CEEAMA™
Consulting Electrical Engineers Association of Maharashtra

CEEAMA LiveWire

E-NEWSLETTER

Published by Consulting Electrical Engineers Association of Maharashtra

Topic for March 2026

LIFTS, ESCALATORS AND TRANSPORTATION SYSTEMS

Before you escalate this month's topic, revisit the last issue—
take the quiz at the end and see how much you remember.

Electrical Consultants Newsletter
Volume No. 4 Issue #57
March 2026

गुढी पाडव्याच्या हार्दिक शुभेच्छा..!!

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Mr. Subhash L. Bahulekar
Chief Editor - CEEAMA LIVEWIRE

From the Editors Desk,

Resilience, Renewal, and Responsible Growth

March 2026 finds the world navigating continued global uncertainty. Ongoing conflicts and geopolitical tensions are impacting energy markets, supply chains, and business confidence across industries. For the electrical sector—closely linked to infrastructure, power security, and industrial development—these challenges are not abstract concerns but practical realities influencing design, procurement, and execution.

In such times, resilience becomes the defining strength of successful organisations.

Electrical consultants and business leaders are being called upon to make sharper, more responsible decisions. Rising costs, material constraints, and execution risks demand disciplined engineering, value based design, and stronger collaboration across the supply chain. Standardisation, lifecycle costing, and energy efficient solutions are no longer optional—they are essential to sustainable growth.

Amidst this global backdrop, **Gudi Padva**, the Marathi New Year, offers a meaningful perspective. The Gudi symbolises renewal, preparedness, and victory of wisdom over adversity. It reminds us that new beginnings gain strength when supported by thoughtful planning, ethical practices, and confidence in our capabilities.
For our industry, this message is particularly relevant. Consultants play a critical role in shaping safe, compliant, and future ready electrical systems, while manufacturers and entrepreneurs must balance growth ambitions with quality, innovation, and financial prudence.

March also marks the close of one financial year and the start of another—a moment to reflect and reset. As we welcome the new year with Gudi Padva, let us reaffirm our commitment to **technical excellence, ethical business, and collaborative progress.**

CEEAMA LiveWire wishes all members and industry partners a year of stability, innovation, and responsible growth.

गुढी पाडव्याच्या हार्दिक शुभेच्छा..!!

Subhash L. Bahulekar
Chief Editor – CEEAMA

INDEX

From the President's desk:

Today's world is a very crazy place. While we are still celebrating the Cricket world cup victory, there is a big war in the Middle East. The rising fuel prices and the impact on world economy is going to be huge. The impact of the war on the load cycle of the Indian Power System, as well as the global, will be something to watch out for.

This month the CEEAMA LiveWire focusses on Lifts, Escalators and Moving Walks (conveyors / travelators / horizontal escalators).

A bill to amend Maharashtra Lifts, Escalators and Moving Walks Act 2019 was introduced in the Maharashtra Legislative Assembly on 4th March 2026 and tabled by the Hon. Chief Minister Mr. Devendra Fadanvis. Due to increase in the number of installation of lifts, escalators and moving walks in the State, the office of the Chief Electrical Inspector is overburdened. It was felt necessary to provide the services of granting licenses for working or using of lift, escalators and moving walks at regional level to ensure efficiency in public services. Therefore, the Government considered it was necessary to authorize the Superintending Engineers at regional levels to undertake the function of granting licenses within the area of their jurisdictions.

The Electrical Inspectors (Lifts) is vested with the power of inspection of lifts, escalators and moving walks, before granting of licenses and its periodical inspection for the entire State of Maharashtra. As the meticulous inspection of lift, escalators and moving walks is crucial for public safety, it is necessary to provide inspection services in timely manner. Therefore, the Government considered it necessary to authorize Electrical Inspectors at each district or Inspection division, as the case may be, with the power of inspection of lifts, escalators and moving walks before granting licenses and its periodical inspection within their respective jurisdiction.

Moving on, our Immediate Past President has proposed a 1 day training program at Miraj – Sangli on Electricity Billing as well as impact of poor power factor and kVAh billing regime. Further, CEEMA have a planned factory visit (for Consultants (LFMs) only) to Nashik this month.

March 2026 has a number of festivals

Holi -	**March 4**
Ramzan-Id (Eid-ul-Fitr) –	**Expected March 20-21**
Gudi Padwa / Ugadi / Chaitra Navratri -	**March 19**
Rama Navami -	**March 26–27**
Mahavir Jayanti -	**March 31**

Not to mention the financial year end on 31st March 2026 and the scramble to close the books on a higher note. Have a satisfying book closure.

Do keep writing to CEEAMA about your experiences. Have a wonderful March 2026. Be safe be happy.

Mr. Chidambar Joshi
Hon. President
CEEAMA

From the Secretary's desk:

Dear Esteemeed Members,

As we step into March, the month brings with it a renewed sense of momentum—projects reaching key milestones, financial-year closures focusing minds on compliance and documentation, and a timely opportunity to strengthen professional practices before the next cycle begins. For consulting electrical engineers, this is an ideal time to review not only deliverables and deadlines, but also the robustness of our designs, records, and site coordination processes.

Focus areas for the month are:

1) Year-end readiness and statutory discipline: March is typically associated with audits, finalisation of accounts, and documentation. I encourage members to ensure that project records are complete and orderly—test reports, calibration records, vendor approvals, as-built drawings, measurement books, and handover documentation. Clear traceability is increasingly valued by clients, auditors, and authorities alike, and it protects consultants as much as it supports project quality.

2) Safety and reliability—non-negotiables: With rising expectations around uptime and safety, it is worth revisiting protection coordination, earthing integrity, and periodic testing practices across projects. Good engineering is not only about compliance, but about anticipating failure modes and ensuring systems remain safe under abnormal conditions. As consultants, our responsibility includes insisting on proper commissioning checks and ensuring that safety is not diluted under schedule pressure.

3) Practical learning through member exchange: The most valuable solutions often come from shared field experience—lessons from inspections, tender conditions, project coordination challenges, or evolving interpretations of standards. CEEAMA will continue to encourage peer learning and technical discussion so that members can benefit from one another's insights and avoid repeat issues on site.

Strengthening our professional community

Our Association continues to focus on professional development, technical engagement, and constructive dialogue with stakeholders across industry and authorities. Members are requested to actively participate in CEEAMA initiatives, share technical articles or case notes for the newsletter, and suggest topics that need deeper discussion—particularly where practitioners face recurring ambiguities or practical difficulties.

A request to members

If you have achieved notable professional milestones, completed challenging projects, published papers, or have lessons learned that can benefit the community, please share them with the editorial team. Your contributions make this newsletter a stronger reflection of our collective expertise.

Thank you for your continued support to CEEAMA. Wishing you a productive and safe month ahead.

Best Regards,

Mr. Ulhas Vajre
Hon. Secretary
CEEAMA

Enabling Vertical and Horizontal Mobility in a Modern World

Introduction

Urbanisation, highrise development, metro rail expansion, airports, hospitals, malls, and industrial complexes have transformed how people and goods move. **Lifts, escalators, and transportation systems** form the invisible backbone of this transformation—quietly ensuring safety, comfort, accessibility, and efficiency. For the electrical industry, these systems represent a convergence of power engineering, control systems, safety standards, and digital intelligence.

As India accelerates infrastructure growth and smartcity adoption, the role of electrical consultants, manufacturers, and system integrators in vertical and horizontal transportation has never been more critical.

1. Lifts: The Vertical Lifeline of Buildings

Lifts (elevators) are no longer simple lifting devices. Today, they are **intelligent vertical transportation systems** designed for speed, safety, energy efficiency, and user comfort.

Key Lift Types

- **Passenger Lifts** – Residential, commercial, and institutional buildings
- **Goods and Service Lifts** – Industrial and logistics facilities
- **Hospital Lifts** – Designed for stretchers, hygiene, and reliability
- **HighSpeed Lifts** – Highrise offices, hotels, and IT parks
- **MachineRoomLess (MRL) Lifts** – Spaceoptimised and energyefficient

Electrical & Control Aspects

Modern lifts rely heavily on:

- **Variable Voltage Variable Frequency (VVVF) drives** for smooth acceleration and deceleration
- **Permanent Magnet Synchronous Motors (PMSM)** for higher efficiency
- **Regenerative drives** that feed power back into the grid
- **Microprocessorbased controllers** with predictive diagnostics

Electrical consultants play a vital role in ensuring correct power quality, harmonics control, earthing, emergency power supply, and compliance with safety codes.

2. Escalators and Moving Walkways: Continuous Flow Systems

Escalators and moving walkways are designed for **continuous passenger movement**, particularly in highfootfall locations such as metro stations, airports, malls, and public buildings.

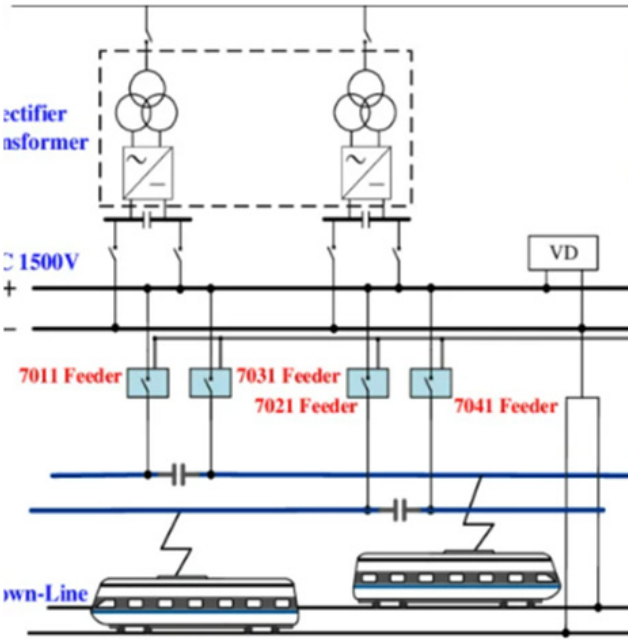
Design Considerations

- **Load and traffic analysis** to determine capacity
- **Energyefficient motors and drives**
- **Auto startstop and sleep modes** using sensors
- **Emergency braking and safety interlocks**

From an electrical perspective, escalators demand robust power distribution, coordinated protection schemes, and seamless integration with building management systems (BMS).

With increasing focus on sustainability, energyefficient escalators with smart controls are becoming the norm rather than the exception.

3. Transportation Systems Beyond Buildings



The scope of transportation systems extends well beyond lifts and escalators.

Horizontal and Public Transportation Systems

- **Metro and railway electrification**
- **Airport baggage handling systems (BHS)**
- **Automated people movers (APM)**
- **Industrial conveyors and material handling systems**

These systems involve complex electrical engineering—including traction power, substations, SCADA, redundancy, and failsafe design philosophies. Reliability and availability are paramount, as failures directly impact public safety and productivity.

4. Safety, Standards, and Compliance

Safety is nonnegotiable in vertical and horizontal transportation.

Key aspects include:

- **Compliance with Indian Standards (IS) and relevant IEC codes**
- **Emergency power supply and rescue devices**
- **Fireman's operation and evacuation logic**
- **Periodic inspection, testing, and maintenance**

Electrical consultants act as custodians of safety by ensuring that designs meet statutory requirements while also accommodating future upgrades and technological advancements.

5. Digitalisation and Smart Transportation

Digital technologies are redefining transportation systems:

- **IoTenabled condition monitoring**
- **Predictive maintenance using data analytics**
- **Remote diagnostics and fault reporting**
- **Integration with smart buildings and smart cities**

These advancements reduce downtime, improve safety, and optimise lifecycle costs—creating value for building owners and operators.

6. Opportunities for Electrical Consultants and Businesses

The growing demand for safe, efficient, and intelligent transportation systems presents significant opportunities:

- Early involvement in **concept and traffic planning**
- Value engineering for **energy efficiency and reliability**
- Advisory roles in **technology selection and standardisation**
- Longterm partnerships in **maintenance and retrofitting**

Success in this domain requires not just technical expertise, but also collaboration between consultants, manufacturers, EPC contractors, and authorities.

Conclusion: Moving Forward with Confidence

Lifts, escalators, and transportation systems are more than mechanical conveniences—they are **critical infrastructure elements** that shape user experience, safety, and operational efficiency.

As India's infrastructure grows vertically and horizontally, the electrical industry must rise to the challenge with **sound engineering, ethical practices, and forwardlooking designs**. By embracing innovation while respecting safety and standards, we can ensure smooth, reliable movement for millions—every day.

SUMMARY

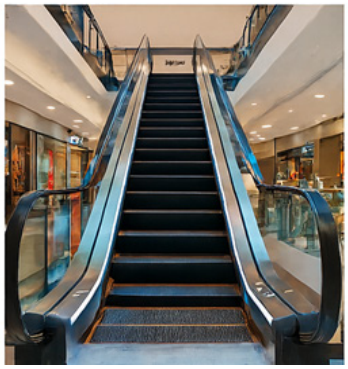
Lifts, Escalators, and Transportation Systems

Vertical and horizontal transportation systems. are actainerd by horizontal transport such as llife (elevaitors) escalators and moving walkways – it an important area of perbis access of people and buildings and across their tacilities, diffs provide critical access-it-key-element in busy public spaces and moving walkways, enhance mobility in large transiv hubs

Lifts (Elevators)

Lifts are essential component or refurns-for horlines for modern buiidings!. providing vertical'

- **Passenger lifts** – providing a conhual ussàlt inr offices, hotels. residen-to! huildings. such as doors.
- **Freight tifts** – for canitying heavy goods and equipment- freight lift to canyr, bringer
- **Service lifts a-dumbwattert** – for smaller items: ike food in restaurants or simvai items can entt! liftes in references.



Escalators

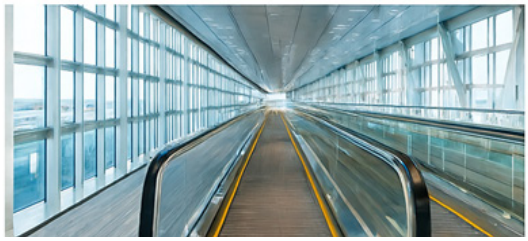
Excalators are ine motorized sfairs for continuous, momo-ent, between floors perticularly in Bage peopte novennent such as alegists, train stations, shop-ping mails, and stadiums.

Escalators

Excalators are senri motorized stairs for continuous transport between to-ward f-orslating in places with large people movement, such a.s airports, train stations, shopping mails and stadiums.

Benefits include, handling large crowds momentai, efficiently

- Constant service in high-traffic zones private efficiently
- Satety teatures like handralls, stey guards, and autornation sensors



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Engineering Excellence in Vertical Transport: A Technical Study of Escalators

Introduction

Escalators are electromechanical transportation systems designed to move people efficiently between different vertical levels within buildings. They are essential components of modern infrastructure, used extensively in commercial complexes, transit stations, airports, educational institutions, and public buildings. Their primary function is to provide a continuous, high capacity means of vertical transportation that complement elevators and stairways.

Escalators are engineered to operate reliably under varying passenger loads, environmental conditions, and duty cycles. Their structural and mechanical design emphasizes safety, load-bearing strength, and operational durability. With advancements in automation and control technologies, modern escalators integrate intelligent features that enhance safety, energy efficiency, and user experience.

Construction and Design Characteristics

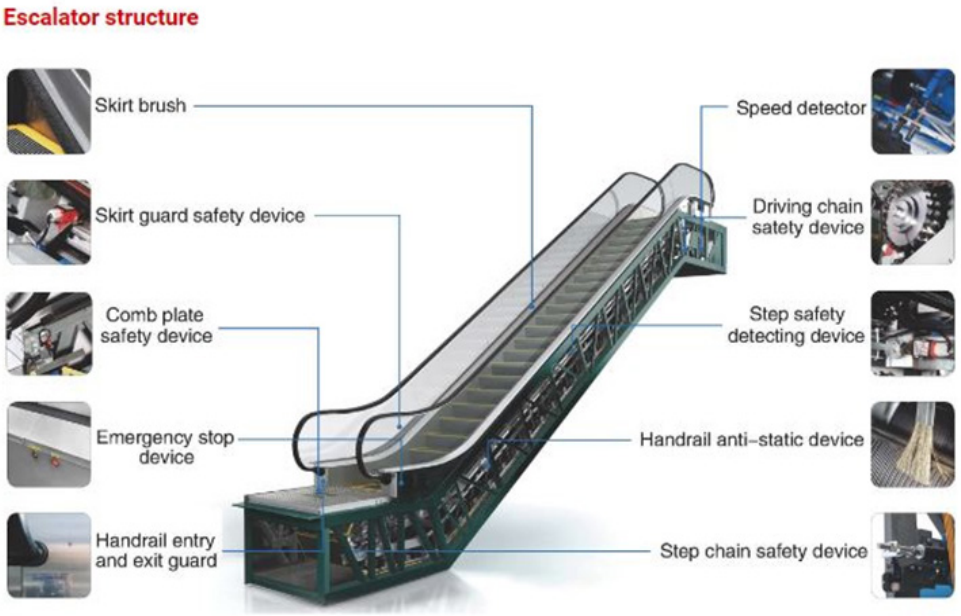
Escalators are complex systems composed of mechanical, electrical, and structural subsystems. Their design is governed by international standards such as **EN 115** and **ASME A17.1**, ensuring safety and reliability in public usage.

Key Design Features

- **Truss Structure**
  A rigid, steel framework forming the backbone of the escalator. It houses the steps, tracks, drive mechanisms, and control systems.
- **Step Assembly**
  Steps are made of die-cast aluminum or steel, interconnected to form a continuous loop. They move along two tracks that maintain step alignment and consistent tread geometry.
- **Drive System**
  Typically consists of:
    - A three-phase induction motor
    - Reduction gearbox
    - Drive chains
    - Braking system (service brakes + emergency brakes)

  The drive unit maintains speed regulation and ensures smooth passenger movement.
- **Handrail System**
  The handrail is driven synchronously with the steps using friction drive rollers. It provides passenger stability and confidence during movement.
- **Balustrade and Safety Panels**
  Made of tempered glass or metal panels, these components enclose the moving steps and house safety sensors.

- **Control Panels and Automation**



Escalators are integrated with microprocessor-based control systems to monitor:

- Motor current
- Brake performance
- Step chain tension
- Emergency stop triggers
- Speed regulation

- **Safety Mechanisms:**
  Modern escalators include numerous safety features such as skirt brushes, comb-step interlocking, missing-step detection, step chain monitoring, and emergency stop switches.

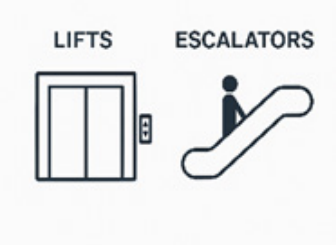
Working Principle of an Escalator

An escalator operates using a continuous loop of steps driven by an electric motor. The working principle involves:

1. **Step Movement:** The steps form a staircase on the upward side and flatten at the landing using guide tracks.
2. **Motor and Gearbox:** The main drive motor provides rotational motion to the drive shaft, which moves the step chain.
3. **Synchronous Handrail Movement:** A separate friction-based mechanism drives the handrail at the same speed as the steps.
4. **Landing Platforms:** These sections house the comb plates where steps transition from horizontal to angled positions.
5. **Safety Monitoring:** Sensors constantly check speed, step alignment, vibration levels, and mechanical integrity.

The combined design ensures smooth, continuous, and safe passenger movement between floors.

Escalators: The Smarter Choice for HighFlow Vertical Mobility



Compared to lifts, escalators provide continuous, highcapacity passenger movement, eliminating waiting time and preventing congestion in busy environments. Their mechanically simple, continuousloop design allows them to handle thousands of people per hour with higher reliability, while lifts move passengers in limited batches and require more complex control systems. Escalators therefore deliver superior throughput, faster crowd clearance, and greater operational efficiency, making them the technically preferred solution for hightraffic public spaces.

Critical Role of Escalators in Public Mobility

Escalators offer several advantages that make them indispensable in transportation networks:

- **Continuous Flow:** Unlike elevators, escalators move multiple passengers continuously without waiting time.
- **Reduced Congestion:** Ideal for metro stations, malls, airports, and sports arenas.
- **Accessibility:** Supports movement for elderly and mobility-challenged individuals when paired with elevators.
- **Operational Flexibility:** Can run in either direction depending on passenger flow requirements.

CONCLUSION

Escalators deliver superior verticaltransport performance through continuousflow mechanics, high passenger throughput, and minimal dwelltime, making them the more efficient engineered solution for largevolume public movement.

CONTRIBUTED BY:

Kirti Rawal

L&T Technology Services

CEEAMA President invited for grand opening of OBO Betterman Booth at the Buildelec exhibition on 25th February 2026.

CEEAMA Office bearers visit to the OBO Stall of OBO Betterman on 26th February 2026.


INVITATION
Consulting Electrical Engineers Association of Maharashtra
CEEAMATECH
2026
You are Cordially Invited to attend the Electrical Engineering 2026
Theme: Innovation in Electrical Engineering for Modern Industry
Presentation by: Mr. Veejay Limaaye (V.L.Engineers,Miraj)
Topics Include:
• Industrial (MSEDCL) Billing Pattern
• Power Factor Correction
• Harmonic Mitigation
• Smart Power Systems (AHF/SVG)
• Future Electrical Technology
• Industrial Automation
• Industrial Protection Systems
25th
March 2026
Venue:
KVC Club, MIDC Kupwad
Time: 5 PM Onwards
(Followed with Cocktail & Dinner)
Event Sponsored by
Shreem
Leaders in Reactive Power
SVG

WINNERS OF QUIZ
FEBRUARY 2026

LALITKUMAR AHUJA

RUPEN PATEL

ANKIT SHAH

MAYURESH VICHARE

KIRTAN GAJJAR

KEVAL MAHAJAN

Congratulations

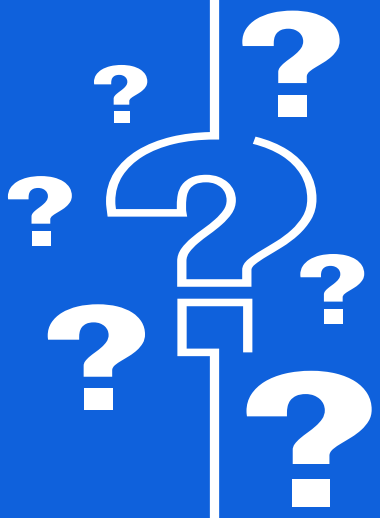
QUIZ - MARCH 2026

1. In cable routing, the most critical factor for spacing between power and control cables is:
   - A. Mechanical strength
   - B. Electromagnetic interference
   - C. Color coding
   - D. Cable tray material

2. Battery sizing for a substation DC system is usually based on:
   - A. Inverter rating
   - B. Float and boost charger rating
   - C. DC load duty cycle and autonomy requirement
   - D. Transformer rating

3. A relay with IDMT characteristic is used mainly for:
   - A. Differential protection
   - B. Transformer in rush detection
   - C. Overcurrent coordination
   - D. Busbar protection

4. The primary reason to perform Earthing Grid Step Touch potential analysis is:
   - A. Improve transformer efficiency
   - B. Ensure personnel safety
   - C. Reduce line losses
   - D. Improve power factor



5. A VFD with IGBT output produces:
   - A. Pure sinusoidal voltage
   - B. PWM modulated waveform
   - C. DC output
   - D. Square wave output

6. Fault level at a bus increases mainly when:
   - A. Generator is removed
   - B. Impedance increases
   - C. More sources are added
   - D. Load increases

7. What is the primary purpose of a DG neutral grounding resistor (NGR)?
   - A. Reduce DG voltage
   - B. Limit ground fault current
   - C. Improve power factor
   - D. Increase efficiency

8. Which document typically defines minimum engineering requirements in EPC projects?
   - A. Datasheet
   - B. Purchase Order
   - C. Project Specification
   - D. Layout drawings

9. The breaking capacity of a circuit breaker refers to:
   - A. Maximum current it can carry
   - B. Maximum current it can interrupt safely
   - C. Current under normal load
   - D. Inrush current

10. For transformer oil testing, BDV measures:
A. Moisture level
B. Dielectric strength
C. Acidity
D. Flash point

Rules for the QUIZ:

- The Quiz will be open for 10 days from the date of EMAIL.
- Each correct answer received on DAY 1 will get 100 points
- Next days the points will reduce as 90 – 80 – 70 and on 10th day points will be ZERO even if the answer is correct.
- All participants will receive E certificate signed by CEEAMA President with the points earned mentioned on the same.

Please use following google form link to participate in this month's QUIZ.
https://forms.gle/VmQLtYFKZBwwEger8

"Thank you all for the overwhelming response to the E-NEWS in general and E-Quiz in particular. MCQ based quiz is always tricky and surprisingly can take us aback when we realise our conceptions (misconceptions) about the subject / system / product.

The aim of the feature was to create inquisitiveness in your mind and help you check your technical quotient quickly. The response will also help us to present articles and webinars on subjects which are important, but which lack enough awareness / knowledge in general.

It can open a pandora box for our discussions and arguments and probable solutions. Engineering evolves with conception. It gets fuelled with community discussions and capitalist actions. All stakeholders start realising the need to take a closer look and help improve standards as we have seen in the past century. Surely it makes the world a better place.

Wish you all a better luck this time.

Do spread the word.

February 2026 Quiz Answers

1. B. Calculate voltage profile and power flow in the network
2. A. IEC 61439
3. B. Short circuit rating
4. A. IEEE 1584
5. D. VFD
6. C. Internal zone fault detection
7. C. < 1 Ω
8. A. IEEE 519
9. B. SVC
10. C. Avoid saturation during faults

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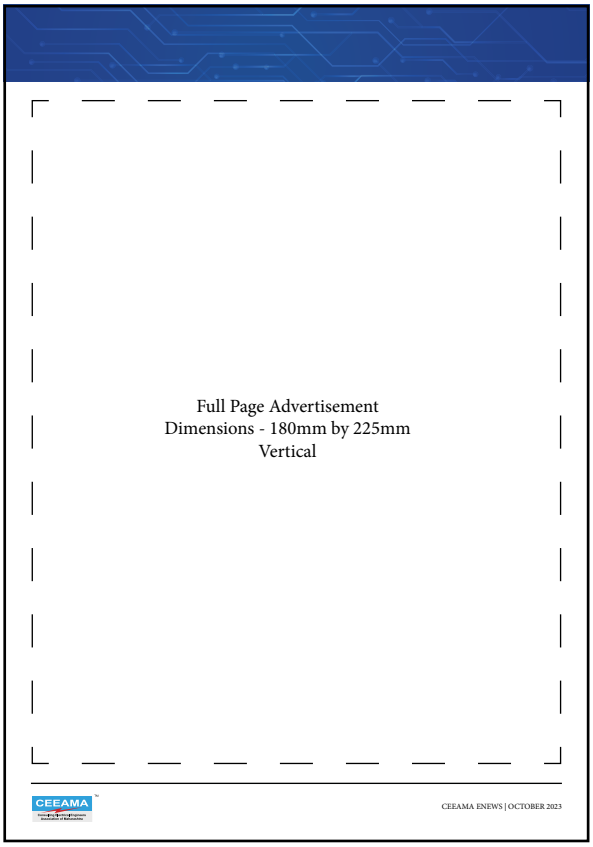

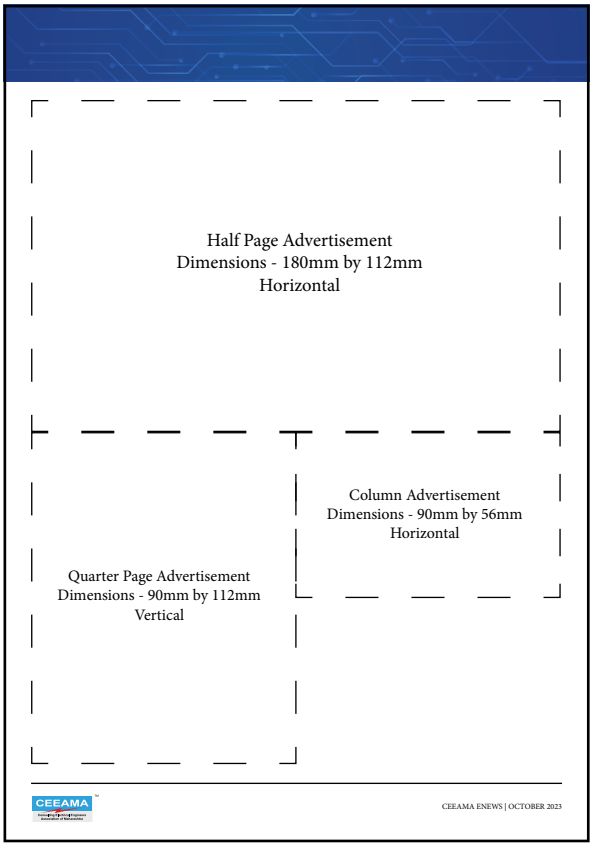

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E-NEWSLETTER

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Electrical Consultants Newsletter
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MARCH 2026

A-103. Sanpada Railway Station Building, 1st floorSanpada East, Navi Mumbai – 400705
Email: admin@ceeama.org