CEEAMA™
Consulting Electrical Engineers Association of Maharashtra

CEEAMA LiveWire

E-NEWSLETTER

Published by Consulting Electrical Engineers Association of Maharashtra

Topic for May 2025

TRANSMISSION LINES

Read more on this months topic inside.

Electrical Consultants Newsletter
Volume No. 4 Issue #50
May 2025

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Mr. Subhash L. Bahulekar
Chief Editor - CEEAMA LIVEWIRE

From the Editors Desk,

The highlight of the month was of course the cowardly terrorist attack on unarmed common tourists and its fall-out in the form of Operation Sindoor by Indian Army.
Wars are always damaging…but terrorism has to be nipped in the bud!
We Indians need to remain strong in the wake of new hostilities even from our so-called friend-countries.
Unknowingly, in my last editorial, crisis signals were raised for us to change, sustain, retain, & grow! So, what's in our hands? As technocrats, we can help the world realise our strength in various forms; be it our already dominant service sector, our IT/Software supremacy for last 2-3 decades, or emerging with new technology whether it is AI, GENAI, Machine Learning, etc.

One of our Life Members, **Mr. Anil Valia** was honoured as a distinguished speaker and presented with Honorary Award at **SmartHome Expo 2025** in appreciation and recognition as an exceptional leader and his outstanding contribution and long-standing commitment in Lighting Industry. We are proud of Mr. Valia.
In last month's CEEAMA GC meeting our next 2 years' successors were announced and also made known to our members in the previous Newsletter. I would like to personally congratulate the new team of Mr. CV Joshi (Hon. President), Mr. Ulhas Vajre (Hon. Secretary), and Mr. Anil Bhandari (Hon. Treasurer)!

CEEAMA has already reached beyond state-level and not just nationally but also globally due to the global community who read out newsletter regularly. Readers include L&T's more than 250 engineers from their various locations globally. So don't waste this opportunity and publish your articles and advertisements.

Our article on CEEAMA's foundation day's 21 years on Gudhi Padava was contributed by Mr. Mohan Kelkar which we are publishing in this month's newsletter herewith!

Hope the 21 years stretch to 210 years for our generations to come, just like the cross-country "Long Transmission Lines" transmit large amount of energy across many countries!
Wish you yet another month of safety and happiness!

Subhash L. Bahulekar
Chief Editor – CEEAMA

From the President's desk:

Dear Friends,

The recent Geo-Political scenario has been the talk of the entire nation. With the latest Live Wire focussed on transmission lines, I thought of the impact any conflict or war would have on this sector. Major transmission lines, substations, and grid control centres are critical national assets and could be targeted in wartime, especially near border areas. Interruption in supply chains, price inflation due to scarcity or increased freight costs, delay in infrastructure upgrades and commissioning of new lines could be expected. Copper, aluminium, and steel used in conductors, transformers, and tower construction may face global price spikes or shortages. Modern T&D systems increasingly use SCADA and digital control systems, making them vulnerable to cyberattacks, something India has already experienced in isolated incidents (e.g., the 2020 Mumbai grid failure potentially linked to foreign cyber interference). While the war presents a serious risk to India's T&D sector especially in terms of physical damage, supply chain disruption and economic strain, it can also act as a catalyst for modernization, resilience, and self-reliance.

Friends, the National Building Code of India Part 8 Building Services Section 2 Electrical and Allied Installations is undergoing changes. The draft updated copy is available on the internet and the last date for comments is 02 June 2025. Please take this opportunity to make your voice heard. You can send your comments to BIS directly, and it will help if you send them to admin@ceeama.org also. We can go through them and highlight some of the landmark suggestions made in the upcoming Live Wire editions.

Friends, the CEEAMA is changing too. For starters, the website will be revamped and some additional features will be planned. Please feel free to write to admin@ceeama.org regarding your suggestions and ideas for the revamp. We will discuss and implement your ideas after the Governing Council consensus.

A recent discussion with a very Senior member of the CEEAMA highlighted a very big concern. He enquired that in the era of 'arc flash' compliant design, how come the feeder pillars of various Government and Private Power companies on the streets remain open with locks missing, earthing connections in doubt and in a general state of disarray. He suggested that as a starter, the utility company should paint a mobile or landline contact number as a first line of defence and a facility for anyone to report any mishap. Friends, this small step by a common man can be a giant step for the safety in our country where electrical mishaps are increasing by the day. We welcome any such suggestions to help improve the conditions in the electrical engineering arena Or any other area too.

The month of May has three important global celebration days. The 'labour day' was celebrated on 1st May. Hats off to the millions of workers who actually make it happen and keep the world going. The 'world laughter day' was celebrated on 4th May. Hope you had a hearty laugh on that day and continue to have one every day. The 'world no-tobacco day' falls on 31st May. The era of "having a good smoke" is over, we live in a polluted world.

Do keep writing to CEEAMA about your experiences. Have a wonderful May 2025. Be safe be happy.

Mr. Chidambar Joshi
Hon. President
CEEAMA

From the Secretary's desk:

Dear Friends,

With the rapid urbanization and scarcity of space, vertical growth of cities is inevitable, which demands sprawling multi-storeyed buildings in all the cities and towns.

Increasing number of multi-storeyed buildings, also demand safety of the occupants, since lately many fire incidents have been reported in those building, and as per Mumbai Fire Department almost 85-90% fires are due to electricity.

To cater to the use of new building materials and the latest developments in building designs and construction techniques, and to bring uniformity in building regulations in India, the National Building Code of India, NBC, was published in 1970 and then subsequently it was revised in 1983, 2005, 2016 and now the talk of the town is further revision of NBC 2025.

The revised draft of National Building Code of India 2025 is in wide circulation for the comments and suggestions of the stakeholders.

This gives an opportunity to the Consulting Electrical Engineers fraternity to contribute to the development and formulation of the Code, which is mandatory and applicable throughout India.

Consulting Electrical Engineers as well as any other electrical engineer can refer to the wide circulation drafts of NBC 2025, Volume 1, Part -4, Fire Safety of Buildings and Volume 2, Section 8 – Building Services, Part-1 Lighting and Ventilation and Part-2, Electrical and Allied Installations.

In this current revision, the following significant changes have been made in NBC Volume 1, Part -4, Fire Safety of Buildings:

Mixed occupancies have been clarified by defining incidental occupancies to main occupancies, in clause 3.1.11, Fire resistance rating of roofs located over 6.7 m has been modified in Table 1., Occupant load factor for various Assembly occupancy in Table 3 has been clarified, also with respect to the net or gross floor area., Requirements of fire exits have been clarified in clause 4., Fire detection and suppression systems based on the specific type and intensity of industrial hazards is introduced under clause 5.4, Table 7 on minimum firefighting requirements for various occupancies has been reviewed and linked with water requirement to be determined/calculated as per hydraulic calculations based on the respective Indian Standards., Supplementary protection for specific areas/hazards is introduced under clause 5.5, Fire protection requirements for certain industries having an area of more than 2500 m2 is introduced under clause 5.6, Fire protection of commercial kitchen has been elaborated through reference to the detailed Indian Standard, IS 18271:2023 'Fire safety in commercial kitchen – Guidelines', Water curtain requirement for basement water proofing has been reviewed and deleted, A new Annex D on data-centres has been included, Annex J on fire and life safety requirements for metro stations has been elaborated, Annex K on fire and life safety requirements for metro trainways has been updated, A new Annex N on performance-based design is introduced.

Also, the following significant changes have been made in NBC Volume2, Part 8, Section 2:

Clause 3 on general requirements has been reviewed in light of the latest Acts/Rules/Regulations, and project management approach towards electrical work (planning, designing, construction, verification and testing, and maintenance) is introduced, The lower limit of power factor has been updated, in 3.4.1., Planning of electrical installations now emphasizes the integration of different types of energy sources including grid solar PV power and other renewable energy sources, in 4.1, The location and other requirements of substation and switch rooms have been reviewed and revised, in clause 4.2., The installation and other requirements of emergency power back up system have been reviewed, in clause 4.3.3, Requirements for Emergency Power Backup System (Li – ion or similar Storage batteries) are included in clause 4.4., Guidance on use of Multiple energy sources in the same building project are addressed in clause 4.5, Safety requirements of substations have been reviewed in clause 4.6., A new option of combination of power transformers and distribution transformers for the system of power

supply of building complexes for certain category of load has been suggested in 5.2.2., Guidance for EV chargers, their location in various building types and special requirement for independent distribution transformer have been included in clause 5.2.4., Reception and Distribution of Main Supply (LV connections) have been reviewed in clause 5.4, Selection and Design of Earthing System have been updated in clause 8.2., Requirements for building integrated photovoltaic cells have been reviewed in clause 10.8, Clause 11 on lightning protection of buildings have been reviewed in detail. Annex B has been updated in view of view of updation of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations 2023, Requirements for MV/LV bus bar chambers were reviewed, References to all the concerned Indian Standards have been updated.

So, what are you waiting for? Just hurry up and submit your comments and suggestions either through email or directly on the website of BIS.

Sincerely Yours

Mr. Ulhas Vajre

Hon. Secretary

CEEAMA

CEEAMA Foundation Day 2025

Today, on the occasion of the Foundation Day of CEEEMA in its 21st year, as one of the founder-member, I feel very proud and satisfied to see the association grown into a highly esteemed and valued professional organisation in electrical industry.

The journey of this successful story began in 2004. I had the opportunity to meet few consultants like Late Shri Shailesh Bhuva, Late Shri Vikas Joshi, Shri Dhananjay Purandare & Shri V. K. Jain during the ELECRAMA held in February 2004 at New Delhi, wherein we discussed the need of forming an association of Electrical Engineering Consultants from Maharashtra.

Until then, all other engineering professionals, Contractors & related industries had their professional bodies functioning effectively. The idea was pursued by me & Late Shri Shailesh Bhuva aggressively & we both were successful in inviting around twenty like-minded consultants from Mumbai & Pune by March 2004. We held our **first meeting on the auspicious day of Gudhi Padwa at Hotel Kohinoor in Dadar** & named the newly founded association as Consulting Electrical Engineers Association of Maharashtra or now popularly called as CEEAMA.

During the meeting it was unanimously agreed that there was a serious need of a common platform where practicing electrical consultants could interact with each other, share their experiences and information. This could be achieved through Lectures, Seminars, Discussions, Conferences & also Exhibitions organised by CEEEMA. The concept of CEEEMA Idea was not only welcomed by the practicing electrical engineering professionals but also by manufacturers and suppliers associated with electrical industry. We were confident that this would give a long-needed interface between electrical consultants and the industry for their products and engineering.

It was a difficult task for the founders. It was a new concept in electrical industry in Maharashtra at that time. Founders had to devote their precious hours of their professional as well as personal lives for establishing the Association. But all this led to an impressive growth of the association every year. Later around 2008 CEEAMA began to hold CEEAMATECH exhibition-cum lectures ranging from one to three days in Mumbai & Pune, which was a huge success.

As CEEAMA grew by leaps & bounds, it became necessary to convert the Association into a “COMPANY”. Thus in 2011 the Association took a new avatar as “CEEAMA COMPANY” and it was registered under company Act 1956 Section 25, with a Board of Directors. This significant step helped CEEAMA in getting recognition in Government and International bodies.

CEEAMA has “CEEAMA NEWS” issues published every month online. It consists of ongoing developments in technology, latest information about our industry and even fun games like technical quiz. It is now renamed as “CEEAMA LIVE WIRE”. It currently reaches out to more than 5,000 practicing Electrical Engineers and we hope to keep increasing this number every year.

Today CEEAMA has total Membership of 213 Life Fellow Members (LFM), 39 PATRON Members,146 Associate Members (AM) from all over Maharashtra covering regions like Mumbai, Pune, Sangli, Satara, Sambhaji Nagar, Kolhapur, Nashik & Nagpur.

I am confident that all the CEEAMA fraternity will carry the baton of strengthening the organisation with zeal & vigour and spread name of the association nationwide in the coming years.

Mohan Kelkar

Note from editor: Thank you Kelkar sir for reviving the fond memories. I remember, I had just returned from Singapore after 10 years and in Mumbai I happened to meet Mr. B.R. Shah who was my colleague (rather HOD) in Aker Solutions (then called Davy Powergas Pvt. Ltd.) and now running his own firm named Kontelec. He told me to ensure you regain your presence back in India, do join our association. I agreed instantly and joined the first meeting at Hotel Kohinoor and became member. I remember there was seminar too organised by a firm from Bangalore manufacturing earthing accessories! There-after my journey in CEEAMA has been wonderful with wonderful people around. Personally, I will miss Mr. Keskar sir very much!

Proud moments for CEEAMA

Anil Valia is a renowned lighting consultant from Mumbai, celebrated for his expertise in crafting bespoke lighting solutions that transform spaces and elevate experiences. With a keen eye for detail and a deep understanding of lighting's impact on ambiance and functionality, Anil Sir has worked with numerous high-end clients, architects, and designers to bring their vision to life. His work spans residential, commercial, and hospitality projects, showcasing his versatility and creativity in the world of lighting design." He had written books on"Lighting".
He is one of the founders of the Director of CEEAMA.

Congratulations

Transmission Lines

1.0 Introduction

Transmission lines are the conductors that carry electrical energy from a power source, like a generating station, to a point of use, like a distribution substation or consumer. They are designed to transmit large amounts of power over long distances at high voltages. These lines are a crucial part of the electrical grid, enabling the efficient delivery of electricity.

2.0 Key aspects of transmission lines:

- **Purpose:**

To transport electrical energy efficiently and over long distances.

- **Voltage:**

High-voltage lines are essential for minimizing energy losses during transmission.

- **Types:**

There are various types of transmission lines, including overhead lines, underground cables, and microstrip lines.

- **Components:**

Transmission lines consist of conductors (usually metal wires), insulators, and supporting structures like towers or poles.

- **Length and Classification:**

Transmission lines are classified based on their length, such as short, medium, and long lines.

- **Efficiency and Voltage Regulation:**

The efficiency of a transmission line is the ratio of power received to power sent, and voltage regulation describes how voltage changes along the line.

- **Parameters:**

Transmission lines have parameters like resistance, inductance, capacitance, and shunt conductance, which affect their behavior.

- **Example:**

In a typical power system, transmission lines connect a power plant to a major substation.

These substations then use distribution lines to send electricity to smaller substations and ultimately to homes and businesses.

3.0 Types of Transmission Line

In transmission line determination of voltage drop, transmission efficiency, line loss, etc. are important aspects of design. These values are affected by line parameter R, L and C of the transmission line. Length wise, transmission lines are of three types.

- **Short Transmission Line**

A short transmission line is classified as a transmission line with:

- A length less than 80km (50 miles)
- Voltage level less than 69 kV
- Capacitance effect is negligible
- Only resistance and inductance are taken in calculation and capacitance is neglected.

- **Medium Transmission Line**

A medium transmission line is classified as a transmission line with:

- A length more than 80 km (50 miles) but less than 250 km (150 miles)
- Operational voltage level is from 69 kV to approx. 133 kV
- Capacitance effect is present
- Distributed capacitance form is used for calculation purpose.

- **Long Transmission Line**

A long transmission line is classified as a transmission line with:

- A length more than 250 km (150 miles)
- Voltage level is above 133 kV
- Line constants are considered as distributed over the length of the line.

4.0 Efficiency of Transmission Line

Transmission efficiency is defined as the ratio of receiving end power P_R to the sending end power P_S and it is expressed in percentage value.

$$\% \eta T = \frac{P_R}{P_S} \times 100 = \frac{V_R I_R \cos\theta_R}{V_S I_S \cos\theta_S} \times 100$$

$\cos\theta_s$ is the sending end power factor.
$\cos\theta_R$ is the receiving end power factor.
V_s is the sending end voltage per phase.
V_R is the receiving end voltage per phase.

5.0 Voltage Regulation of Transmission Line

Voltage Regulation Definition: Voltage regulation in a transmission line is the percentage difference in voltage between the sending and receiving ends under varying load conditions.

$$\% VR = \frac{V_S - V_R}{V_R} \times 100$$

Where, V_s is the sending end voltage per phase and V_R is the receiving end voltage per phase.

$$V_S = \sqrt{(V_R \cos\theta_R + IR)^2 + (V_R \sin\theta_R + IX_L)^2}$$

X_L is the reactance per phase.
R is the resistance per phase.
$\cos\theta_R$ is the receiving end power factor.

6.0 Effect of load power factor on regulation of transmission line:

1. **For lagging load**

$$\% VR = \frac{IR\cos\theta_R + IX_L \sin\theta_R}{V_R} \times 100$$

2. **For leading load**

$$\% VR = \frac{IR\cos\theta_R - IX_L \sin\theta_R}{V_R} \times 100$$

Now

- If the Power factor is lagging or unity, then V_R increases and becomes positive.
- If Power factor is leading, then V_R decreases and becomes negative.

7.0 Load Power Factor on Efficiency of Transmission Line

We know efficiency of transmission line is

$$\% \eta T = \frac{P_R}{P_S} \times 100 = \frac{V_R I_R \cos\theta_R}{V_S I_S \cos\theta_S} \times 100$$

Now, for short transmission line, $I_R = I_S = I$
So, considering three phase short transmission line,

$$P_R = 3V_R I \cos\theta_R$$

So,

$$I = \frac{P_R}{3V_R \cos\theta_R}$$

Power and Current Relationship: The necessary load current to transmit a set amount of power is inversely related to the power factor at the receiving end.
Again in case of medium and long transmission line,

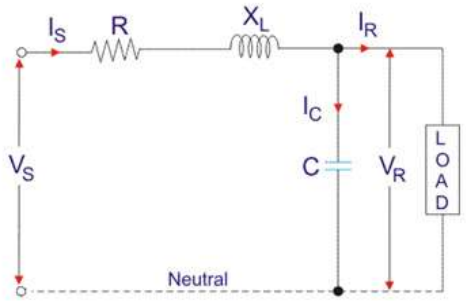
$$\% \ transmission \ efficiency = \frac{Power \ delivered/phase}{Power \ \ delivered/phase + Losses/phase} \times 100$$

$$= \frac{V_R I_R \cos\theta_R}{V_R I_R \cos\theta_R + I_S^2 R} \times 100$$

Transmission efficiency is directly linked to the power factor at the receiving end.

8.0 End Condenser Method in Medium Transmission Line

In this method capacitance is assumed to be lumped at receiving end. One phase is shown below.



Here I_R is the receiving end load current per phase,
R is the resistance per phase,
X_L is the inductive reactance per phase,
C is the capacitance per phase,
$\cos\Phi_R$ is the receiving end lagging power factor,
V_S is the sending end voltage.

Let us assume, $\overrightarrow{V_R}$ as the reference phasor, $\overrightarrow{V_R} = V_R + j0$

Load current at receiving end

$$\overrightarrow{I_R} = I_R(\cos\Phi_R - j\sin\Phi_R)$$

The capacitive current

$$\overrightarrow{I_C} = j\underset{V_R}{\rightarrow}\omega C = j2\pi fC\underset{V_R}{\rightarrow}$$

Now,

$$\begin{aligned}\overrightarrow{I_S} &= \overrightarrow{I_R} + \overrightarrow{I_C} \\ &= I_R(\cos\theta_R - j\sin\theta_R) + j2\pi fCV_R \\ &= I_R\cos\theta_R + j(-I_R\sin\theta_R + 2\pi fCV_R)\end{aligned}$$

$$Voltage\ drop\ per\ phase = \overrightarrow{I_S}\overrightarrow{Z} = \overrightarrow{I_S}(R + jX_L)$$

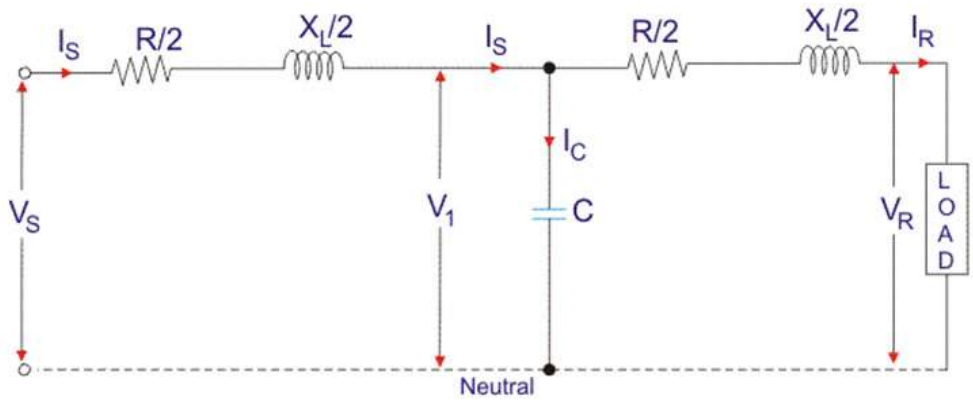
$$Sending\ end\ Voltage = \overrightarrow{V_S} = \overrightarrow{V_R} + \overrightarrow{I_S}\overrightarrow{Z} = \overrightarrow{V_R} + \overrightarrow{I_S}(R + jX_L)$$

And

$$\begin{aligned}\%\ transmission\ efficiency &= \frac{Powerdelivered/phase}{Powerdelivered/phase + Losses/phase} \times 100 \\ &= \frac{V_R I_R\cos\theta_R}{V_R I_R\cos\theta_R + I_S^2 R} \times 100\end{aligned}$$

9.0 Nominal T Method in Medium Transmission Line

In the nominal T method the capacitance of the line is assumed to be concentrated at the middle point of the line, and at both side half of line resistance and inductance is lumped.



Here,

I_R is the receiving end load current per phase,

R is the resistance per phase,

X_L is the inductive reactance per phase,

C is the capacitance per phase,

$\cos\Phi_R$ is the receiving end lagging power factor,

V_S is the sending end voltage.

V_1 is the voltage across the capacitor.

Voltage across Capacitor C,

$$\begin{aligned} \overrightarrow{V_1} &= \overrightarrow{V_R} + \overrightarrow{I_S}\,\overrightarrow{z}/2 \\ &= V_R + I_R(\cos\theta_R - j\sin\theta_R)\left(\frac{R}{2} + j\frac{X_L}{2}\right) \end{aligned}$$

Capacitive current

$$\overrightarrow{I_C} = j\overrightarrow{V_1}\omega C = j2\pi f C\overrightarrow{V_1}$$

Sending end current

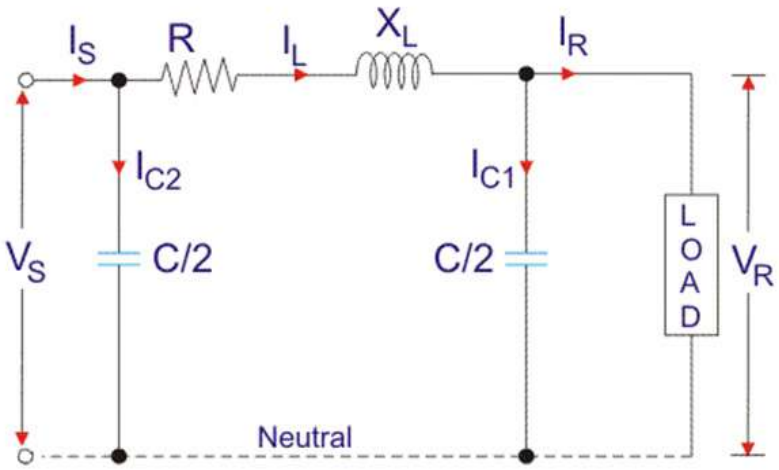
$$\overrightarrow{I_S} = \overrightarrow{I_R} + \overrightarrow{I_C}$$

Sending end voltage

$$\overrightarrow{V_S} = \overrightarrow{V_1} + \overrightarrow{I_S}\frac{\overrightarrow{z}}{2} = \overrightarrow{V_1} + \overrightarrow{I_S}(R + jX_L/2)$$

10.0 Nominal π Method in Medium Transmission Line

In the nominal pi method total line capacitance is assumed to be lumped and divided into two halves to be connected across sending end and receiving end respectively. Total line resistance and inductance are assumed to be present in middle of the line.



Here I_R is the receiving end load current per phase,
R is the resistance per phase,
X_L is the inductive reactance per phase,
C is the capacitance per phase,
$\cos\Phi_R$ is the receiving end lagging power factor,
V_S is the sending end voltage.

Let us assume $\overrightarrow{V_R}$, as the reference phasor, $\overrightarrow{V_R} = V_R + j0$

Load current at receiving end $\overrightarrow{I_R} = I_R(\cos\theta_R - j\sin\theta_R)$

The capacitive current at load end $\overrightarrow{I_{C1}} = j\underrightarrow{\omega C/2} = j\pi f C\underrightarrow{V_R}$

Line current

$$\overrightarrow{I_L} = \overrightarrow{I_R} + \overrightarrow{I_{C1}}$$

Sending end voltage,

$$\overrightarrow{V_S} = \overrightarrow{V_R} + \overrightarrow{I_L}\overrightarrow{Z} = \overrightarrow{V_R} + \overrightarrow{I_L}(R + jX_L)$$

Charging current at the sending end is

$$\overrightarrow{I_{C2}} = j\underrightarrow{\omega C/2} = j\pi f C\underrightarrow{VS}$$

Sending End current is

$$\overrightarrow{I_S} = \overrightarrow{I_L} + \overrightarrow{I_{C2}}$$

11.0 References/courtesy/Disclaimer:

Various sources have been used to compile the information presented in this article, some of which are Wikipedia, and www.electrical4u.com. Although every attempt has been made to ensure the accuracy of this material, neither CEEAMA nor any of its contributors to this publication assumes responsibility for any inaccuracies or omissions in the data presented. As a safety precaution, information utilized from this publication should be verified from the relevant sources.

Contributor :

Subhash Bahulekar

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WINNERS OF QUIZ
APRIL 2025

JIDNESH ASHOK GANGURDE

RADHIKA VAZE

MAHESH GHARAT

DINESH REDEKAR

Congratulations

QUIZ MAY 2025

1. IGBC:
   A. Indian Green Building Council
   B. International Green Building Council
   C. Ireland Great Britain Cadets
   D. Indian Green Bureau Commission

2. The quantity of heat required to raise the temperature of a substance by 1oC is known as:
   A. Heat Gain.
   B. Joule.
   C. Heat Capacity
   D. Watts

3. 1kWh =
   A. 1 unit
   B. 0.0036 GJ
   C. 1000 Wh
   D. All of the above

4. Greenhouse gas:
   A. Sulphur dioxide
   B. Carbon dioxide
   C. Carbon monoxide
   D. Hydrogen

5. Trace heating may be used to protect:
   A. Pipes
   B. Floors
   C. Vessels
   D. All of the above

6. Self-regulating heat tracing tapes are cable whose resistance varies with:
   A. Length
   B. Voltage
   C. Temperature
   D. All of the above

7. Purpose of Micro-Ohm-meter is to measure:
   A. Earthing resistance
   B. Stator resistance
   C. Rotor resistance
   D. Insulation resistance

8. Utilization Factor – U.F. =
   A. L.F. x D.F.
   B. Efficiency x L.F.
   C. P.F. x L.F. x D.F.
   D. All of the above

9. If power factor is improved from PF1 to PF2 then the reduction in distribution losses in an electric network is proportional to:
   A. Ratio of PF1 to PF2
   B. Square root of (PF1/PF2)
   C. Square of (PF1/PF2)
   D. None of the above

10. The illuminance is 10 lm/m2 from a lamp at 1 meter distance. The illuminance at half the distance will be:
    A. 40 lm/m2
    B. 10 lm/m2
    C. 5 lm/m2
    D. None of the above

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 the QUIZ.

https://forms.gle/cpLPbwgdy8jr5UQp8

"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.

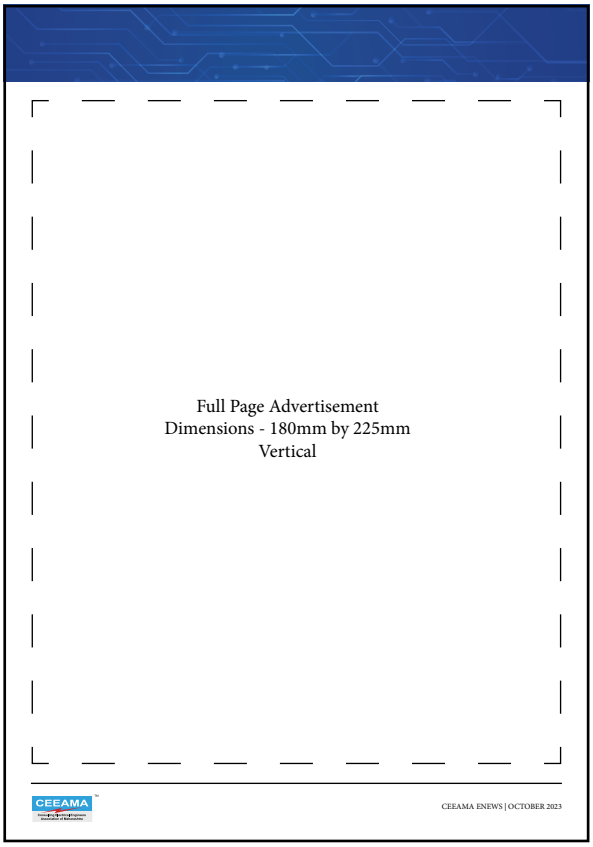
Wish you all a better luck this time.

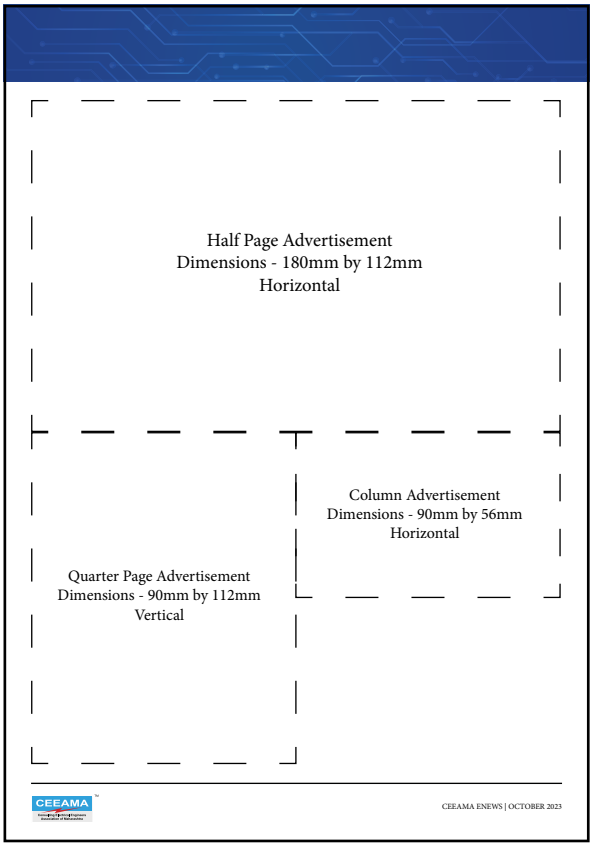
Do spread the word.

April 2025 Quiz Answers

1. D. All of the above
2. A. two units; Indoor Unit and Outdoor Unit.
3. B. Insulation Resistance test.
4. C. NFPA 70
5. B. Singapore
6. A. Electron
7. B. True
8. D. All of the above
9. D. All of the above
10. C. Remove moisture

ADVERTISEMENT RATES





Above given layouts are only for understanding the advertisement sizes. Actual positions of ads may vary as per space available in the issues.
Below given rates are for advertisement size and number of issues published monthly.

E-Newsletter Ad	3 months	6 months	9 months	12 months
Full Page Ad	INR 1000/-	INR 2000/-	INR 2700/-	INR 3300/-
Half Page Ad	INR 800/-	INR 1600/-	INR 2200/-	INR 2800/-
Quarter Page Ad	INR 600/-	INR 1200/-	INR 1600/-	INR 2100/-
Column Ad	INR 400/-	INR 800/-	INR 1000/-	INR 1400/-
Website Ad	INR 1000/-	INR 2000/-	INR 2700/-	INR 3300/-

GST @18% will be additional on all the above rates.

Please send the E-Newsletter Advertisement in PDF or JPG format ONLY.
Please send the Website Advertisement in JPG or PNG format ONLY.

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