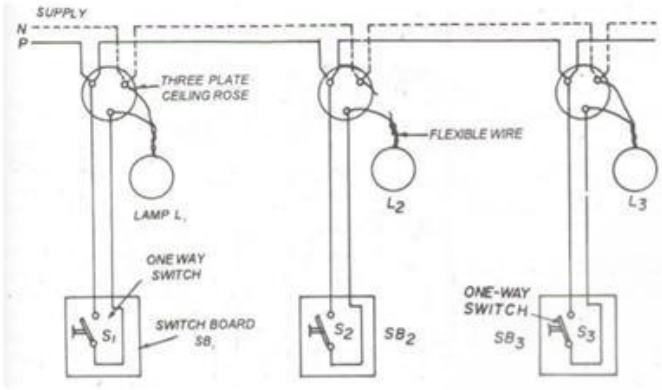
Question ID : **75322911374**
Status : **Answered**
Chosen Option : **D**

Q.74 **A solenoid type relay is what type of relay as far as the relay timing is concerned?**

Ans
- ✗ A. Inverse time relay
- ✓ B. Instantaneous relay
- ✗ C. Inverse definite minimum time
- ✗ D. Definite time lag relay

Question ID : **75322911417**
Status : **Answered**
Chosen Option : **B**

Q.75



Identify the method of representation for wiring diagram as depicted above.

Ans

✗ A. Casing system

✗ B. Joint box system

✓ C. Looping back system

✗ D. Tree system

Question ID : **75322911492**
Status : **Answered**
Chosen Option : **C**

Q.76 **What is the name of the control gear that works as a current limiting device to counter negative resistance characteristics of any discharge lamps?**

Ans

✗ A. Igniter

✗ B. Illuminance

✓ C. Ballast

✗ D. Lux

Question ID : **75322911437**
Status : **Answered**
Chosen Option : **C**

Q.77 **What is the condition for most economical size of a transmission line conductor as per Kelvin's law?**

Ans

✗ A. Annual interest and depreciation on capital cost of the conductor is slightly less than the annual running charges of the conductor.

✗ B. Annual interest and depreciation on capital cost of the conductor is half of the annual running charges of the conductor.

✗ C. Annual interest and depreciation on capital cost of the conductor is slightly greater than the annual running charges of the conductor.

✓ D. Annual interest and depreciation on capital cost of the conductor is equal to annual running charges of the conductor.

Question ID : **75322911402**
Status : **Answered**
Chosen Option : **D**

Q.78 **What should be the minimum height of the switch board from floor for house wiring?**

Ans

✗ A. 2.5 m

✓ B. 1.5 m

✗ C. 2 m

✗ D. 1 m

Question ID : **75322911435**
Status : **Answered**
Chosen Option : **B**

Q.79 How is the rate of Rise of Restriking Voltage ($RRRV_{max}$) calculated where L & C are inductance and capacitance of the circuit?

Ans

✗ A. $(RRRV_{max}) = \frac{2V_{max}}{\sqrt{LC}}$, in kV/μs

✓ B. $(RRRV_{max}) = \frac{V_{max}}{\sqrt{LC}}$, in kV/μs

✗ C. $(RRRV_{max}) = \frac{2V_{max}}{LC}$, in kV/μs

✗ D. $(RRRV_{max}) = \frac{V_{max}}{LC}$, in kV/μs

Question ID : **75322911484**
Status : **Answered**
Chosen Option : **A**

Q.80 **In a voltage regulating system a rotating arm moves, depending upon the terminal voltage, across a set of contacts, short circuiting some part or more of the resistance inserted in the exciter field circuit. What type of voltage regulator is this?**

Ans

✗ A. Zener voltage regulator

✗ B. Terrill voltage regulator

✓ C. Brown Boveri regulator

✗ D. Carbon pile voltage regulator

Question ID : **75322911431**
Status : **Marked For Review**
Chosen Option : **B**

Q.81 Certain organisms utilise energy from wastes or dead organisms and complete the cycle by returning the nutrients to the soil or water and _____ to air.

Ans
- ✗ A. carbohydrates
- ✗ B. methane
- ✗ C. ethane
- ✓ D. carbon di-oxide

Question ID : **75322911383**
Status : **Answered**
Chosen Option : **D**

Q.82 Instead of gasoline, what can be used as an index of the impact of using ethanol as an additive for vehicles fuels?

Ans
- ✗ A. Peroxy acetyl nitrates (PAN)
- ✗ B. Peroxy propionyl nitrates (PPN)
- ✗ C. Carbon dioxide/carbon monoxide
- ✓ D. PPN/PAN

Question ID : **75322911449**
Status : **Not Answered**
Chosen Option : **--**

Q.83 Which of the following is NOT true for the star topology used with PLC?

Ans
- ✗ A. Messages between two nodes must pass through the central node (low throughput).
- ✗ B. All nodes are dependent on a central node.
- ✓ C. The wiring cost is less for large installations.
- ✗ D. Failure of the central node will crash the network.

Question ID : **75322911458**
Status : **Answered**
Chosen Option : **C**

Q.84 A 3 φ, 4-pole induction motor is supplied from a 3 φ, 50 Hz AC supply. Find the rotor speed when the slip is 5%.

Ans

✗ A. 1350 RPM

✗ B. 1710 RPM

✗ C. 3420 RPM

✓ D. 1425 RPM

Question ID : **75322911485**
Status : **Answered**
Chosen Option : **D**

Q.85 **What is the primary use of a stepper motor?**

Ans

✗ A. High starting torque

✗ B. Linear movement

✓ C. Position control

✗ D. Constant speed

Question ID : **75322911369**
Status : **Answered**
Chosen Option : **C**

Q.86 If position vectors of the points A and B are $2\vec{i} + \vec{j} - \vec{k}$ and $5\vec{i} + 4\vec{j} - 3\vec{k}$, find $|\overrightarrow{AB}|$

Ans

✗ A. $\sqrt{30}$ units

✗ B. $\sqrt{38}$ units

✓ C. $\sqrt{22}$ units

✗ D. $\sqrt{90}$ units

Question ID : **75322911467**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.87 **Spacing between the conductors is made very large as compared to their diameters in the transmission line. What is the most important benefit out of it?**

Ans

✗ A. There may not be any skin effect.

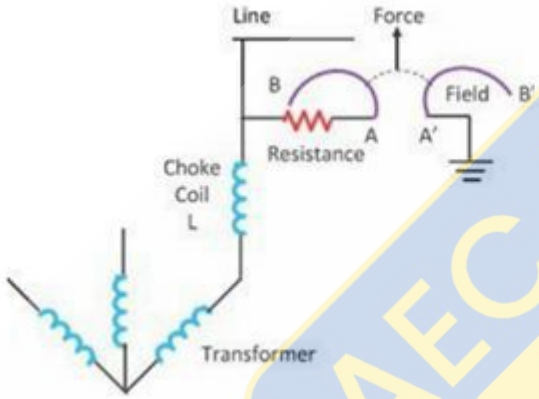
✗ B. There may not be any Ferranti effect.

✗ C. There may not be any capacitance effect.

✓ D. There may not be any corona effect.

Question ID : **75322911403**
Status : **Answered**
Chosen Option : **D**

Q.88



Identify the type of lightening arrester from the above figure.

Ans

✗ A. Sphere gap arrester

✗ B. Impulse protective gap

✗ C. Rod gap arrester

✓ D. Horn gap arrester

Question ID : **75322911497**
Status : **Answered**
Chosen Option : **D**

Q.89 A transmission line has a span of 150 m between level supports. The conductor has a cross-sectional area of 2 cm^2. The tension in the conductor is 2000 kg. If the specific gravity of the conductor material is 9.9 gm/cm^3 and wind pressure is 1.5 kg/m length, calculate the sag.

Ans

✗ A. 4.24

✗ B. 4.48

✓ C. 3.48

✗ D. 4.84

Question ID : **75322911493**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.90 **After having attained a temperature rise corresponding to continuous run on full load, a generator should be capable of withstanding _____ overload for 15 seconds.**

Ans

✗ A. 75%

✓ B. 50%

✗ C. 25%

✗ D. 100%

Question ID : **75322911432**
Status : **Marked For Review**
Chosen Option : **C**

Q.91 **What is the average wind velocity observed on Earth?**

Ans

✗ A. 14 m/sec

✗ B. 4 m/sec

✗ C. 1 m/sec

✓ D. 9 m/sec

Question ID : **75322911384**
Status : **Answered**
Chosen Option : **A**

Q.92 In this system the primaries of distribution transformers form a loop. The loop circuit starts from the substation bus bars, makes a loop through the area to be served and returns to the substation. What type of connection schemes of distribution system is this?

Ans
- ✔ A. Ring main system
- ✘ B. Interconnected system
- ✘ C. Overhead catenary system
- ✘ D. Radial system

Question ID : **75322911441**
Status : **Answered**
Chosen Option : **A**

Q.93 Which insulating material is widely used for small molded parts such as lamp holder, terminal blocks and small panels?

Ans
- ✘ A. Mica
- ✔ B. Bakelite
- ✘ C. Marble and state
- ✘ D. Porcelain

Question ID : **75322911361**
Status : **Answered**
Chosen Option : **B**

Q.94 How is the high rate of change of current prevented in a thyristor?

Ans
- ✘ A. By connecting one capacitor in series with the thyristor
- ✘ B. By connecting one resistor in series with the thyristor
- ✘ C. By connecting one filter in series with the thyristor
- ✔ D. By connecting one inductor in series with the thyristor

Question ID : **75322911390**
Status : **Answered**
Chosen Option : **D**

Q.95 What is the diversity factor of a power plant?

Ans

✗ A. $\text{diversity factor} = \frac{\text{Maximum demand of entire group}}{\text{Sum of individual maximum demands}}$

✗ B. $\text{diversity factor} = \frac{\text{Maximum energy that could be generated}}{\text{Actual energy generated}}$

✓ C. $\text{diversity factor} = \frac{\text{Sum of individual maximum demands}}{\text{Maximum demand of entire group}}$

✗ D. $\text{diversity factor} = \frac{\text{Actual energy generated}}{\text{Maximum energy that could be generated}}$

Question ID : **75322911482**
Status : **Answered**
Chosen Option : **C**

Q.96 **What will be the effect when a current of 20 to 50 mA passes through the human body?**

Ans

✗ A. Painful shock (Muscular control is not lost)

✗ B. Painful shock (Muscular control is lost)

✗ C. Perceptible but not painful (just bearable)

✓ D. Severe muscular contraction (Breathing will be difficult)

Question ID : **75322911395**
Status : **Marked For Review**
Chosen Option : **D**

Q.97 What is the process for corrosion test of insulator?

Ans ✔ A.

The insulator with its galvanised or steel fittings is suspended in a copper sulphate solution for one minute. Then the insulator is removed from the solution and wiped, cleaned. Again, it is suspended in the copper sulphate solution for one minute. The process is repeated four times.

✘ B.

The insulator with its galvanised or steel fittings is suspended in a copper sulphate solution for two minutes. Then the insulator is removed from the solution and wiped, cleaned. Again, it is suspended in the copper sulphate solution for two minutes. The process is repeated four times.

✘ C.

The insulator with its galvanised or steel fittings is suspended in a copper sulphate solution for one minute. Then the insulator is removed from the solution and wiped, cleaned. Again, it is suspended in the copper sulphate solution for one minute.

✘ D.

The insulator with its galvanised or steel fittings is suspended in a copper sulphate solution for two minutes. Then the insulator is removed from the solution and wiped, cleaned. Again, it is suspended in the copper sulphate solution for two minutes.

Question ID : **75322911494**
Status : **Not Answered**
Chosen Option : **--**

Q.98 **What is the cause of buckling of plate in lead acid cells?**

Ans ✔ A. The cell is discharged or charged at a very high current than normal rate.

✘ B. The cell lying idle for several days.

✘ C. The use of improper distilled water.

✘ D. The short circuiting of plates.

Question ID : **75322911448**
Status : **Answered**
Chosen Option : **A**

Q.99 A stepper motor has a step angle of 3°. Determine the number of steps required for the shaft to make 20 revolutions?

Ans
- ✔ A. 2400
- ✘ B. 3600
- ✘ C. 1200
- ✘ D. 800

Question ID : **75322911462**
Status : **Answered**
Chosen Option : **A**

Q.100 What is to be typed in the command prompt, following which the Enter button is to be pressed to change wire type in wire tool dialogue in AutoCAD?

Ans
- ✔ A. T
- ✘ B. C
- ✘ C. X
- ✘ D. W

Question ID : **75322911445**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.101 Which department is responsible for the enhancement of the quality of finished goods by performing research and development on modern techniques of production?

Ans
- ✘ A. Production department
- ✔ B. Technical department
- ✘ C. Manufacturing department
- ✘ D. Quality control department

Question ID : **75322911456**
Status : **Answered**
Chosen Option : **D**

Q.102 What is the result of increase in volume of production in an industry?

Ans

✗ A. Deterioration in quality of products

✓ B. Reduction in per unit cost of production

✗ C. Increase in per unit cost of production

✗ D. Improvement in quality of products

Question ID : **75322911411**
Status : **Answered**
Chosen Option : **B**

Q.103 A pair of Silicon Controlled Rectifiers (SCR) is used to control the output of the welding power transformer for the low frequency welding control. How are these SCRs connected with each other?

Ans

✗ A. In cascaded connection

✗ B. In series connection

✓ C. In inverse parallel connection

✗ D. In parallel connection

Question ID : **75322911392**
Status : **Not Answered**
Chosen Option : **--**

Q.104 Which type of heating is applied for paint drying and foundry molding?

Ans

✓ A. Radiant heating

✗ B. High frequency electric heating

✗ C. Arc heating

✗ D. Indirect resistance heating

Question ID : **75322911442**
Status : **Answered**
Chosen Option : **A**

Q.105 Where can we use the shaded pole instruments?

Ans

✔ A. For AC only

✘ B. For low value of AC and DC

✘ C. For high value of AC and DC

✘ D. For DC only

Question ID : **75322911352**
Status : **Marked For Review**
Chosen Option : **A**

Q.106 What are the internal barrier voltages of a Germanium diode that opposes the applied voltage?

Ans

✘ A. 1.1 V

✘ B. 0.7 V

✔ C. 0.3 V

✘ D. 1.3 V

Question ID : **75322911365**
Status : **Answered**
Chosen Option : **C**

Q.107 Which device in a gas power plant is used to recover heat from the exhaust gases of the turbine?

Ans

✘ A. Compressor

✔ B. Regenerator

✘ C. Combustion chamber

✘ D. Governor

Question ID : **75322911399**
Status : **Answered**
Chosen Option : **B**

Q.108 What is the term used for emission of electrons from metals by bombarding the metal surface with electrons?

Ans

✗ A. Field emission

✓ B. Secondary emission

✗ C. Photoelectric emission

✗ D. Thermionic emission

Question ID : **75322911359**
Status : **Answered**
Chosen Option : **B**

Q.109 If $\vec{a}$ and $\vec{b}$ are two vectors having same or opposite directions, what are they said to be?

Ans

✗ A. Position vectors

✗ B. Equal vectors

✓ C. Collinear vectors

✗ D. Resolution vectors

Question ID : **75322911466**
Status : **Answered**
Chosen Option : **A**

Q.110 The energy gap between valence band and conduction band in a semiconductor is approximately _____.

Ans

✗ A. 5 eV

✓ B. 1 eV

✗ C. 0

✗ D. 10 eV

Question ID : **75322911364**
Status : **Answered**
Chosen Option : **B**

Q.111 A 4-pole, 3-phase star connected alternator has 48 slots. The coil span is 120 electrical degrees. Determine the coil span factor.

Ans
- ✔ A. 0.866
- ✘ B. 0.966
- ✘ C. 0.636
- ✘ D. 0.707

Question ID : **75322911459**
Status : **Answered**
Chosen Option : **A**

Q.112 Which of the following connections for the primary and secondary winding of a three-phase transformer is NOT possible?

Ans
- ✘ A. Delta star
- ✘ B. Open delta
- ✔ C. Open star
- ✘ D. Star delta

Question ID : **75322911377**
Status : **Answered**
Chosen Option : **C**

Q.113 Which of the following sources are the first rate of polluters?

Ans
- ✘ A. Solvent extraction
- ✘ B. Spray painting
- ✔ C. Automobiles
- ✘ D. Industries

Question ID : **75322911387**
Status : **Not Answered**
Chosen Option : **--**

Q.114 A semiconductor is having electron and hole concentration of $6\times10^{18}/m^3$ and $6\times10^{18}/m^3$, respectively. The mobility for electron and hole is $2m^2/vs$ and $0.1m^2/vs$. Find the conductivity of the semiconductor.

Ans

✔ A. $2.016/\Omega m$

✘ B. $4.032/\Omega m$

✘ C. $7.46/\Omega m$

✘ D. $3.73/\Omega m$

Question ID : **75322911490**
Status : **Not Answered**
Chosen Option : **--**

Q.115 Which of the following steps will NOT lower the soil resistance of the soil at earthing point?

Ans

✘ A. Increase in pit area

✘ B. Increase in electrode area

✘ C. Chemical treatment of soil

✔ D. Connecting number of electrodes in series

Question ID : **75322911429**
Status : **Answered**
Chosen Option : **D**

Q.116 What will be the EMF equation when synchronous motor is operating in leading power factor?

Ans

✗ A. $E_f = [(V_t \cos \varphi + IaRa)^2 + (V_t \sin \varphi - IaXa)^2]^{1/2}$

✓ B. $E_f = [(V_t \cos \varphi - IaRa)^2 + (V_t \sin \varphi + IaXa)^2]^{1/2}$

✗ C. $E_f = [(V_t \cos \varphi + IaRa)^2 + (V_t \sin \varphi + IaXa)^2]^{1/2}$

✗ D. $E_f = [(V_t \cos \varphi - IaRa)^2 + (V_t \sin \varphi - IaXa)^2]^{1/2}$

Question ID : **75322911486**
Status : **Answered**
Chosen Option : **A**

Q.117 How do the Inductive Proximity sensors work?

Ans

✗ A. By sensing the difference in temperature

✓ B. By converting movement of person or thing

✗ C. By detecting the light beam reflected from the target

✗ D. By application of mechanical pressure

Question ID : **75322911368**
Status : **Answered**
Chosen Option : **B**

Q.118 What physical change will happen to the anode of a lead acid battery on charging?

Ans

✗ A. Colour will change to slightly white.

✗ B. Colour will change to grey.

✗ C. Colour will change to slightly yellow.

✓ D. Colour will change to chocolate brown.

Question ID : **75322911379**
Status : **Answered**
Chosen Option : **D**

Q.119 What is the purpose of twin lamp circuits in which the phase angle between potential and current is altered in the two lamps?

Ans
- ✗ A. To increase surface brightness
- ✗ B. To reduce shadow effect
- ✓ C. To reduce stroboscopic effect
- ✗ D. To reduce glare effect

Question ID : **75322911434**
Status : **Answered**
Chosen Option : **C**

Q.120 What are the inputs for the NOR gate, for which output will be 1?

Ans
- ✗ A. 0, 1
- ✗ B. 1, 1
- ✗ C. 1, 0
- ✓ D. 0, 0

Question ID : **75322911367**
Status : **Answered**
Chosen Option : **D**

Q.121 What type of charge should be provided continuously to the trip coil battery (for the circuit breaker) to maintain its voltage?

Ans
- ✓ A. Trickle charge
- ✗ B. Booster charge
- ✗ C. Periodic charge
- ✗ D. Routine charge

Question ID : **75322911463**
Status : **Answered**
Chosen Option : **B**

Q.122 Which type of magnetic materials have susceptibility value of the order of (-10^{-4}) to (-10^{-6})?

Ans

✔ A. Diamagnetic

✘ B. Antiferromagnetic

✘ C. Paramagnetic

✘ D. Ferromagnetic

Question ID : **75322911477**
Status : **Answered**
Chosen Option : **A**

Q.123 What is the average lumens per watt for an incandescent lamp?

Ans

✘ A. 24

✘ B. 8

✔ C. 14

✘ D. 18

Question ID : **75322911436**
Status : **Answered**
Chosen Option : **B**

Q.124 Which of the following statements is NOT true about HV DC power transmission?

Ans

✘ A. There are no inductance, capacitance, phase displacement and surge problems in DC transmission.

✔ B. Electric power can be generated at high DC voltage.

✘ C. In DC transmission, there are no stability problems and synchronising difficulties.

✘ D. It requires only two conductors.

Question ID : **75322911404**
Status : **Answered**
Chosen Option : **B**

Q.125 Which of the following statements is NOT true about AC power transmission?

Ans

✗ A. AC line has capacitance. Therefore, there is a continuous loss of power due to charging current even when the line is open.

✗ B. Due to skin effect in the AC system, the effective resistance of the line is increased.

✗ C. The AC voltage can be stepped up or stepped down by transformers with ease and efficiency. This permits to transmit power at high voltages and distribute it at safe potentials.

✓ D. The construction of an AC transmission line is less complicated than that of a DC transmission line.

Question ID : **75322911401**
Status : **Answered**
Chosen Option : **D**

Q.126 Why is the cell of a lead acid battery constructed with multiple number of plates, all the positive plates are joined together and all the negative plates are joined together?

Ans

✓ A. To minimise the internal resistance and to reduce the plate size

✗ B. Only for simplicity in construction

✗ C. Only to reduce the plate size

✗ D. Only to minimise the internal resistance

Question ID : **75322911380**
Status : **Answered**
Chosen Option : **D**

Q.127 Which of the following is NOT true for a core type single-phase transformer?

Ans

✗ A. Core is rectangular in shape of uniform cross-section.

✗ B. Cylindrical type coils are used

✗ C. Coils are wound in helical layers with different layers, insulated from each other on two limbs.

✓ D. Magnetic circuit is divided in two or more parts.

Question ID : **75322911375**
Status : **Answered**
Chosen Option : **D**

Q.128 What is the main working principle of Buchholz relay used in a three-phase transformer for internal protection?

Ans
- ✗ A. Generation of acidity inside the transformer oil tank
- ✗ B. Increase in viscosity of the transformer oil
- ✗ C. Increase in temperature inside the transformer oil tank
- ✓ D. Generation of hydrogen gas inside the transformer oil tank

Question ID : **75322911378**
Status : **Answered**
Chosen Option : **D**

Q.129 The rise time of a signal applied to a CRO is 0.5 μs. What is its bandwidth?

Ans
- ✗ A. 0.05 MHz
- ✓ B. 0.7 MHz
- ✗ C. 0.07 MHz
- ✗ D. 0.2 MHz

Question ID : **75322911358**
Status : **Answered**
Chosen Option : **B**

Q.130 What is the command in MATLAB to get help on relational and logical operators?

Ans
- ✗ A. Help punct
- ✗ B. Help renlp
- ✗ C. Help lisop
- ✓ D. help relop

Question ID : **75322911444**
Status : **Not Answered**
Chosen Option : **--**

Q.131 To run the DC motors faster than the base speed the field flux must be reduced. What is the term used for the operation of the DC motor in this reduced flux region?

Ans

✗ A. Field depletion region

✓ B. Field weakening region

✗ C. Field reducing region

✗ D. Field enhancement region

Question ID : **75322911393**
Status : **Answered**
Chosen Option : **B**

Q.132 What is the equation for the applied voltage between the core and the sheath for a Inters heath Grading cable, where R represents the radius of the outer sheath and g_{max} represents the peak value of electrical stress?

Ans

✗ A. $V = 1.881 * R * g_{max}$

✓ B. $V = \frac{R * g_{max}}{1.881}$

✗ C. $V = \frac{1.881 * g_{max}}{R}$

✗ D. $V = \frac{1.881 * R}{g_{max}}$

Question ID : **75322911495**
Status : **Not Answered**
Chosen Option : **--**

Q.133 How is the reactive power of the line capacitance during low loads in long EHV transmission lines compensated?

Ans

✗ A. By power line carrier current equipment (PLCC)

✓ B. By shunt reactor

✗ C. By series capacitor

✗ D. By static var sources (SVS)

Question ID : **75322911440**
Status : **Answered**
Chosen Option : **D**

Q.134 In a binomial distribution if $n = 18$ and $p = \frac{1}{3}$, what is the value of variance?

Ans

✗ A. 9

✗ B. 6

✓ C. 4

✗ D. 2

Question ID : **75322911476**
Status : **Answered**
Chosen Option : **B**

Q.135 What is the output voltage of the three-phase full converter, also known as six pulse converter?

Ans

✗ A. $\frac{3\sqrt{Vm}}{\pi}\ Cos\alpha$

✓ B. $\frac{3\sqrt{3}Vm}{\pi}\ Cos\alpha$

✗ C. $\frac{\sqrt{3}Vm}{\pi}\ Cos\alpha$

✗ D. $\frac{3\sqrt{3}Vm}{2\pi}\ Cos\alpha$

Question ID : **75322911480**
Status : **Answered**
Chosen Option : **C**

Q.136 What is the sum of squares of the direction cosines of any straight line?

Ans

✓ A. 1

✗ B. 0

✗ C. 2

✗ D. 3

Question ID : **75322911349**
Status : **Not Answered**
Chosen Option : **--**

Q.137 Which of the following statements is NOT true of a bridge circuit?

Ans

✗ A. The balance equation is independent of the magnitude of its input voltage and its source impedance.

✗ B. The bridge circuit can be used in a control circuit.

✗ C. The balance equation is independent of the sensitivity of the null detector.

✓ D. Accuracy is low.

Question ID : **75322911357**
Status : **Answered**
Chosen Option : **D**

Q.138 Evaluate $\int_0^{\pi/2} Cos^2 x \, dx$:

Ans

✗ A. 0

✓ B. $\frac{\pi}{4}$

✗ C. $\frac{\pi}{2}$

✗ D. 1

Question ID : **75322911488**
Status : **Answered**
Chosen Option : **B**

Q.139 Which of the following instruments is a secondary instrument?

Ans

✗ A. Absolute electrometer

✗ B. Rayleigh's current balance

✓ C. Pressure gauge

✗ D. Tangent galvanometer

Question ID : **75322911350**
Status : **Answered**
Chosen Option : **C**

Q.140 How is the step angle for stepper motor calculated?

Ans

✔ A. $Step\ angle = \frac{360°}{(No.of\ stator\ phases \times No.of\ rotor\ teeth)}$

✘ B. $Step\ angle = \frac{360°}{(No.of\ stator\ poles \times No.of\ rotor\ phases)}$

✘ C. $Step\ angle = \frac{360°}{(No.of\ stator\ phases \times No.of\ rotor\ phases)}$

✘ D. $Step\ angle = \frac{360°}{(No.of\ stator\ poles \times No.of\ rotor\ teeth)}$

Question ID : **75322911498**
Status : **Answered**
Chosen Option : **A**

Q.141 If a sudden flow of electric charge between the electrical charge area of a cloud takes place, it is called:

Ans

✘ A. CB lightning

✔ B. intra-cloud lightning

✘ C. CG lightning

✘ D. CC lightning

Question ID : **75322911415**
Status : **Answered**
Chosen Option : **B**

Q.142 What should be the breaking strength of every guard wire according to IE rule 88?

Ans

✗ A. Not less than 365.02 kg

✗ B. Not less than 455.02 kg

✓ C. Not less than 635.02 kg

✗ D. Not less than 536.02 kg

Question ID : **75322911394**
Status : **Answered**
Chosen Option : **C**

Q.143 Which of the following is NOT an example of an energy substite as a measure for energy conservation?

Ans

✗ A. Replacement of electric heaters by steam heaters

✓ B. Replacement of wind power by thermal power

✗ C. Replacement of steam-based hot water by solar systems

✗ D. Replacement of coal by coconut shells, rice husk, etc.

Question ID : **75322911410**
Status : **Answered**
Chosen Option : **B**

Q.144 Which of the following characteristics is NOT true for a synchronous motor?

Ans

✗ A. It can be made to operate from lagging to leading power factor.

✗ B. It has no self-starting torque.

✓ C. It requires no excitation at rotor.

✗ D. The speed remains constant from no load to full load.

Question ID : **75322911461**
Status : **Answered**
Chosen Option : **C**

Q.145 Evaluate: $\int x \log x \, dx$

Ans

✗ A. $\frac{x \log x}{2} - \frac{x^2}{4} + C$

✗ B. $\frac{x^2 \log x}{2} + \frac{x^2}{4} + C$

✓ C. $\frac{x^2 \log x}{2} - \frac{x^2}{4} + C$

✗ D. $\frac{x \log x}{2} + \frac{x^2}{4} + C$

Question ID : **75322911469**
Status : **Answered**
Chosen Option : **C**

Q.146 Which of the following is NOT one of the remedies for the phase displacement error in single phase induction type energy meter?

Ans

✗ A. Shading bands

✓ B. Capacitor in pressure coil

✗ C. Lag plate

✗ D. By using shading coil with a low value adjustable resistance

Question ID : **75322911446**
Status : **Answered**
Chosen Option : **B**

Q.147 What will be the effect on electrical lines due to a lightning strike peak of current of 40 kA?

Ans

✗ A. The voltage of the pulse can be as high as 4000 kV

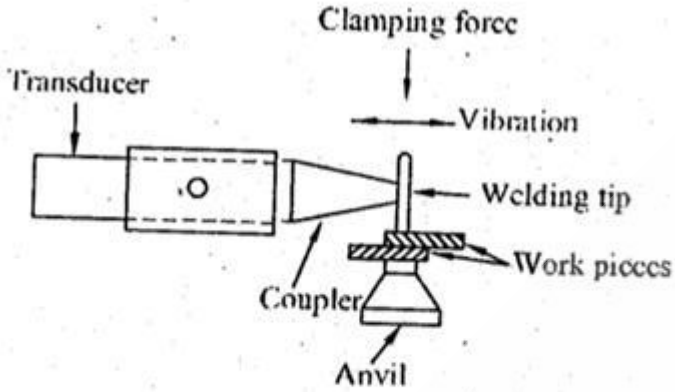
✗ B. The voltage of the pulse can be as high as 2000 kV

✓ C. The voltage of the pulse can be as high as 6000 kV

✗ D. The voltage of the pulse can be as high as 100 kV

Question ID : **75322911416**
Status : **Not Answered**
Chosen Option : **--**

Q.148



What type of welding is shown in the given figure?

Ans

✗ A. Laser beam welding

✓ B. Ultrasonic welding

✗ C. Electron beam welding

✗ D. Inert gas metal arc welding

Question ID : **75322911487**

Status : **Not Attempted and Marked For Review**

Chosen Option : **--**

Q.149 Which of the following is included in the static Var compensator?

Ans

✔ A. Thyristor-controlled and Thyristor-switched reactor and Thyristor-switched capacitor

✘ B. Triac controlled and Thyristor-switched reactor and Thyristor-switched capacitor.

✘ C. Triac controlled and Diac-switched reactor and Thyristor-switched capacitor

✘ D. Diac controlled and Thyristor-switched reactor and Thyristor-switched capacitor

Question ID : **75322911391**
Status : **Answered**
Chosen Option : **A**

Q.150 A 4-pole generator having a simplex wave wound armature has 50 slots. Each slot contains 20 conductors. What will be the voltage generated in the machine when driven at 1500 RPM, assuming the flux per pole to be 8 m Wb?

Ans

✘ A. 357 V

✘ B. 448 V

✘ C. 200 V

✔ D. 400 V

Question ID : **75322911447**
Status : **Answered**
Chosen Option : **D**

Section : **General Knowledge and Awareness**

Q.1 In 1911, where was a Durbar held in India to celebrate the occasion when King George V was crowned in England?

Ans

✘ A. Pune

✘ B. Calcutta

✔ C. Delhi

✘ D. Mumbai

Question ID : **75322911501**
Status : **Answered**
Chosen Option : **C**

Q.2 According to Human Development Report–2020, which rank did India secure in terms of installed solar capacity?

Ans
- ✗ A. Third
- ✗ B. Fourth
- ✓ C. Fifth
- ✗ D. Sixth

Question ID : **75322911509**
Status : **Answered**
Chosen Option : **B**

Q.3 In which state is Dree festival celebrated in the scenic Ziro Valley to ensure a good harvest for the state?

Ans
- ✗ A. West Bengal
- ✗ B. Sikkim
- ✓ C. Arunachal Pradesh
- ✗ D. Karnataka

Question ID : **75322911506**
Status : **Answered**
Chosen Option : **C**

Q.4 According to which Article of the Constitution of India do the High Courts have the power to issue writs?

Ans
- ✓ A. Article 226
- ✗ B. Article 241
- ✗ C. Article 270
- ✗ D. Article 32

Question ID : **75322911518**
Status : **Answered**
Chosen Option : **A**

Q.5 Ellora is located hundred km away from Ajanta and has _____ Buddhist, Brahmanical and Jain caves.

Ans
- ✗ A. 34
- ✓ B. 32
- ✗ C. 30
- ✗ D. 28

Question ID : **75322911504**
Status : **Not Answered**
Chosen Option : **--**

Q.6 To increase the solubility of CO_2 in soft drinks and soda water, the bottles are sealed under:

Ans
- ✗ A. low temperature
- ✓ B. high pressure
- ✗ C. moderate pressure
- ✗ D. low pressure

Question ID : **75322911515**
Status : **Answered**
Chosen Option : **B**

Q.7 The first Statutory National Commission for Minorities was set up on:

Ans
- ✓ A. 17 May 1993
- ✗ B. 2 August 1992
- ✗ C. 19 March 1994
- ✗ D. 3 July 1991

Question ID : **75322911499**
Status : **Not Answered**
Chosen Option : **--**

Q.8 **Which of the following vegetations are found in the Eastern Himalayan floristic region?**

Ans
- ✗ A. Sheesham, neem, mahuwa, jamun, acacia and ber
- ✗ B. Teak, tendu, sal, palm and thorny shrubs
- ✗ C. Acacias, cacti, wild palms, khejra and palas
- ✓ D. Oaks, laurels, maples, rhododendrons, alder, birch bamboos and tall grasses

Question ID : **75322911511**
Status : **Answered**
Chosen Option : **D**

Q.9 **In which year was the 11th fundamental duty added to the Constitution of India, by the 86th Constitutional Amendment?**

Ans
- ✗ A. 2003
- ✓ B. 2002
- ✗ C. 2000
- ✗ D. 2001

Question ID : **75322911517**
Status : **Answered**
Chosen Option : **B**

Q.10 **Which of the following glaciers is situated in Kumaon region of Uttarakhand?**

Ans
- ✗ A. Chong Kumdan Glacier
- ✗ B. Hispar Glacier
- ✓ C. Pindari Glacier
- ✗ D. Biafo Glacier

Question ID : **75322911510**
Status : **Answered**
Chosen Option : **A**

Q.11 In India, it is mandatory for the police to take any person arrested and detained in custody to the nearest magistrate within _____.

Ans
- ✗ A. 72 hours
- ✗ B. 48 hours
- ✗ C. 96 hours
- ✓ D. 24 hours

Question ID : **75322911516**
Status : **Answered**
Chosen Option : **D**

Q.12 What was the approximate percentage of the people below poverty line in India in 2011–12, calculated using the Tendulkar Methodology?

Ans
- ✗ A. 37%
- ✓ B. 22%
- ✗ C. 30%
- ✗ D. 45%

Question ID : **75322911508**
Status : **Not Answered**
Chosen Option : **--**

Q.13 The definition of 'small loans' varies among countries. In India, all loans that are below _____ can be considered as microloans.

Ans
- ✗ A. ₹50,000
- ✓ B. ₹1,00,000
- ✗ C. ₹1,50,000
- ✗ D. ₹2,00,000

Question ID : **75322911507**
Status : **Not Answered**
Chosen Option : **--**

Q.14 To which dynasty did the king Dhangadeva, who constructed the Kandariya Mahadeva temple dedicated to Shiva, belong?

Ans
✗ A. Pallava dynasty
✓ B. Chandela dynasty
✗ C. Chalukya dynasty
✗ D. Chola dynasty

Question ID : **75322911503**
Status : **Answered**
Chosen Option : **B**

Q.15 Which of the following organs of digestion produces insulin, which controls the amount of sugar in the bloodstream?

Ans
✓ A. Pancreas
✗ B. Intestine
✗ C. Liver
✗ D. Stomach

Question ID : **75322911513**
Status : **Answered**
Chosen Option : **A**

Q.16 Which festival is a yearly celebration held by the State Government of Nagaland in the first week of December?

Ans
✗ A. Losar festival
✗ B. Khajuraho dance festival
✓ C. Hornbill festival
✗ D. Pongal festival

Question ID : **75322911505**
Status : **Answered**
Chosen Option : **C**

Q.17 Who published the book 'Stripurushtulna', criticizing the social differences between men and women?

Ans
- ✗ A. Vijaya Lakshmi Pandit
- ✓ B. Tarabai Shinde
- ✗ C. Pandita Ramabai
- ✗ D. Ratan Shastri

Question ID : **75322911502**
Status : **Not Answered**
Chosen Option : **--**

Q.18 Who became the first Indian woman to win a Paralympic gold medal?

Ans
- ✓ A. Avani Lekhara
- ✗ B. Parul Parmar
- ✗ C. Bhavina Patel
- ✗ D. Deepa Malik

Question ID : **75322911500**
Status : **Answered**
Chosen Option : **A**

Q.19 Which mineral helps produce the active form of vitamin A and transports it across the body?

Ans
- ✓ A. Zinc
- ✗ B. Iron
- ✗ C. Potassium
- ✗ D. Iodine

Question ID : **75322911514**
Status : **Answered**
Chosen Option : **B**

Q.20 Which of the following statements is NOT correct about the Indian census?

Ans ✔ A. In India, the first complete census was taken in the year 1891.

✘ B. In India, the first census was held in the year 1872.

✘ C. A census is an official enumeration of population done periodically.

✘ D. The Indian Census is the most comprehensive source of demographic, social and economic data.

Question ID : **75322911512**
Status : **Answered**
Chosen Option : **A**

Section : **Reasoning**

Q.1 Select the option in which the given figure is embedded (rotation is NOT allowed).

Ans

✔ A. 

✘ B. 

✘ C. 

✘ D. 

Question ID : **75322911538**
Status : **Answered**
Chosen Option : **A**

Q.2 Five friends, A, B, C, D and E, live on five different floors – 1, 2, 3, 4 and 5 – of a building. B lives on floor 1 – the lowest floor. One person lives between C and A. Two persons live between B and E. D is just above B. One person lives between B and C. Who lives just above C?

Ans
- ✔ A. E
- ✘ B. B
- ✘ C. A
- ✘ D. D

Question ID : **75322911522**
Status : **Answered**
Chosen Option : **D**

Q.3 Select the correct option that indicates the arrangement of the given words in the order in which they appear in an English dictionary.

1. Horrible
2. Horticulture
3. Horses
4. Hoarding
5. Homely

Ans
- ✔ A. 4, 5, 1, 3, 2
- ✘ B. 4, 5, 1, 2, 3
- ✘ C. 5, 4, 1, 3, 2
- ✘ D. 4, 1, 5, 3, 2

Question ID : **75322911525**
Status : **Answered**
Chosen Option : **A**

Q.4 **Shalini's husband, Prakash, is the son of Kartik. Soumita is the wife of Nishant, who is the son of Janhvi. If Ankur's daughter, Janhvi, is married to Kartik, then how is Shalini related to Janhvi?**

Ans

✗ A. Daughter

✗ B. Sister-in-law

✗ C. Sister

✓ D. Daughter-in-law

Question ID : **75322911530**
Status : **Answered**
Chosen Option : **D**

Q.5 Select the correct water image of the given combination.

Ans

✗ A.

✗ B. 

✗ C. 

✓ D. 

Question ID : **75322911537**
Status : **Answered**
Chosen Option : **D**

Q.6 Which two numbers need to be interchanged to make the given equation correct?

190 + 38 ÷ 19 – 57 × 3 = 79

Ans
- ✗ A. 190 and 57
- ✗ B. 57 and 38
- ✓ C. 57 and 38
- ✗ D. 3 and 19

Question ID : **75322911535**
Status : **Answered**
Chosen Option : **C**

Q.7 In a code language, PLATES is written as FQUXJY. How will DORSAL be written in that language?

Ans
- ✓ A. WTIQFX
- ✗ B. WUIQEX
- ✗ C. VTHQFX
- ✗ D. WSIRFX

Question ID : **75322911527**
Status : **Not Answered**
Chosen Option : **--**

Q.8 Select the option that is related to the third word in the same way as the second word is related to the first word.

Flawless : Defective :: Boastful : ?

Ans
- ✗ A. Miser
- ✗ B. Shrewd
- ✓ C. Modest
- ✗ D. Revengeful

Question ID : **75322911532**
Status : **Answered**
Chosen Option : **C**

Q.9 What approximate value should come in place of the question mark (?) in the following equation?

24.998 – 6.008 × 4.003 + 35.998 ÷ 11.9897 × 3.009 = ?

Ans
✗ A. 24
✗ B. 8
✓ C. 10
✗ D. 12

Question ID : **75322911534**
Status : **Answered**
Chosen Option : **C**

Q.10 Kashvi starts from her home and walks 46 m towards the south. Then, she turns left and walks 34 m. After that, she turns right and walks 64 m. Then, she turns right again and walks 34 m. She finally turns left and walks 55 m to reach a shop. How far and in which direction is the shop with reference to her home?

Ans
✗ A. 155 m, South
✗ B. 165 m, North
✓ C. 165 m, South
✗ D. 155 m, North

Question ID : **75322911529**
Status : **Answered**
Chosen Option : **C**

Q.11 In a code language, LIGHT is written as 61, and SOME is written as 56. How will CODIFY be written in that language?

Ans
✗ A. 62
✓ B. 68
✗ C. 66
✗ D. 75

Question ID : **75322911528**
Status : **Not Answered**
Chosen Option : **--**

Q.12 A + B' का अर्थ है - 'A, B का भाई है'
'A = B' का अर्थ है - 'A, B का पुत्र है'
'A & B' का अर्थ है - 'A, B की पत्नी है'
'A @ B' का अर्थ है - 'A, B का पिता है'

यदि P = H = T & U @ N + R है, तो N का P से क्या संबंध है?

Ans
✗ A. ससुर
✗ B. मामा/मौसा
✓ C. चाचा/ताऊ/फूफा
✗ D. जीजा/साला

Question ID : **75322911531**
Status : **Answered**
Chosen Option : **C**

Q.13 एक परिवार में दादा की आयु पोते की आयु की 4 गुनी है। दादी की आयु दादा की आयु से 6 वर्ष कम है। पोते की आयु उसकी मां की आयु से 22 वर्ष कम है, जिनकी आयु उनके पति अर्थात पोते के पिता से 3 वर्ष कम है। यदि पिता की आयु 41 वर्ष है, तो दादी की आयु (वर्ष में) कितनी है?

Ans
✗ A. 64
✗ B. 48
✓ C. 58
✗ D. 56

Question ID : **75322911524**
Status : **Answered**
Chosen Option : **C**

Q.14 Seven friends, A, B, C, D, E, F and G, are standing in a straight line facing the east. D is to the immediate right of A. G is third from the left end of the line. Only A is between B and D. F is at the right end. E is to the immediate left of C, who is to the immediate left of G. Who is at the third place from the right end of the row?

Ans
- ✗ A. E
- ✗ B. C
- ✓ C. A
- ✗ D. B

Question ID : **75322911519**
Status : **Answered**
Chosen Option : **C**

Q.15 How many numbers are there in the given string of elements which are immediately preceded and immediately followed by a letter?

3 4 F D 4 S 7 5 D 7 G 9 8 B H 9 J L J Y T F G 3 F V 5 B 6 8 N U 7 9 5 R E 3 4 D H 5 B

Ans
- ✗ A. 5
- ✗ B. 8
- ✓ C. 7
- ✗ D. 6

Question ID : **75322911526**
Status : **Answered**
Chosen Option : **C**

Q.16 In a class, Chetan scores the highest marks, whereas Vishal scores lowest marks. Kriti scores less marks than only 5 students and scores more marks than 17 students. How many students have scored less marks than Chetan in the class?

Ans
- ✗ A. 21
- ✗ B. 23
- ✗ C. 20
- ✓ D. 22

Question ID : **75322911521**
Status : **Answered**
Chosen Option : **B**

Q.17 Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:
All ointments are tablets.
No tablet is an injection.
No injection is a mask.

Conclusions:
I. No ointment is an injection.
II. No ointment is a mask.
III. No tablet is a mask.

Ans
- ✓ A. Only conclusion I follows
- ✗ B. Only conclusion I and III follow
- ✗ C. Only conclusion II follows
- ✗ D. None of the conclusions follow

Question ID : **75322911523**
Status : **Not Answered**
Chosen Option : **--**

Q.18 Select the number from among the given options that can replace the question mark (?) in the following series.

37, 53, 76, ?, 147, 197

Ans
✗ A. 112
✗ B. 92
✗ C. 88
✓ D. 107

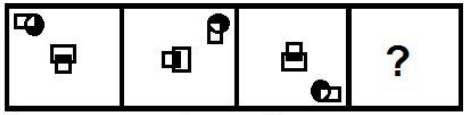
Question ID : **75322911533**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.19 Eight players, P, Q, R, S, T, U, V and W, are sitting in a line, all facing the same direction. Two persons are sitting between V and U. Three persons are sitting between U and T. T is at the right end of the line. S is not adjacent to U. V is towards the left side of U. S and Q are sitting adjacent. Only P is between W and R. R is to the immediate left of T. Who is at the second place from the left end?

Ans
✗ A. Q
✓ B. S
✗ C. W
✗ D. P

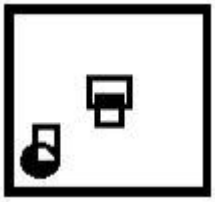
Question ID : **75322911520**
Status : **Answered**
Chosen Option : **B**

Q.20 Select the figure from among the given options that will replace the question mark (?) in the following figure series.

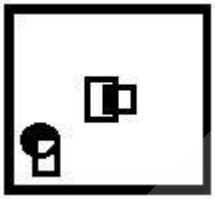


Ans

✗ A.



✗ B.



✗ C.

✓ D.

Question ID : **75322911536**
Status : **Answered**
Chosen Option : **D**

Section : **General Hindi**

Q.1 'हिमालय' का पर्यायवाची शब्द कौन सा है?

Ans
✗ A. महेन्द्र
✗ B. जितेन्द्र
✗ C. देवेन्द्र
✓ D. शैलेन्द्र

Question ID : **75322911547**
Status : **Answered**
Chosen Option : **D**

Q.2 निम्नलिखित में कौन सा विकल्प 'प्रयोग' के अनुसार क्रियाविशेषण का भेद नहीं है?

Ans
✗ A. अनुबद्ध
✓ B. यौगिक
✗ C. संयोजक
✗ D. साधारण

Question ID : **75322911541**
Status : **Answered**
Chosen Option : **A**

Q.3 'आपका भला हो।' वाक्य में कौन सा काल है?

Ans
✗ A. सामान्य भूत
✓ B. संभाव्य भविष्यत्
✗ C. सामान्य भविष्यत्
✗ D. सामान्य वर्तमान

Question ID : **75322911539**
Status : **Answered**
Chosen Option : **B**

Q.4 यह कपड़ा अच्छा है। वाक्य में प्रयुक्त 'यह' किस प्रकार का विशेषण है?

Ans
✗ A. संख्यावाचक
✓ B. सार्वनामिक
✗ C. गुणवाचक
✗ D. परिमाणबोधक

Question ID : **75322911542**
Status : **Answered**
Chosen Option : **B**

Q.5 'विधवा' का विलोम क्या होगा?

Ans
✗ A. मध्या
✓ B. सधवा
✗ C. विद्वान
✗ D. विदुषी

Question ID : **75322911548**
Status : **Answered**
Chosen Option : **B**

Q.6 'गाड़ी सवेरे आई।' वाक्य में कौन सा काल है?

Ans
✗ A. अपूर्ण भूत
✓ B. सामान्य भूत
✗ C. आसन्न भूत
✗ D. संदिग्ध भूत

Question ID : **75322911540**
Status : **Answered**
Chosen Option : **B**

Q.7 'जरूरत भर की चीज' के अर्थ के लिए उपयुक्त लोकोक्ति कौन सी है?

Ans
- ✔ A. बासी बचे न कुत्ता खाए
- ✘ B. बूंद-बूंद से तालाब भरता है
- ✘ C. बासी कढ़ी में उबाल आया
- ✘ D. बिल्ली के सपने में चूहे

Question ID : **75322911546**
Status : **Answered**
Chosen Option : **A**

Q.8 'मध्यम पुरुष' के अंतर्गत कौन आता है?

Ans
- ✔ A. श्रोता
- ✘ B. वक्ता
- ✘ C. लेखक
- ✘ D. वक्ता और श्रोता

Question ID : **75322911544**
Status : **Answered**
Chosen Option : **A**

Q.9 'हाथ-पांव फूल जाना' मुहावरे का सही अर्थ क्या है?

Ans
- ✘ A. बीमार होना
- ✘ B. खूब प्रसन्न होना
- ✔ C. डर से घबरा जाना
- ✘ D. क्रोधित होना

Question ID : **75322911545**
Status : **Answered**
Chosen Option : **C**

Q.10 निम्नलिखित में से कौन सा विकल्प 'उत्तम पुरुष' है?

Ans
✗ A. तुम

✗ B. वह

✗ C. यह

✓ D. हम

Question ID : **75322911543**
Status : **Answered**
Chosen Option : **D**