OSSC
JE

Previous Year Paper
(Electrical)
19 Sept, 2025

Odisha Staff Selection Commission (OSSC)

Govt. of Odisha

Participant ID	
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Test Date	19/09/2025
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Subject	Main Exam Junior Engineer Electrical
Application Photograph	
Registration Photograph	

Section : **Junior Engineer Electrical**

Q.1 A region surrounding a stationary electric dipole has a/an:

Ans ✔ 1. electric field only

✗ 2. electric current

✗ 3. magnetic field only

✗ 4. magnetic flux

Question Type : **MCQ**
Question ID : **4410091205362**
Option 1 ID : **4410094754960**
Option 2 ID : **4410094754962**
Option 3 ID : **4410094754959**
Option 4 ID : **4410094754961**
Status : **Answered**
Chosen Option : **1**

Q.2 **Match the terms in Column A with their duals in Column B as per Duality Theorem in Electrical Networks.**

Column A	Column B
P. Series	1. Current Source
Q. Voltage Source	2. Parallel
R. Resistance (R)	3. KCL
S. KVL	4. Conductance (G)

Ans
✗ 1. P–1, Q–2, R–3, S–4
✗ 2. P–2, Q–1, R–3, S–4
✗ 3. P–1, Q–2, R–4, S–3
✓ 4. P–2, Q–1, R–4, S–3

Question Type : **MCQ**
Question ID : **4410091187924**
Option 1 ID : **4410094686014**
Option 2 ID : **4410094686015**
Option 3 ID : **4410094686016**
Option 4 ID : **4410094686017**
Status : **Answered**
Chosen Option : **4**

Q.3 **Which of the following is true for an open-loop control system?**

Ans
✗ 1. It automatically corrects errors caused by disturbances.
✗ 2. Output is compared with the desired input to generate an error signal.
✓ 3. It does not use feedback to control the output.
✗ 4. It is more accurate than a closed-loop system under varying conditions.

Question Type : **MCQ**
Question ID : **4410091188552**
Option 1 ID : **4410094688494**
Option 2 ID : **4410094688492**
Option 3 ID : **4410094688493**
Option 4 ID : **4410094688495**
Status : **Answered**
Chosen Option : **4**

Q.4 **At what point is the reset current of a relay determined?**

Ans
✗ 1. When the relay contacts are stuck together
✓ 2. When the current drops and the relay switches back to its original (off) position
✗ 3. When the surrounding temperature reaches its maximum
✗ 4. When the coil is initially powered

Question Type : **MCQ**
Question ID : **4410091185002**
Option 1 ID : **4410094674119**
Option 2 ID : **4410094674121**
Option 3 ID : **4410094674120**
Option 4 ID : **4410094674118**
Status : **Answered**
Chosen Option : **2**

Q.5 As Per IEEE Standard 450-2002, what is the recommended frequency for inspecting batteries under normal float service conditions?

Ans
✔ 1. Monthly or more frequently based on operating conditions
✘ 2. Daily without exception
✘ 3. Only when battery efficiency declines
✘ 4. Annually

Question Type : **MCQ**
Question ID : **4410091195122**
Option 1 ID : **4410094714374**
Option 2 ID : **4410094714376**
Option 3 ID : **4410094714373**
Option 4 ID : **4410094714375**
Status : **Answered**
Chosen Option : **1**

Q.6 A statement is given followed by three conclusions. Select which of the given conclusions is/are true based on the following statement.

Statement:
In a synchronous binary counter, all flip-flops are triggered simultaneously by a common clock pulse.

Conclusions:
I. Synchronous counters eliminate propagation delay between flip-flops, making them faster than ripple counters.
II. In a 4-bit synchronous up-counter, the toggle condition of each flip-flop depends on the logic AND of all lower-order outputs.
III. Synchronous counters are always faster than asynchronous counters regardless of logic gate delays.

Ans
✘ 1. Only I follows.
✘ 2. All I, II, and III follow.
✔ 3. Only I and II follow.
✘ 4. Only II and III follow.

Question Type : **MCQ**
Question ID : **4410091184213**
Option 1 ID : **4410094670884**
Option 2 ID : **4410094670885**
Option 3 ID : **4410094670887**
Option 4 ID : **4410094670886**
Status : **Answered**
Chosen Option : **3**

Q.7 **A statement is followed by a conclusion. Select the correct option based on the given information.**

Statement: **When a synchronous motor is over-excited, it operates with a lagging power factor.**

Conclusion: **The armature current varies with the level of excitation, forming a characteristic V-shaped curve.**

Ans ✔ 1. The Statement is false, but the Conclusion is true.

✘ 2. Both Statement and Conclusion are true, and the Conclusion is the correct explanation of the Statement.

✘ 3. Both Statement and Conclusion are true, but the Conclusion is not the correct explanation of the Statement.

✘ 4. Both the Statement and Conclusion are false.

Question Type : **MCQ**
Question ID : **4410091184454**
Option 1 ID : **4410094671830**
Option 2 ID : **4410094671828**
Option 3 ID : **4410094671829**
Option 4 ID : **4410094671831**
Status : **Answered**
Chosen Option : **3**

Q.8 **In a single-line diagram of a distribution system, the lines represent:**

Ans ✔ 1. phase conductors collectively

✘ 2. three separate conductors

✘ 3. control cables

✘ 4. neutral conductors

Question Type : **MCQ**
Question ID : **4410091200031**
Option 1 ID : **4410094733944**
Option 2 ID : **4410094733942**
Option 3 ID : **4410094733945**
Option 4 ID : **4410094733943**
Status : **Answered**
Chosen Option : **1**

Q.9 **What is the main function of a primary distribution substation within an AC power distribution network?**

Ans ✘ 1. It produces electricity.

✘ 2. It regulates the frequency of electrical power.

✘ 3. It increases voltage for transmission over long distances.

✔ 4. It reduces voltage level for domestic users.

Question Type : **MCQ**
Question ID : **4410091184655**
Option 1 ID : **4410094672650**
Option 2 ID : **4410094672653**
Option 3 ID : **4410094672651**
Option 4 ID : **4410094672652**
Status : **Answered**
Chosen Option : **4**

Q.10 Which of the following conductive metals provides superior resistance to corrosion in outdoor settings when compared to copper?

Ans
✔ 1. Aluminum
✘ 2. Silver
✘ 3. Nickel
✘ 4. Iron

Question Type : **MCQ**
Question ID : **4410091190096**
Option 1 ID : **4410094694533**
Option 2 ID : **4410094694531**
Option 3 ID : **4410094694532**
Option 4 ID : **4410094694534**
Status : **Answered**
Chosen Option : **1**

Q.11 Select the option that is correct regarding the following two statements labelled Assertion (A) and Reason (R).
Assertion (A): In sinusoidal pulse width modulation (SPWM), the width of each pulse is proportional to the amplitude of a sine wave at the corresponding instant.
Reason (R): SPWM reduces the lower-order harmonics in the inverter output voltage, improving waveform quality.

Ans
✘ 1. A is true, but R is false.
✘ 2. Both A and R are true, but R is not the correct explanation of A.
✘ 3. A is false, but R is true.
✔ 4. Both A and R are true, and R is the correct explanation of A.

Question Type : **MCQ**
Question ID : **4410091201754**
Option 1 ID : **4410094740802**
Option 2 ID : **4410094740800**
Option 3 ID : **4410094740803**
Option 4 ID : **4410094740801**
Status : **Answered**
Chosen Option : **2**

Q.12 Match the following columns.

Column A (Binary Number)	Column B (2's Complement)
A. 00010110	1. 10011011
B. 10000111	2. 01111001
C. 01100101	3.11111101
D. 00000011	4. 11101010

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

Question Type : **MCQ**
Question ID : **4410091184121**
Option 1 ID : **4410094670520**
Option 2 ID : **4410094670523**
Option 3 ID : **4410094670522**
Option 4 ID : **4410094670521**
Status : **Answered**
Chosen Option : **3**

Q.13 Given below are three statements labelled Statement and Conclusions. Read the given statements carefully and select the most appropriate option.

Statement: In hilly regions, overhead electrical conductors are subjected to environmental stresses like ice accumulation and wind force.

Conclusions:

I. Wind load applies a vertical downward force in addition to the ice's weight.

II. The total force acting on the conductor results from both horizontal and vertical components.

Ans
1. Neither conclusion follows.
2. Only Conclusion II follows.
3. Only Conclusion I follows.
4. Both conclusions follow.

Question Type : **MCQ**
Question ID : **4410091184628**
Option 1 ID : **4410094672541**
Option 2 ID : **4410094672539**
Option 3 ID : **4410094672538**
Option 4 ID : **4410094672540**
Status : **Answered**
Chosen Option : **2**

Q.14 Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): Penstocks in high-head hydroelectric systems experience intense water pressure.

Reason (R): This is due to the substantial vertical distance between the water source and the turbine, generating a significant hydraulic head.

Ans
1. Both A and R are true, and R is the correct explanation of A.
2. A is true, but R is false.
3. Both A and R are true, but R is not the correct explanation of A.
4. A is false, but R is true.

Question Type : **MCQ**
Question ID : **4410091190256**
Option 1 ID : **4410094695199**
Option 2 ID : **4410094695201**
Option 3 ID : **4410094695200**
Option 4 ID : **4410094695202**
Status : **Answered**
Chosen Option : **1**

Q.15 Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

A. Gearless traction elevator machines are generally used for high-speed, high-rise elevator applications.
R. Gearless machines use direct coupling between the motor and the drive sheave, which enables higher speeds and smoother operation.

Ans
✔ 1. Both A and R are true, and R is the correct explanation of A.
✘ 2. Both A and R are true, but R is not the correct explanation of A.
✘ 3. A is true, but R is false.
✘ 4. A is false, but R is true.

Question Type : **MCQ**
Question ID : **4410091201436**
Option 1 ID : **4410094739528**
Option 2 ID : **4410094739529**
Option 3 ID : **4410094739530**
Option 4 ID : **4410094739531**
Status : **Answered**
Chosen Option : **1**

Q.16 A 5 A current source is connected in parallel with a 4 Ω resistor. What is the equivalent voltage source when transformed using source transformation?

Ans
✘ 1. 10 V voltage source in series with 4 Ω
✘ 2. 5 V voltage source in series with 4 Ω
✔ 3. 20 V voltage source in series with 4 Ω
✘ 4. 4 V voltage source in series with 5 Ω

Question Type : **MCQ**
Question ID : **4410091187907**
Option 1 ID : **4410094685954**
Option 2 ID : **4410094685956**
Option 3 ID : **4410094685955**
Option 4 ID : **4410094685957**
Status : **Answered**
Chosen Option : **3**

Q.17 Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): In a Thermo-Chemical-based biomass Power Plant clearing ash consistently from the base of a fixed-bed gasifier helps prevent blockages and maintains smooth operation.
Reason (R): Excess ash build-up can block airflow from below, leading to lower combustion efficiency.

Ans
✘ 1. A is true, but R is false.
✔ 2. Both A and R are true, and R is the correct explanation of A.
✘ 3. A is false, but R is true.
✘ 4. Both A and R are true, but R is not the correct explanation of A.

Question Type : **MCQ**
Question ID : **4410091195017**
Option 1 ID : **4410094713951**
Option 2 ID : **4410094713949**
Option 3 ID : **4410094713952**
Option 4 ID : **4410094713950**
Status : **Answered**
Chosen Option : **2**

Q.18 Consider the given statement and conclusion and select the correct option.

Statement: Routine tests ensure the electrical machine meets standard performance parameters before dispatch.
Conclusion: Routine tests are conducted on each unit to identify manufacturing defects.

Ans
✗ 1. Statement is true, Conclusion is true, but the Conclusion does not explain the Statement.

✓ 2. Statement is true, Conclusion is true, and the Conclusion correctly explains the Statement.

✗ 3. Statement is true, Conclusion is false.

✗ 4. Statement is false, Conclusion is true.

Question Type : **MCQ**
Question ID : **4410091202428**
Option 1 ID : **4410094743344**
Option 2 ID : **4410094743343**
Option 3 ID : **4410094743345**
Option 4 ID : **4410094743346**
Status : **Answered**
Chosen Option : **2**

Q.19 SF6 circuit breakers are mainly used because:

Ans
✗ 1. SF6 is cheap

✗ 2. SF6 is a good conductor

✗ 3. SF6 is flammable

✓ 4. SF6 has high dielectric strength and arc-quenching property

Question Type : **MCQ**
Question ID : **4410091200144**
Option 1 ID : **4410094734412**
Option 2 ID : **4410094734410**
Option 3 ID : **4410094734413**
Option 4 ID : **4410094734411**
Status : **Answered**
Chosen Option : **4**

Q.20 Which of the following correctly defines locally exponentially stable for the zero solution x(t)≡0?

Ans
✗ 1. For all $\epsilon>0$, there exists $\delta>0$ such that if $\|x(0)\|<\delta$, then $\|x(t)\|<\epsilon$, $t\geq 0$.

✓ 2. There exist positive constants α, β, δ such that if $\|x(0)\| < \delta$, then $\|x(t)\| \leq \alpha\|x(0)\|e^{-\beta t}$, $t \geq 0$.

✗ 3. The zero solution is Lyapunov stable and for all $x(0)\in R^n$, $\lim_{t\to\infty}x(t)=0$.

✗ 4. The zero solution is Lyapunov stable, and there exists $\delta > 0$ such that if $\|x(0)\| < \delta$, then $\lim_{t\to\infty} x(t) = 0$.

Question Type : **MCQ**
Question ID : **4410091188588**
Option 1 ID : **4410094694858**
Option 2 ID : **4410094694856**
Option 3 ID : **4410094694857**
Option 4 ID : **4410094694855**
Status : **Answered**
Chosen Option : **3**

Q.21 What is the primary purpose of the differential input stage in an OPAMP equivalent circuit?

Ans
✗ 1. To provide low input impedance
✗ 2. To provide temperature compensation
✗ 3. To reduce the output impedance
✓ 4. To amplify the difference between the two input voltages

Question Type : **MCQ**
Question ID : **4410091186496**
Option 1 ID : **4410094680198**
Option 2 ID : **4410094680196**
Option 3 ID : **4410094680197**
Option 4 ID : **4410094680199**
Status : **Answered**
Chosen Option : **4**

Q.22 How many bits can a serial adder process at a time?

Ans
✗ 1. 3 bit
✓ 2. 1 bit
✗ 3. 4 bit
✗ 4. 8 bit

Question Type : **MCQ**
Question ID : **4410091183604**
Option 1 ID : **4410094668539**
Option 2 ID : **4410094668537**
Option 3 ID : **4410094668538**
Option 4 ID : **4410094668540**
Status : **Answered**
Chosen Option : **3**

Q.23 Match Column I with Column II in context of the transformer polarity test.

Column I	Column II
A. Additive polarity	1. Voltage increases when terminal
B. Subtractive polarity	2. Voltage reduces or neutralizes up
C. Reason for conducting polarity test	3. Helps verify correct terminal ide
D. Device used to perform polarity test	4. Voltmeter

Ans
✗ 1. A-3, B-4, C-2, D-1
✗ 2. A-2, B-1, C-4, D-3
✓ 3. A-1, B-2, C-3, D-4
✗ 4. A-4, B-3, C-1, D-2

Question Type : **MCQ**
Question ID : **4410091184246**
Option 1 ID : **4410094671021**
Option 2 ID : **4410094671019**
Option 3 ID : **4410094671018**
Option 4 ID : **4410094671020**
Status : **Answered**
Chosen Option : **3**

Q.24 A DC generator with lap winding has 6 poles and contains 200 conductors on its armature. It operates at a speed of 1200 revolutions per minute, and the magnetic flux per pole is 0.04 Weber. Calculate the electromotive force (EMF) produced by the generator.

Ans
✗ 1. 320 V
✓ 2. 160 V
✗ 3. 80 V
✗ 4. 240 V

Question Type : **MCQ**
Question ID : **4410091184238**
Option 1 ID : **4410094670988**
Option 2 ID : **4410094670986**
Option 3 ID : **4410094670987**
Option 4 ID : **4410094670989**
Status : **Answered**
Chosen Option : **2**

Q.25 Vertical delay line in Cathode Ray Oscilloscope (CRO):

Ans
✗ 1. Gives proper time for thermionic emissions of electrons
✓ 2. Allows the horizontal sweep to start prior to vertical deflection
✗ 3. Delays the signal voltage by 200 ns
✗ 4. Delays the generation of sweep voltage

Question Type : **MCQ**
Question ID : **4410091236955**
Option 1 ID : **4410094881376**
Option 2 ID : **4410094881378**
Option 3 ID : **4410094881377**
Option 4 ID : **4410094881379**
Status : **Answered**
Chosen Option : **3**

Q.26 Simplify the given Boolean expression.

A + AB' + AB

Ans
✓ 1. A
✗ 2. B
✗ 3. A + B
✗ 4. A + B'

Question Type : **MCQ**
Question ID : **4410091183705**
Option 1 ID : **4410094668886**
Option 2 ID : **4410094668885**
Option 3 ID : **4410094668887**
Option 4 ID : **4410094668888**
Status : **Answered**
Chosen Option : **1**

Q.27 In a synchronous motor, if β is impedance angle and δ is torque angle, then the maximum developed mechanical power is obtained when:

Ans
✔ 1. $\delta = \beta$
✘ 2. $\delta = 180 - 2\beta$
✘ 3. $\delta = 180 - \beta$
✘ 4. $\delta = 2\beta$

Question Type : **MCQ**
Question ID : **4410091231488**
Option 1 ID : **4410094859436**
Option 2 ID : **4410094859433**
Option 3 ID : **4410094859435**
Option 4 ID : **4410094859434**
Status : **Answered**
Chosen Option : **4**

Q.28 In a gobar gas plant, methane is produced mainly through:

Ans
✔ 1. anaerobic digestion
✘ 2. photosynthesis
✘ 3. combustion
✘ 4. fermentation with oxygen

Question Type : **MCQ**
Question ID : **4410091201766**
Option 1 ID : **4410094740849**
Option 2 ID : **4410094740848**
Option 3 ID : **4410094740850**
Option 4 ID : **4410094740851**
Status : **Answered**
Chosen Option : **1**

Q.29 Match each test used for single-phase induction motor evaluation with its main objective:

Tests	Purpose
A) No-load test	1) Find starting torque
B) Locked rotor test	2) Calculate efficiency at full load
C) Load test	3) Identify core and friction losses
D) Temperature rise test	4) Assess heating during operation

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

Question Type : **MCQ**
Question ID : **4410091195152**
Option 1 ID : **4410094714496**
Option 2 ID : **4410094714495**
Option 3 ID : **4410094714494**
Option 4 ID : **4410094714493**
Status : **Answered**
Chosen Option : **2**

Q.30 How does the presence of a nearby conductor influence the current distribution within a conductor due to proximity effect?

Ans

✗ 1. The current flows solely on the outer surface of the conductor.

✗ 2. The current spreads evenly throughout the cross-section.

✓ 3. The current density increases on the side facing the nearby conductor.

✗ 4. The current is limited to the center of the conductor.

Question Type : **MCQ**
Question ID : **4410091184639**
Option 1 ID : **4410094672592**
Option 2 ID : **4410094672591**
Option 3 ID : **4410094672590**
Option 4 ID : **4410094672593**
Status : **Answered**
Chosen Option : **3**

Q.31 Identify the correct colour bands for a resistor with a resistance of 1 kilo-ohm and a tolerance of ±5%.

Ans

✗ 1. Brown, Black, Orange, Gold

✗ 2. Red, Black, Brown, Silver

✓ 3. Brown, Black, Red, Gold

✗ 4. Orange, Black, Brown, Gold

Question Type : **MCQ**
Question ID : **4410091190079**
Option 1 ID : **4410094694465**
Option 2 ID : **4410094694464**
Option 3 ID : **4410094694463**
Option 4 ID : **4410094694466**
Status : **Answered**
Chosen Option : **3**

Q.32 In a single-phase voltage controller with a resistive load, what effect does reducing the TRIAC firing angle from 30° to 0° have on the output power?

Ans

✗ 1. Output power decreases

✗ 2. Output power fluctuates

✗ 3. Output power stays the same

✓ 4. Output power increases

Question Type : **MCQ**
Question ID : **4410091190232**
Option 1 ID : **4410094695105**
Option 2 ID : **4410094695106**
Option 3 ID : **4410094695104**
Option 4 ID : **4410094695103**
Status : **Answered**
Chosen Option : **1**

Q.33 As per IS 325-1970, which of the following is a routine test for a three-phase induction motor?

Ans
✗ 1. Heat run test
✗ 2. Efficiency test
✓ 3. No-load test
✗ 4. Overload test

Question Type : **MCQ**
Question ID : **4410091202398**
Option 1 ID : **4410094743286**
Option 2 ID : **4410094743283**
Option 3 ID : **4410094743285**
Option 4 ID : **4410094743284**
Status : **Answered**
Chosen Option : **3**

Q.34 Select the option that is correct regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): Wattmeters can measure high voltage and current directly without any modification.
Reason (R): Instrument transformers are used to step down voltage and current for safe operation of wattmeters in high power circuits.

Ans
✗ 1. Both A and R are true, but R is not the correct explanation of A.
✗ 2. A is true, but R is false.
✓ 3. A is false, but R is true.
✗ 4. Both A and R are true, and R is the correct explanation of A.

Question Type : **MCQ**
Question ID : **4410091188079**
Option 1 ID : **4410094686563**
Option 2 ID : **4410094686565**
Option 3 ID : **4410094686564**
Option 4 ID : **4410094686562**
Status : **Answered**
Chosen Option : **3**

Q.35 Select the option that is correct regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): A common-drain (CD) amplifier, also called a source follower, has a voltage gain slightly less than unity but provides excellent buffering between stages.
Reason (R): In the CD configuration, the output is taken from the drain terminal, and the gain is low due to the high output resistance.

Ans
✗ 1. A is false, but R is true.
✓ 2. A is true, but R is false.
✗ 3. Both A and R are true, but R is not the correct explanation of A.
✗ 4. Both A and R are true, and R is the correct explanation of A.

Question Type : **MCQ**
Question ID : **4410091185665**
Option 1 ID : **4410094676883**
Option 2 ID : **4410094676884**
Option 3 ID : **4410094676885**
Option 4 ID : **4410094676886**
Status : **Answered**
Chosen Option : **3**

Q.36 Match each item in Column A with its correct description in Column B related to voltage follower circuit designed using OP-AMP.

Column A – Parameter	Column B – Description
A. Voltage gain	1. Very high
B. Input resistance	2. Low
C. Output resistance	3. Unity (≈1)
D. Feedback type	4. Negative

Ans
✗ 1. A–1, B–3, C–2, D–4
✓ 2. A–3, B–1, C–2, D–4
✗ 3. A–1, B–4, C–2, D–3
✗ 4. A–4, B–1, C–3, D–2

Question Type : **MCQ**
Question ID : **4410091185897**
Option 1 ID : **4410094677794**
Option 2 ID : **4410094677795**
Option 3 ID : **4410094677796**
Option 4 ID : **4410094677793**
Status : **Answered**
Chosen Option : **2**

Q.37 Match the types of power losses (Column A) with their corresponding conditions in an HVDC system (Column B):

Column A (Type of Loss)	Column B (HVDC Condition)
A. Sheath Loss	1. Reduced due to absence of alternating frequ
B. Corona Loss	2. Only leakage current flows; no charging or e
C. Skin Effect	3. Not present because current spreads evenly t
D. Reactive Power Loss	4. Insignificant since HVDC operates at unity p

Ans
✗ 1. A-4, B-3, C-1, D-2
✗ 2. A-1, B-2, C-3, D-4
✗ 3. A-3, B-4, C-2, D-1
✓ 4. A-2, B-1, C-3, D-4

Question Type : **MCQ**
Question ID : **4410091184633**
Option 1 ID : **4410094672560**
Option 2 ID : **4410094672558**
Option 3 ID : **4410094672561**
Option 4 ID : **4410094672559**
Status : **Answered**
Chosen Option : **4**

Q.38 Read the given statement(s) and conclusions carefully. Assuming that the information given in the statement(s) 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 statement(s).

Statement: Copper wires coated with enamel are commonly utilised in the windings of electrical equipment such as motors, transformers, and generators.

Conclusion I: These wires eliminate the need for additional insulation between the turns, allowing for more compact and efficient designs in motors, transformers, and generators.

Conclusion II: These wires are prone to frequent short circuits.

Ans
1. Both conclusions follow.
2. Only Conclusion I follows.
3. Neither conclusion follows.
4. Only Conclusion II follows.

Question Type : **MCQ**
Question ID : **4410091190185**
Option 1 ID : **4410094694901**
Option 2 ID : **4410094694899**
Option 3 ID : **4410094694902**
Option 4 ID : **4410094694900**
Status : **Answered**
Chosen Option : **2**

Q.39 Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): As temperature rises, the dielectric strength of insulating materials tends to decrease.

Reason (R): A rise in temperature lowers the insulation's resistivity, which can result in premature electrical breakdown.

Ans
1. A is true, but R is false.
2. A is false, but R is true.
3. Both A and R are true, and R is the correct explanation of A.
4. Both A and R are true, but R is not the correct explanation of A.

Question Type : **MCQ**
Question ID : **4410091190106**
Option 1 ID : **4410094694573**
Option 2 ID : **4410094694574**
Option 3 ID : **4410094694571**
Option 4 ID : **4410094694572**
Status : **Answered**
Chosen Option : **1**

Q.40 Read the given statement(s) and conclusions carefully. Assuming that the information given in the statement(s) 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 statement(s).

Statement: Nichrome is commonly used in devices like electric heaters, toasters, and hair dryers due to its unique properties.

Conclusion I: Nichrome has high electrical conductivity.

Conclusion II: Nichrome can withstand high temperatures without oxidising.

Ans
✔ 1. Only Conclusion II follows.

✘ 2. Neither conclusion follows.

✘ 3. Both conclusions follow.

✘ 4. Only Conclusion I follows.

Question Type : **MCQ**
Question ID : **4410091190089**
Option 1 ID : **4410094694504**
Option 2 ID : **4410094694506**
Option 3 ID : **4410094694505**
Option 4 ID : **4410094694503**
Status : **Answered**
Chosen Option : **1**

Q.41 Match the following Energy Band Diagram.

Column A (Type of Semiconductor / Condition)	**Column B** (Position of Fermi Level E_F)
A1. Intrinsic semiconductor at 0 K	P. Lies exactly in the middle of the bandgap, but no carriers are present in conduction band
A2. Heavily doped n-type (degenerate) semiconductor	Q. Lies within the conduction band
A3. Lightly doped p-type semiconductor at room temperature	R. Lies just above the valence band
A4. Intrinsic semiconductor at T > 0 K	S. Lies at the center of the bandgap, with some thermally excited carriers

Ans
✘ 1. A1 → Q, A2 → P, A3 → S, A4 → R

✘ 2. A1 → S, A2 → Q, A3 → P, A4 → R

✘ 3. A1 → P, A2 → R, A3 → Q, A4 → S

✔ 4. A1 → P, A2 → Q, A3 → R, A4 → S

Question Type : **MCQ**
Question ID : **4410091185195**
Option 1 ID : **4410094674964**
Option 2 ID : **4410094674962**
Option 3 ID : **4410094674961**
Option 4 ID : **4410094674963**
Status : **Answered**
Chosen Option : **4**

Q.42 What is the critical point in the Nyquist plot?

Ans
✗ 1. (0, 0)
✗ 2. (1, 0)
✓ 3. (−1, 0)
✗ 4. (0, 1)

Question Type : **MCQ**
Question ID : **4410091191107**
Option 1 ID : **4410094698710**
Option 2 ID : **4410094698709**
Option 3 ID : **4410094698708**
Option 4 ID : **4410094698707**
Status : **Answered**
Chosen Option : **3**

Q.43 Which is the most important safety practice for a power station operator before working on live equipment?

Ans
✗ 1. Checking room temperature
✓ 2. Implementing lockout–tagout procedures
✗ 3. Wearing bright-coloured clothing
✗ 4. Cleaning tools

Question Type : **MCQ**
Question ID : **4410091202048**
Option 1 ID : **4410094741956**
Option 2 ID : **4410094741955**
Option 3 ID : **4410094741954**
Option 4 ID : **4410094741957**
Status : **Answered**
Chosen Option : **2**

Q.44 Read the given statement(s) and conclusions carefully. Assuming that the information given in the statement(s) 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 statement(s).

Statement: The eddy current disc in a single-phase energy meter rotates due to the interaction of magnetic fluxes produced by the current and pressure coils.

Conclusion I: The speed of rotation of the disc is directly proportional to the instantaneous power consumed by the load.
Conclusion II: The braking magnet opposes the motion of the disc to stabilise the rotation according to power usage.

Ans
✗ 1. Both Conclusion I and II follow.
✓ 2. Only Conclusion II follows.
✗ 3. Only Conclusion I follows.
✗ 4. Neither Conclusion I nor II follow.

Question Type : **MCQ**
Question ID : **4410091188062**
Option 1 ID : **4410094686500**
Option 2 ID : **4410094686499**
Option 3 ID : **4410094686498**
Option 4 ID : **4410094686501**
Status : **Answered**
Chosen Option : **1**

Q.45 As per IS 900-1965, the lubrication of single-phase and three-phase induction motors should generally be done:

Ans
✗ 1. every day
✗ 2. every week
✗ 3. once in a year
✓ 4. every 2000 to 3000 hours of operation

Question Type : **MCQ**
Question ID : **4410091202357**
Option 1 ID : **4410094743119**
Option 2 ID : **4410094743120**
Option 3 ID : **4410094743122**
Option 4 ID : **4410094743121**
Status : **Answered**
Chosen Option : **3**

Q.46 In the following question, two statements are given – one labeled as Assertion (A) and the other as Reason (R). Examine both statements carefully and select the correct answer using the codes given below:

Assertion (A):
A built-in potential exists across a p–n junction even when no external voltage is applied.

Reason (R):
It arises because of the difference in carrier concentration across the p-type and n-type regions, leading to diffusion of carriers until equilibrium is reached.

Ans
✗ 1. A is true, but R is false.
✗ 2. A is false, but R is true.
✓ 3. Both A and R are true, and R is the correct explanation of A.
✗ 4. Both A and R are true, but R is not the correct explanation of A.

Question Type : **MCQ**
Question ID : **4410091188429**
Option 1 ID : **4410094687994**
Option 2 ID : **4410094687993**
Option 3 ID : **4410094687996**
Option 4 ID : **4410094687995**
Status : **Answered**
Chosen Option : **3**

Q.47 Which of the following represents a drawback of performing an insulation resistance test (using a megger)?

Ans
✗ 1. Its inability to detect short-circuit faults.
✗ 2. It provides accurate mechanical strength of insulation.
✓ 3. It increases the risk of damaging insulation during testing.
✗ 4. Its limitation to AC resistance measurement only.

Question Type : **MCQ**
Question ID : **4410091195085**
Option 1 ID : **4410094714225**
Option 2 ID : **4410094714228**
Option 3 ID : **4410094714226**
Option 4 ID : **4410094714227**
Status : **Answered**
Chosen Option : **1**

Q.48 What is the main source of heat used to melt metal in an electric arc furnace?

Ans
✔ 1. Electric arc formed between electrodes and the metal charge
✗ 2. Emission of radiant energy from intense light
✗ 3. Chemical interaction between flux and metal
✗ 4. Electrical resistance within the metal

Question Type : **MCQ**
Question ID : **4410091190023**
Option 1 ID : **4410094694242**
Option 2 ID : **4410094694240**
Option 3 ID : **4410094694239**
Option 4 ID : **4410094694241**
Status : **Answered**
Chosen Option : **1**

Q.49 A statement is given followed by two conclusions. Select which of the given conclusions is/are true based on the following statement.

Statement:
An RTD is a temperature sensor that works on the principle that the resistance of a metal increases with temperature.

Conclusions:
I. RTDs are suitable for precise temperature measurements over a wide range.
II. RTDs are primarily used for pressure measurement in industrial processes.

Ans
✗ 1. Neither I nor II follows.
✗ 2. Both I and II follow.
✔ 3. Only Conclusion I follows.
✗ 4. Only Conclusion II follows.

Question Type : **MCQ**
Question ID : **4410091184400**
Option 1 ID : **4410094671616**
Option 2 ID : **4410094671617**
Option 3 ID : **4410094671619**
Option 4 ID : **4410094671618**
Status : **Answered**
Chosen Option : **3**

Q.50 Given below are three statements: one is labelled as Statement and the other two are labelled as its Conclusion, select the correct answer from the options given below.

Statement: A solar tracker system can generate more electricity compared to a stationary solar panel installation.

Conclusion I: This happens because the tracker adjusts the panel's position to face the sun for a longer portion of the day.
Conclusion II: Stationary panels are unable to produce electricity during early morning and late afternoon hours.

Ans
✔ 1. Only Conclusion I follows.
✗ 2. Only Conclusion II follows.
✗ 3. Both conclusions follow.
✗ 4. Neither conclusion follows.

Question Type : **MCQ**
Question ID : **4410091195039**
Option 1 ID : **4410094714033**
Option 2 ID : **4410094714034**
Option 3 ID : **4410094714035**
Option 4 ID : **4410094714036**
Status : **Answered**
Chosen Option : **3**

Q.51 Match each SCR triggering technique with its corresponding feature.

Column A (Triggering Methods)	Column B (Charact
A. Gate Triggering	1. Initiated by rapid voltage increase
B. dv/dt Triggering	2. Most widely used and easily controlle
C. Thermal Triggering	3. Triggered by heat raising junction ten
D. Light Triggering	4. Involves light-induced charge carriers

Ans
✗ 1. A-2, B-3, C-1, D-4

✗ 2. A-1, B-2, C-3, D-4

✓ 3. A-2, B-1, C-3, D-4

✗ 4. A-1, B-3, C-2, D-4

Question Type : **MCQ**
Question ID : **4410091190224**
Option 1 ID : **4410094695077**
Option 2 ID : **4410094695075**
Option 3 ID : **4410094695076**
Option 4 ID : **4410094695078**
Status : **Answered**
Chosen Option : **3**

Q.52 Consider the given statement and conclusion and select the correct option.

Statement: The Swinburne's test is a no-load test conducted on DC shunt machines.
Conclusion: The Swinburne's test can be used to find efficiency under load without actually loading the machine.

Ans
✓ 1. Statement is true, Conclusion is true, and the Conclusion correctly explains the Statement.

✗ 2. Statement is true, Conclusion is true, but the Conclusion does not explain the Statement.

✗ 3. Statement is false, Conclusion is true.

✗ 4. Statement is true, Conclusion is false.

Question Type : **MCQ**
Question ID : **4410091202392**
Option 1 ID : **4410094743259**
Option 2 ID : **4410094743260**
Option 3 ID : **4410094743262**
Option 4 ID : **4410094743261**
Status : **Answered**
Chosen Option : **1**

Q.53 **Match the fault type in Column A with its typical cause in Column B:**

Column A (Fault Type)	Column B (Cause)
1. Overload	A. Current exceeding device limits
2. Earth fault	B. Breakdown of insulation
3. Short circuit	C. Conductors touching directly

Ans
✗ 1. 1–C, 2–A, 3–B
✓ 2. 1–A, 2–B, 3–C
✗ 3. 1–A, 2–C, 3–B
✗ 4. 1–B, 2–C, 3–A

Question Type : **MCQ**
Question ID : **4410091195113**
Option 1 ID : **4410094714339**
Option 2 ID : **4410094714337**
Option 3 ID : **4410094714340**
Option 4 ID : **4410094714338**
Status : **Answered**
Chosen Option : **2**

Q.54 **Which of the following expresses the correct relationship between luminous flux (lumen) and luminous intensity (candela)?**

Ans
✗ 1. 1 lumen = 1 candela/m²
✗ 2. 1 candela = 1 lumen × 1 steradian
✗ 3. 1 candela = 1 lumen/m²
✓ 4. 1 lumen = 1 candela × 1 steradian

Question Type : **MCQ**
Question ID : **4410091190064**
Option 1 ID : **4410094694405**
Option 2 ID : **4410094694404**
Option 3 ID : **4410094694406**
Option 4 ID : **4410094694403**
Status : **Answered**
Chosen Option : **3**

Q.55 **Which of the following options is correct for the given statement and conclusion?**

Statement: In a balanced three-phase system, the apparent power in both star and delta connections is the same, provided the line voltage and line current are the same.
Conclusion: The total apparent power does not depend on the type of connection (star or delta) as long as the line voltage and line current remain unchanged.

Ans
✗ 1. The statement is false, but the conclusion is true.
✗ 2. The statement is true, but the conclusion is false.
✓ 3. Both the statement and conclusion are true, and the conclusion is the correct explanation.
✗ 4. Both the statement and conclusion are true, but the conclusion is not the correct explanation.

Question Type : **MCQ**
Question ID : **4410091187949**
Option 1 ID : **4410094686121**
Option 2 ID : **4410094686120**
Option 3 ID : **4410094686118**
Option 4 ID : **4410094686119**
Status : **Answered**
Chosen Option : **3**

Q.56 In the following question, two statements are given – one labeled as Assertion (A) and the other as Reason (R). Examine both statements carefully and select the correct answer using the codes given below:

Assertion (A):
Transition capacitance CT dominates under reverse bias, whereas diffusion capacitance CD dominates under forward bias in a P–N junction diode.

Reason (R):
CT arises due to change in depletion layer width with applied voltage.

Ans
✗ 1. A is false, but R is true.

✓ 2. Both A and R are true, and R is the correct explanation of A.

✗ 3. A is true, but R is false.

✗ 4. Both A and R are true, but R is not the correct explanation of A.

Question Type : **MCQ**
Question ID : **4410091188441**
Option 1 ID : **4410094688040**
Option 2 ID : **4410094688043**
Option 3 ID : **4410094688041**
Option 4 ID : **4410094688042**
Status : **Answered**
Chosen Option : **2**

Q.57 Select the option that is correct regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): An n-channel E-MOSFET conducts only when the gate-to-source voltage VGS exceeds a positive threshold, while a p-channel E-MOSFET conducts when VGS is more negative than its threshold voltage.

Reason (R): In an E-MOSFET, the channel is physically present at zero gate bias, and the gate voltage modulates the current through an existing channel.

Ans
✗ 1. Both A and R are true, but R is not the correct explanation of A.

✗ 2. A is false, but R is true.

✓ 3. A is true, but R is false.

✗ 4. Both A and R are true, and R is the correct explanation of A.

Question Type : **MCQ**
Question ID : **4410091185722**
Option 1 ID : **4410094677098**
Option 2 ID : **4410094677095**
Option 3 ID : **4410094677096**
Option 4 ID : **4410094677097**
Status : **Answered**
Chosen Option : **2**

Q.58 A statement is given followed by two conclusions. Select the correct option based statement and conclusion given below.

Statement: Phantom loading is commonly employed to test energy meters designed for high loads.

Conclusion I: Using phantom loading minimises energy wastage during meter testing.
Conclusion II: Phantom loading is unsuitable for testing single-phase energy meters.

Ans
✗ 1. Both conclusions follow.
✗ 2. Only Conclusion II follows.
✗ 3. Neither conclusion follows.
✓ 4. Only Conclusion I follows.

Question Type : **MCQ**
Question ID : **4410091184519**
Option 1 ID : **4410094672098**
Option 2 ID : **4410094672097**
Option 3 ID : **4410094672099**
Option 4 ID : **4410094672096**
Status : **Answered**
Chosen Option : **1**

Q.59 Which of the following bridges can be used to measure inductance of high 'quality factor' coils?

Ans
✗ 1. Maxwell bridge
✓ 2. Hay's bridge
✗ 3. Anderson's bridge
✗ 4. Owen's bridge

Question Type : **MCQ**
Question ID : **4410091236533**
Option 1 ID : **4410094879706**
Option 2 ID : **4410094879707**
Option 3 ID : **4410094879708**
Option 4 ID : **4410094879705**
Status : **Answered**
Chosen Option : **3**

Q.60 In an electric iron, which component primarily controls the temperature?

Ans
✗ 1. Coil
✓ 2. Thermostat
✗ 3. Pilot lamp
✗ 4. Power cord

Question Type : **MCQ**
Question ID : **4410091200578**
Option 1 ID : **4410094736076**
Option 2 ID : **4410094736077**
Option 3 ID : **4410094736078**
Option 4 ID : **4410094736079**
Status : **Answered**
Chosen Option : **2**

Q.61 What happens to the pointer of a PMMC (Permanent Magnet Moving Coil) instrument when the damping is excessively high?

Ans
✗ 1. It moves beyond the final position (overshoots).
✗ 2. It keeps oscillating continuously.
✓ 3. It approaches the final reading slowly without any oscillations.
✗ 4. It remains stationary.

Question Type : **MCQ**
Question ID : **4410091184562**
Option 1 ID : **4410094672284**
Option 2 ID : **4410094672282**
Option 3 ID : **4410094672283**
Option 4 ID : **4410094672285**
Status : **Answered**
Chosen Option : **1**

Q.62 Which of the following is a type of I/O module that is used to send analogue signals to actuators?

Ans
✗ 1. Digital Input Module
✗ 2. Digital Output Module
✗ 3. Analogue Input Module
✓ 4. Analogue Output Module

Question Type : **MCQ**
Question ID : **4410091191127**
Option 1 ID : **4410094698788**
Option 2 ID : **4410094698787**
Option 3 ID : **4410094698790**
Option 4 ID : **4410094698789**
Status : **Answered**
Chosen Option : **1**

Q.63 According to IS 1271-1958, which insulation category generally consists of materials such as mica, glass fibre, and asbestos combined with appropriate binders?

Ans
✓ 1. Class B
✗ 2. Class C
✗ 3. Class F
✗ 4. Class H

Question Type : **MCQ**
Question ID : **4410091195080**
Option 1 ID : **4410094714206**
Option 2 ID : **4410094714207**
Option 3 ID : **4410094714208**
Option 4 ID : **4410094714205**
Status : **Answered**
Chosen Option : **2**

Q.64 An IGBT combines the characteristics of:

Ans
1. BJT and SCR
2. MOSFET and BJT
3. MOSFET and SCR
4. JFET and BJT

Question Type : **MCQ**
Question ID : **4410091201565**
Option 1 ID : **4410094740028**
Option 2 ID : **4410094740029**
Option 3 ID : **4410094740030**
Option 4 ID : **4410094740031**
Status : **Answered**
Chosen Option : **3**

Q.65 Which of the following is an example of a soft magnetic material used in transformer core manufacturing?

Ans
1. Bismuth
2. Tungsten
3. Silicon steel
4. Manganin

Question Type : **MCQ**
Question ID : **4410091201470**
Option 1 ID : **4410094739661**
Option 2 ID : **4410094739663**
Option 3 ID : **4410094739660**
Option 4 ID : **4410094739662**
Status : **Answered**
Chosen Option : **3**

Q.66 Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): An undercut is a electrical welding defect that weakens the joint's structural integrity.
Reason (R): This defect typically arises from improper electrode positioning or excessive welding speed.

Ans
1. Both A and R are true, but R is not the correct explanation of A.
2. Both A and R are true, and R is the correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

Question Type : **MCQ**
Question ID : **4410091190062**
Option 1 ID : **4410094694396**
Option 2 ID : **4410094694395**
Option 3 ID : **4410094694397**
Option 4 ID : **4410094694398**
Status : **Answered**
Chosen Option : **2**

Q.67 A statement is given followed by two conclusions. Identify which of the given conclusions is/are true based on the following statement.

Statement:
The Boolean expression F = (A + B)(A + C)(A + D) simplifies to A + BCD.

Conclusions:
I. In a Product of Sums expression, if one variable is common across all terms, then it can dominate the output using the absorption law.
II. The expression A + BCD represents the minimal form of the function, where the product term covers the condition when A = 0.

Ans
✗ 1. Neither conclusion I nor II follows.
✗ 2. Only conclusion I follows.
✗ 3. Only conclusion II follows.
✓ 4. Both conclusions I and II follow.

Question Type : **MCQ**
Question ID : **4410091183826**
Option 1 ID : **4410094670508**
Option 2 ID : **4410094670511**
Option 3 ID : **4410094670510**
Option 4 ID : **4410094670509**
Status : **Answered**
Chosen Option : **2**

Q.68 Match the faults in motors with their correct protection method.

Motor Fault	Protection Method
A. Overload	1. Instantaneous overcurrent relay
B. Short circuit	2. Thermal overload relay
C. Single phasing	3. Phase failure relay
D. Stator winding insulation failure	4. Earth fault relay

Ans
✗ 1. A–3, B–4, C–1, D–2
✗ 2. A–2, B–4, C–1, D–3
✓ 3. A–2, B–1, C–3, D–4
✗ 4. A–4, B–2, C–3, D–1

Question Type : **MCQ**
Question ID : **4410091200206**
Option 1 ID : **4410094734651**
Option 2 ID : **4410094734653**
Option 3 ID : **4410094734650**
Option 4 ID : **4410094734652**
Status : **Answered**
Chosen Option : **3**

Q.69 A single-phase AC supply of V = 100∠0° V is applied to a parallel circuit consisting of a resistor R = 10 Ω and capacitor with reactance X_C = 10 Ω. Using complex algebra, what is the total current I in complex form?

Ans
✗ 1. 10 − j10 A
✗ 2. 5 + j5 A
✗ 3. 0 + j10 A
✓ 4. 10 + j10 A

Question Type : **MCQ**
Question ID : **4410091187939**
Option 1 ID : **4410094686078**
Option 2 ID : **4410094686080**
Option 3 ID : **4410094686081**
Option 4 ID : **4410094686079**
Status : **Answered**
Chosen Option : **1**

Q.70 A statement is given followed by two conclusions. Select the correct answer from the options given below.

Statement: Overcurrent relays might perform slowly or lack selectivity under certain conditions in a power system.

Conclusion I: Distance protection is more suitable because it functions by measuring impedance.
Conclusion II: Overcurrent relays are superior in detecting faults that occur at greater distances from their location.

Ans
✗ 1. Only Conclusion II follows.
✓ 2. Only Conclusion I follows.
✗ 3. Neither conclusion follow.
✗ 4. Both conclusions follow.

Question Type : **MCQ**
Question ID : **4410091184983**
Option 1 ID : **4410094674047**
Option 2 ID : **4410094674046**
Option 3 ID : **4410094674049**
Option 4 ID : **4410094674048**
Status : **Answered**
Chosen Option : **2**

Q.71 Match the types of faults in power systems with their correct description.

Type of Fault	Description
A. Single line-to-ground fault (LG)	1. Two conductors come into contact withou
B. Line-to-line fault (LL)	2. All three conductors come into contact w
C. Double line-to-ground fault (LLG)	3. Two conductors come into contact and a
D. Three-phase fault (LLL)	4. One conductor comes into contact with t

Ans
✗ 1. A–1, B–4, C–2, D–3
✗ 2. A–3, B–2, C–4, D–1
✗ 3. A–2, B–3, C–1, D–4
✓ 4. A–4, B–1, C–3, D–2

Question Type : **MCQ**
Question ID : **4410091200127**
Option 1 ID : **4410094734343**
Option 2 ID : **4410094734344**
Option 3 ID : **4410094734345**
Option 4 ID : **4410094734342**
Status : **Answered**
Chosen Option : **4**

Q.72 Select the option that is correct regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A):

For a system with open-loop transfer function

$$G(s)H(s) = \frac{K(s+3)}{s(s+2)(s+4)}$$

the root locus will have a branch on the real axis between s=−3 and s=−2.

Reason (R):

A point on the real axis belongs to the root locus if the total number of finite poles and zeros to the right of that point is odd.

Ans
✗ 1. Both the assertion and the reason are true, but the reason is not the correct explanation of the assertion.

✗ 2. Both the assertion and the reason are true, and the reason is the correct explanation of the assertion.

✓ 3. The assertion is false, but the reason is true.

✗ 4. The assertion is true, but the reason is false.

Question Type : **MCQ**
Question ID : **4410091191131**
Option 1 ID : **4410094698805**
Option 2 ID : **4410094698806**
Option 3 ID : **4410094698803**
Option 4 ID : **4410094698804**
Status : **Answered**
Chosen Option : **3**

Q.73 Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

Assertion (A): In a Power MOSFET, a thin insulating oxide layer separates the gate terminal from the conducting channel.

Reason (R): This insulating layer blocks current flow into the gate, allowing the device to be controlled by voltage rather than current.

Ans
✓ 1. Both A and R are true, and R is the correct explanation of A.

✗ 2. A is true, but R is false.

✗ 3. A is false, but R is true.

✗ 4. Both A and R are true, but R is not the correct explanation of A.

Question Type : **MCQ**
Question ID : **4410091190213**
Option 1 ID : **4410094695023**
Option 2 ID : **4410094695025**
Option 3 ID : **4410094695026**
Option 4 ID : **4410094695024**
Status : **Answered**
Chosen Option : **1**

Q.74 An amplifier has an open-loop gain A = 200. It is connected with a feedback network having a feedback factor β = 0.02.
If the feedback is negative, calculate the closed-loop gain.
If the same feedback network is connected in positive feedback mode, determine the closed-loop gain.
Which of the following is correct?

Ans
✗ 1. Negative feedback gain = -66.67, Positive feedback gain = 40
✗ 2. Negative feedback gain = 25, Positive feedback gain = -50
✗ 3. Negative feedback gain = -40, Positive feedback gain = 66.67
✓ 4. Negative feedback gain = 40, Positive feedback gain = -66.67

Question Type : **MCQ**
Question ID : **4410091188522**
Option 1 ID : **4410094688370**
Option 2 ID : **4410094688368**
Option 3 ID : **4410094688371**
Option 4 ID : **4410094688369**
Status : **Answered**
Chosen Option : **3**

Q.75 In direct resistance heating, the heat is produced:

Ans
✗ 1. by induction currents in the load
✓ 2. by passing current directly through the load
✗ 3. by radiation from a heated surface
✗ 4. by arc discharge between electrodes

Question Type : **MCQ**
Question ID : **4410091201432**
Option 1 ID : **4410094739512**
Option 2 ID : **4410094739514**
Option 3 ID : **4410094739515**
Option 4 ID : **4410094739513**
Status : **Answered**
Chosen Option : **2**

Q.76 At a speed other than synchronous speed:

Ans
✗ 1. the synchronous machine's voltage regulation increases
✓ 2. the average value of the developed torque is zero
✗ 3. the efficiency of the machine falls drastically
✗ 4. the synchronous impedance falls

Question Type : **MCQ**
Question ID : **4410091230997**
Option 1 ID : **4410094857470**
Option 2 ID : **4410094857472**
Option 3 ID : **4410094857471**
Option 4 ID : **4410094857473**
Status : **Answered**
Chosen Option : **3**

Q.77 Which mechanical factor is most important when selecting an electric motor for a load?

Ans
1. Supply frequency
2. Efficiency of motor
3. Cooling method
4. Nature of load torque

Question Type : **MCQ**
Question ID : **4410091200617**
Option 1 ID : **4410094736228**
Option 2 ID : **4410094736231**
Option 3 ID : **4410094736229**
Option 4 ID : **4410094736230**
Status : **Answered**
Chosen Option : **2**

Q.78 What is the main function of reverse power protection in an alternator?

Ans
1. To keep the alternator synchronized with the power grid
2. To identify errors in phase sequence
3. To stop the alternator from running as a motor and drawing power
4. To safeguard against excessive voltage

Question Type : **MCQ**
Question ID : **4410091184994**
Option 1 ID : **4410094674088**
Option 2 ID : **4410094674089**
Option 3 ID : **4410094674087**
Option 4 ID : **4410094674086**
Status : **Answered**
Chosen Option : **3**

Q.79 A suspension insulator string consists of 5 discs and exhibits a string efficiency of 80%. If the voltage measured across the lowest disc (closest to the conductor) is 25 kV, calculate the total voltage distributed across the entire string.

Ans
1. 125 kV
2. 100 kV
3. 75 kV
4. 80 kV

Question Type : **MCQ**
Question ID : **4410091184666**
Option 1 ID : **4410094672696**
Option 2 ID : **4410094672694**
Option 3 ID : **4410094672697**
Option 4 ID : **4410094672695**
Status : **Answered**
Chosen Option : **2**

Q.80 A Type-B chopper operates in which quadrant of the V–I plane?

Ans
✔ 1. Second
✘ 2. First
✘ 3. Third
✘ 4. Fourth

Question Type : **MCQ**
Question ID : **4410091201589**
Option 1 ID : **4410094740125**
Option 2 ID : **4410094740124**
Option 3 ID : **4410094740126**
Option 4 ID : **4410094740127**
Status : **Answered**
Chosen Option : **1**

Q.81 What is the primary goal of Total Productive Maintenance (TPM)?

Ans
✔ 1. Achieving zero equipment failures, defects, and workplace accidents
✘ 2. Maximising output regardless of cost
✘ 3. Minimising employee participation in maintenance work
✘ 4. Outsourcing most maintenance tasks

Question Type : **MCQ**
Question ID : **4410091195126**
Option 1 ID : **4410094714392**
Option 2 ID : **4410094714391**
Option 3 ID : **4410094714389**
Option 4 ID : **4410094714390**
Status : **Answered**
Chosen Option : **1**

Q.82 All Aluminium Alloy Conductors (AAAC) are mainly used in transmission because they:

Ans
✘ 1. have magnetic properties
✘ 2. are costlier than copper
✔ 3. are corrosion resistant
✘ 4. have higher conductivity than copper

Question Type : **MCQ**
Question ID : **4410091201445**
Option 1 ID : **4410094739567**
Option 2 ID : **4410094739564**
Option 3 ID : **4410094739566**
Option 4 ID : **4410094739565**
Status : **Answered**
Chosen Option : **3**

Q.83 The modified McMurray inverter uses:

Ans
✔ 1. forced commutation
✘ 2. self commutation
✘ 3. load commutation
✘ 4. resonant commutation

Question Type : **MCQ**
Question ID : **4410091201734**
Option 1 ID : **4410094740721**
Option 2 ID : **4410094740723**
Option 3 ID : **4410094740720**
Option 4 ID : **4410094740722**
Status : **Answered**
Chosen Option : **3**

Q.84 What is the primary function of the deflecting system in an analogue indicating instrument?

Ans
✘ 1. To bring the pointer back to zero position after measurement
✘ 2. To prevent oscillations of the pointer during deflection
✘ 3. To oppose the motion of the pointer to achieve steady reading
✔ 4. To produce a torque proportional to the quantity being measured

Question Type : **MCQ**
Question ID : **4410091188014**
Option 1 ID : **4410094686308**
Option 2 ID : **4410094686311**
Option 3 ID : **4410094686309**
Option 4 ID : **4410094686310**
Status : **Answered**
Chosen Option : **1**

Q.85 An AC voltage of V = 100∠0° V (rms) is applied across a parallel R-L circuit. The resistor has a resistance of 10 Ω and the inductor has a reactance of X_L = 10 Ω. What is the total current drawn by the circuit?

Ans
✘ 1. 5 A
✘ 2. 7.07 A
✔ 3. 14.14 A
✘ 4. 10 A

Question Type : **MCQ**
Question ID : **4410091187932**
Option 1 ID : **4410094686045**
Option 2 ID : **4410094686044**
Option 3 ID : **4410094686043**
Option 4 ID : **4410094686042**
Status : **Answered**
Chosen Option : **2**

Q.86 **Match the control system examples in Column A with the correct type in Column B.**

Column A (Examples of Control System)	Column B (Types of Control S
A. Cruise control in a car maintaining constant speed on varying slopes	P. Open-loop control system
B. Electric toaster with a fixed timer	Q. Closed-loop linear control s
C. Aircraft autopilot maintaining altitude despite wind disturbances	R. Closed-loop nonlinear cont
D. Loudspeaker with output distortion at high volume	S. Open-loop nonlinear contro

Ans
- ✗ 1. A–P, B–Q, C–S, D–R
- ✗ 2. A–R, B–S, C–P, D–Q
- ✓ 3. A–Q, B–P, C–R, D–S
- ✗ 4. A–Q, B–S, C–R, D–P

Question Type : **MCQ**
Question ID : **4410091190180**
Option 1 ID : **4410094695016**
Option 2 ID : **4410094695017**
Option 3 ID : **4410094695018**
Option 4 ID : **4410094695015**
Status : **Answered**
Chosen Option : **1**

Q.87 **A medium head hydro plant typically has a head range of:**

Ans
- ✗ 1. less than 2 m
- ✓ 2. 20–100 m
- ✗ 3. 2–20 m
- ✗ 4. more than 100 m

Question Type : **MCQ**
Question ID : **4410091201774**
Option 1 ID : **4410094740876**
Option 2 ID : **4410094740878**
Option 3 ID : **4410094740877**
Option 4 ID : **4410094740879**
Status : **Answered**
Chosen Option : **2**

Q.88 **A three-phase synchronous motor develops a gross mechanical power of 9 kW while running at a synchronous speed of 1500 RPM. What is the torque developed by the motor?**

Ans
- ✓ 1. 57.3 Nm
- ✗ 2. 114.6 Nm
- ✗ 3. 85.5 Nm
- ✗ 4. 38.2 Nm

Question Type : **MCQ**
Question ID : **4410091188001**
Option 1 ID : **4410094686253**
Option 2 ID : **4410094686255**
Option 3 ID : **4410094686254**
Option 4 ID : **4410094686252**
Status : **Answered**
Chosen Option : **3**

Q.89 Current chopping in circuit breakers mainly occurs in:

Ans
✗ 1. capacitive loads
✓ 2. inductive loads
✗ 3. resistive loads
✗ 4. balanced loads

Question Type : **MCQ**
Question ID : **4410091200163**
Option 1 ID : **4410094734488**
Option 2 ID : **4410094734487**
Option 3 ID : **4410094734486**
Option 4 ID : **4410094734489**
Status : **Answered**
Chosen Option : **1**

Q.90 The main drawback of overhead systems over underground systems is:

Ans
✗ 1. that underground systems are more flexible than overhead systems
✗ 2. their higher charging current
✓ 3. their high initial cost
✗ 4. their surge problem

Question Type : **MCQ**
Question ID : **4410091238359**
Option 1 ID : **4410094886962**
Option 2 ID : **4410094886963**
Option 3 ID : **4410094886965**
Option 4 ID : **4410094886964**
Status : **Answered**
Chosen Option : **3**

Q.91 A key preventive maintenance activity for a solar power tower is:

Ans
✓ 1. cleaning heliostat mirrors
✗ 2. painting tower base
✗ 3. increasing tower height
✗ 4. reducing mirror reflectivity

Question Type : **MCQ**
Question ID : **4410091201786**
Option 1 ID : **4410094740924**
Option 2 ID : **4410094740925**
Option 3 ID : **4410094740926**
Option 4 ID : **4410094740927**
Status : **Answered**
Chosen Option : **1**

Q.92 **Match the types of line insulators with their correct applications.**

Type of Insulator	Application
A. Pin type insulator	1. Used in high-voltage transmission lines above 66 kV
B. Suspension insulator	2. Suitable for distribution lines up to 33 kV
C. Strain insulator	3. Used at sharp curves or dead-end poles to withstan
D. Shackle insulator	4. Commonly used in low-voltage distribution lines

Ans
✗ 1. A–1, B–2, C–4, D–3
✗ 2. A–3, B–4, C–1, D–2
✗ 3. A–4, B–3, C–2, D–1
✓ 4. A–2, B–1, C–3, D–4

Question Type : **MCQ**
Question ID : **4410091199963**
Option 1 ID : **4410094733669**
Option 2 ID : **4410094733670**
Option 3 ID : **4410094733671**
Option 4 ID : **4410094733668**
Status : **Answered**
Chosen Option : **4**

Q.93 **Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).**

Assertion (A):
A clocked D flip-flop ensures that the output changes only at the triggering edge of the clock, thus eliminating the possibility of race-around conditions.

Reason (R):
In a D flip-flop, the input D is directly connected to both the J and K inputs of a JK flip-flop, ensuring the output toggles whenever D = 1.

Ans
✗ 1. Both A and R are true, and R is the correct explanation of A.
✓ 2. A is true, but R is false.
✗ 3. A is false, but R is true.
✗ 4. Both A and R are true, but R is not the correct explanation of A.

Question Type : **MCQ**
Question ID : **4410091184240**
Option 1 ID : **4410094670997**
Option 2 ID : **4410094670995**
Option 3 ID : **4410094670994**
Option 4 ID : **4410094670996**
Status : **Answered**
Chosen Option : **3**

Q.94 **During the installation of a synchronous motor, proper alignment between the motor and load is important to:**

Ans
✗ 1. reduce magnetic losses only
✗ 2. improve insulation resistance
✗ 3. increase power factor
✓ 4. reduce vibration and bearing wear

Question Type : **MCQ**
Question ID : **4410091202147**
Option 1 ID : **4410094742348**
Option 2 ID : **4410094742349**
Option 3 ID : **4410094742347**
Option 4 ID : **4410094742346**
Status : **Answered**
Chosen Option : **4**

Q.95 A system has a 4K × 8 ROM and requires a total of 16K × 8 memory space. Which of the following ROM configurations will satisfy the requirement using only existing 4k x 8 ROM chips using minimum address decoding complexity?

Ans
✗ 1. One 16K × 4 ROM with two chips and parallel connection of data lines
✓ 2. Four 4K × 8 ROMs with 2-to-4 decoder for chip select lines
✗ 3. Eight 4K × 8 ROMs with full address decoding
✗ 4. Two 8K × 8 ROMs with 1 chip select line

Question Type : **MCQ**
Question ID : **4410091183764**
Option 1 ID : **4410094669126**
Option 2 ID : **4410094669125**
Option 3 ID : **4410094669128**
Option 4 ID : **4410094669127**
Status : **Answered**
Chosen Option : **1**

Q.96 In routine annual cable maintenance inspections, which of the following is NOT typically included in the visual check?

Ans
✗ 1. Rust or corrosion on cable supports
✗ 2. Presence of tracking or corona
✓ 3. Measuring oil levels in a transformer's conservator tank
✗ 4. Soft spots at terminations and splices

Question Type : **MCQ**
Question ID : **4410091195105**
Option 1 ID : **4410094714312**
Option 2 ID : **4410094714310**
Option 3 ID : **4410094714311**
Option 4 ID : **4410094714309**
Status : **Answered**
Chosen Option : **3**

Q.97 When lifting heavy electrical machinery using a crane, the safest practice is to:

Ans
✗ 1. use multiple short ropes tied together
✗ 2. move the crane at maximum speed
✗ 3. stand directly under the load
✓ 4. use certified lifting slings and check load rating

Question Type : **MCQ**
Question ID : **4410091202117**
Option 1 ID : **4410094742232**
Option 2 ID : **4410094742233**
Option 3 ID : **4410094742230**
Option 4 ID : **4410094742231**
Status : **Answered**
Chosen Option : **4**

Q.98 The inductance per unit length of a single-phase transmission line depends on the:

Ans
✗ 1. load current
✗ 2. power factor
✓ 3. conductor spacing and radius
✗ 4. voltage and current

Question Type : **MCQ**
Question ID : **4410091199999**
Option 1 ID : **4410094733817**
Option 2 ID : **4410094733816**
Option 3 ID : **4410094733815**
Option 4 ID : **4410094733814**
Status : **Answered**
Chosen Option : **4**

Q.99 The energy of a charged capacitor resides in the:

Ans
✗ 1. magnetic flux
✗ 2. electric current
✗ 3. electric potential only
✓ 4. electric field only

Question Type : **MCQ**
Question ID : **4410091205555**
Option 1 ID : **4410094755753**
Option 2 ID : **4410094755754**
Option 3 ID : **4410094755751**
Option 4 ID : **4410094755752**
Status : **Answered**
Chosen Option : **3**

Q.10 0 Which of the following is a stator-side method of speed control in a three-phase induction motor?

Ans
✗ 1. Injecting EMF in rotor circuit
✗ 2. Rotor resistance control
✗ 3. Cascade connection
✓ 4. Supply voltage control

Question Type : **MCQ**
Question ID : **4410091188005**
Option 1 ID : **4410094686271**
Option 2 ID : **4410094686268**
Option 3 ID : **4410094686269**
Option 4 ID : **4410094686270**
Status : **Answered**
Chosen Option : **4**