

National Testing Agency

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Principle of Electrical Sciences

Group Number :	1
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Is this Group for Examiner? :	No

Principle of Electrical Sciences-I

Section Id :	864351637
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100

Section Marks : 100
Mark As Answered Required? : Yes
Sub-Section Number : 1
Sub-Section Id : 864351809
Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 86435115024 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A capacitor is generally

1. Bilateral and active component
2. Linear, bilateral and passive
3. Linear and unilateral
4. Linear, active and bilateral component

Options :

86435150729. 1
86435150730. 2
86435150731. 3
86435150732. 4

Question Number : 2 Question Id : 86435115025 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following theorems is applicable for both linear and non-linear circuits?

1. Superposition
2. Thevenin's
3. Norton's
4. None of the above

Options :

86435150733. 1

86435150734. 2

86435150735. 3

86435150736. 4

Question Number : 3 Question Id : 86435115026 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Three equal resistances are connected in star. If this star is converted into an equivalent delta, the resistance of both the networks will be

1. Equal
2. Zero
3. Vice-versa
4. None of the above

Options :

86435150737. 1

86435150738. 2

86435150739. 3

86435150740. 4

Question Number : 4 Question Id : 86435115027 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A charging system produces 14.5 V with a current flow of 43.5 A; what is the circuit resistance?

1. 3 A
2. 3.33 A
3. 0.33 A
4. 5 A

Options :

86435150741. 1

86435150742. 2

86435150743. 3

86435150744. 4

Question Number : 5 Question Id : 86435115028 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

KCL is based on the fact that _____

1. There is a possibility of a node to store energy
2. Charge accumulation is possible at node
3. Charge accumulation is not possible at node
4. Charge accumulation may or may not be possible

Options :

86435150745. 1

86435150746. 2

86435150747. 3

86435150748. 4

Question Number : 6 Question Id : 86435115029 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A 10 V source is connected in series with 4 Ω resistor. What is its current source equivalent?

1. 3 A
2. 5 A
3. 2.5 A
4. 4 A

Options :

86435150749. 1

86435150750. 2

86435150751. 3

86435150752. 4

Question Number : 7 Question Id : 86435115030 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Two ideal voltage sources of unequal output voltages cannot be placed in

1. Series
2. Parallel
3. Both series and parallel
4. None of the above

Options :

- 86435150753. 1
- 86435150754. 2
- 86435150755. 3
- 86435150756. 4

Question Number : 8 Question Id : 86435115031 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A network consists of linear resistors and an ideal voltage source. If the value of the resistors are doubled then voltage across each resistor is

1. Halved
2. Doubled
3. Increased four times
4. Not changed

Options :

- 86435150757. 1
- 86435150758. 2
- 86435150759. 3
- 86435150760. 4

Question Number : 9 Question Id : 86435115032 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Norton's current is defined as a/an

1. Open circuit current
2. Short circuit current
3. Both 1 and 2
4. None of the above

Options :

- 86435150761. 1
- 86435150762. 2
- 86435150763. 3
- 86435150764. 4

Question Number : 10 Question Id : 86435115033 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fill in the blank

The maximum power is delivered from a source to its load when the load resistance is _____ the source resistance.

1. Greater than
2. Smaller than
3. Equal to
4. None of the above

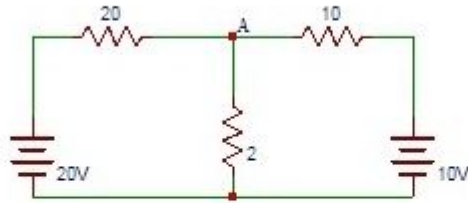
Options :

- 86435150765. 1
- 86435150766. 2
- 86435150767. 3

86435150768. 4

Question Number : 11 Question Id : 86435115034 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Calculate the voltage across 2Ω resistor due to $20V$ source in the circuit shown below.



1. 2
2. 2.5
3. 1
4. 1.5

Options :

86435150769. 1
86435150770. 2
86435150771. 3
86435150772. 4

Question Number : 12 Question Id : 86435115035 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A circuit which has neither any energy source nor e.m.f. source is called what kind of circuit?

1. Unilateral
2. Bilateral
3. Passive
4. Active

Options :

- 86435150773. 1
- 86435150774. 2
- 86435150775. 3
- 86435150776. 4

Question Number : 13 Question Id : 86435115036 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following is an active element in a circuit?

- 1. Current source
- 2. Resistance
- 3. Inductance
- 4. Capacitance

Options :

- 86435150777. 1
- 86435150778. 2
- 86435150779. 3
- 86435150780. 4

Question Number : 14 Question Id : 86435115037 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The elements which are NOT capable of delivering energy on their own are known as

- 1. Unilateral elements
- 2. Non-linear elements
- 3. Passive elements
- 4. Active elements

Options :

- 86435150781. 1
- 86435150782. 2

86435150783. 3

86435150784. 4

Question Number : 15 Question Id : 86435115038 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

To neglect a voltage source, the terminals across the source are

1. Open-circuited
2. Short-circuited
3. Replaced by some resistance
4. Replaced by inductor

Options :

86435150785. 1

86435150786. 2

86435150787. 3

86435150788. 4

Question Number : 16 Question Id : 86435115039 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Form Factor is defined as the ratio of

1. RMS value to the Peak value
2. RMS value to the Average value
3. Average value to the RMS value
4. Average value to the Peak value

Options :

86435150789. 1

86435150790. 2

86435150791. 3

86435150792. 4

Question Number : 17 Question Id : 86435115040 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

All the rules and laws of D.C. circuits also apply to A.C. circuits containing

1. Capacitance only
2. Inductance only
3. Resistance only
4. All of the above

Options :

- 86435150793. 1
- 86435150794. 2
- 86435150795. 3
- 86435150796. 4

Question Number : 18 Question Id : 86435115041 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The value of Form Factor for a square wave is

1. 1.414
2. 1.32
3. 2
4. 1

Options :

- 86435150797. 1
- 86435150798. 2
- 86435150799. 3
- 86435150800. 4

Question Number : 19 Question Id : 86435115042 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The RMS value of half wave rectified sine wave is 200 V. The RMS value of full wave rectified AC will be

1. 200 V
2. 232.2 V
3. 282.8 V
4. 141.4 V

Options :

- 86435150801. 1
- 86435150802. 2
- 86435150803. 3
- 86435150804. 4

Question Number : 20 Question Id : 86435115043 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The product of apparent power and cosine of the phase angle between circuit voltage and current is

1. True Power
2. Reactive Power
3. Apparent Power
4. Instantaneous Power

Options :

- 86435150805. 1
- 86435150806. 2
- 86435150807. 3
- 86435150808. 4

Question Number : 21 Question Id : 86435115044 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

If the frequency of the sinusoidal signal is 50 Hz. Then its time period is

1. 2 msec
2. 20 msec
3. 200 msec
4. 0.2 msec

Options :

- 86435150809. 1
- 86435150810. 2
- 86435150811. 3
- 86435150812. 4

Question Number : 22 Question Id : 86435115045 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A choke coil takes 4A when connected to 24V, DC Supply. Calculate the resistance of the coil.

1. 6 Ω
2. 4 Ω
3. 96 Ω
4. 24 Ω

Options :

- 86435150813. 1
- 86435150814. 2
- 86435150815. 3
- 86435150816. 4

Question Number : 23 Question Id : 86435115046 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A metal-filament lamp, rated at 750 W, 100 V is to be connected in series with a capacitance across a 230 V, 50 Hz supply. The value of capacitance required is

1. 105.13 μF
2. 115.33 μF
3. 125.33 μF
4. 135.13 μF

Options :

- 86435150817. 1
- 86435150818. 2
- 86435150819. 3
- 86435150820. 4

Question Number : 24 Question Id : 86435115047 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What is the effect of frequency on capacitive reactance?

1. It increases with increase in supply frequency
2. It decreases with increase in supply frequency
3. No effect
4. None of the above

Options :

- 86435150821. 1
- 86435150822. 2
- 86435150823. 3
- 86435150824. 4

Question Number : 25 Question Id : 86435115048 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The power supplied when a 120 V, 60 Hz source is connected to 50 mH inductor is

1. 500 VAR
2. 430 VAR
3. 766 VAR
4. 336 VAR

Options :

86435150825. 1
86435150826. 2
86435150827. 3
86435150828. 4

Question Number : 26 Question Id : 86435115049 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Delta connection is also known as

1. Y-connection
2. Mesh connection
3. Either Y-connection or mesh connection
4. Neither Y-connection nor mesh connection

Options :

86435150829. 1
86435150830. 2
86435150831. 3
86435150832. 4

Question Number : 27 Question Id : 86435115050 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A 75% lagging power factor implies that the load is

1. Inductive
2. Capacitive
3. Both Inductive and Capacitive
4. None of the above

Options :

- 86435150833. 1
- 86435150834. 2
- 86435150835. 3
- 86435150836. 4

Question Number : 28 Question Id : 86435115051 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A power triangle can provide information about

1. kW
2. kVA
3. kVAR
4. All of the above

Options :

- 86435150837. 1
- 86435150838. 2
- 86435150839. 3
- 86435150840. 4

Question Number : 29 Question Id : 86435115052 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The bandwidth of a series resonant circuits in which the half power points occur at 150 kHz and 180 kHz is

1. 30 kHz
2. 115 kHz
3. 330 kHz
4. 15 kHz

Options :

- 86435150841. 1
- 86435150842. 2
- 86435150843. 3
- 86435150844. 4

Question Number : 30 Question Id : 86435115053 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In an AC series circuit, the inductive reactance is 20Ω , the capacitive reactance is 60Ω , the resistance is 30Ω and the current is 2 A. The impedance of the circuit is

1. 50Ω
2. 25Ω
3. 12.5Ω
4. 8.4Ω

Options :

- 86435150845. 1
- 86435150846. 2
- 86435150847. 3
- 86435150848. 4

Question Number : 31 Question Id : 86435115054 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In a series RL circuit supplied with 50 V, the circuit current is measured as 100 mA with a phase angle of 25° . What is the reactive power supplied to the circuit?

1. 4 VAR
2. 2.1 VAR
3. 3.2 VAR
4. 7.8 VAR

Options :

86435150849. 1
86435150850. 2
86435150851. 3
86435150852. 4

Question Number : 32 Question Id : 86435115055 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fill in the blank

In a 3- ϕ star connected supply, the line voltage is _____ of phase voltage?

1. Equal
2. 1.732 times
3. 3 times
4. None of the above

Options :

86435150853. 1
86435150854. 2
86435150855. 3
86435150856. 4

Question Number : 33 Question Id : 86435115056 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Fill in the blank

The line current is _____ of phase current in case of 3- ϕ delta connected load?

1. Equal
2. 1.732 times
3. 3 times
4. None of the above

Options :

- 86435150857. 1
- 86435150858. 2
- 86435150859. 3
- 86435150860. 4

Question Number : 34 Question Id : 86435115057 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fill in the blanks

The power factor is the ratio of _____ power to the _____ power.

1. Average, reactive
2. Average, apparent
3. Apparent, average
4. All of the above

Options :

- 86435150861. 1
- 86435150862. 2
- 86435150863. 3
- 86435150864. 4

Question Number : 35 Question Id : 86435115058 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A sinusoidal voltage $v = 50\sin\omega t$ is applied to a series RL circuit. The current in the circuit is given by $i = 25\sin(\omega t - 53^\circ)$. Determine the apparent power (VA).

1. 620
2. 625
3. 630
4. 635

Options :

86435150865. 1
86435150866. 2
86435150867. 3
86435150868. 4

Question Number : 36 Question Id : 86435115059 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In a balanced 3- ϕ system-delta load, if we assume the line voltage is $V_{RY} = V_L \angle 0^\circ$ as a reference phasor. Then the source voltage V_{YB} is?

1. $V_L \angle 0^\circ$
2. $V_L \angle -120^\circ$
3. $V_L \angle 120^\circ$
4. $V_L \angle 240^\circ$

Options :

86435150869. 1
86435150870. 2
86435150871. 3
86435150872. 4

Question Number : 37 Question Id : 86435115060 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In a balanced delta connected load, calculate the phase voltage if the line voltage is 480V?

1. 277 V
2. 480 V
3. 1460 V
4. 876 V

Options :

86435150873. 1
86435150874. 2
86435150875. 3
86435150876. 4

Question Number : 38 Question Id : 86435115061 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

R_a is resistance at A, R_b is resistance at B, R_c is resistance at C in star connection. After transforming to delta, what is resistance between A and B?

1. $R_c + R_b + R_a * R_b / R_c$
2. $R_a + R_b + R_a * R_c / R_b$
3. $R_a + R_b + R_a * R_b / R_c$
4. $R_a + R_c + R_a * R_c / R_b$

Options :

86435150877. 1
86435150878. 2
86435150879. 3
86435150880. 4

Question Number : 39 Question Id : 86435115062 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

If a 1 ohm, 2 ohm and $32/3$ ohm resistors are connected in star, find the equivalent delta connection.

1. 34 ohm, 18.67 ohm, 3.19 ohm
2. 33 ohm, 18.67 ohm, 3.19 ohm
3. 33 ohm, 19.67 ohm, 3.19 ohm
4. 34 ohm, 19.67 ohm, 3.19 ohm

Options :

- 86435150881. 1
- 86435150882. 2
- 86435150883. 3
- 86435150884. 4

Question Number : 40 Question Id : 86435115063 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

If $8/9$ ohm, $4/3$ ohm and $2/3$ ohm resistors are connected in star, find its delta equivalent.

1. 4 ohm, 3 ohm, 2 ohm
2. 1 ohm, 3 ohm, 2 ohm
3. 4 ohm, 1 ohm, 2 ohm
4. 4 ohm, 3 ohm, 1 ohm

Options :

- 86435150885. 1
- 86435150886. 2
- 86435150887. 3
- 86435150888. 4

Question Number : 41 Question Id : 86435115064 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What will happen to the frequency if the number of revolutions increases?

1. Increases
2. Decreases
3. Remains the same
4. Becomes zero

Options :

- 86435150889. 1
- 86435150890. 2
- 86435150891. 3
- 86435150892. 4

Question Number : 42 Question Id : 86435115065 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Calculate the frequency if the number of revolutions is 300 and the paired poles are 50.

1. 15kHz
2. 150kHz
3. 1500kHz
4. 150Hz

Options :

- 86435150893. 1
- 86435150894. 2
- 86435150895. 3
- 86435150896. 4

Question Number : 43 Question Id : 86435115066 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

If in an alternating current circuit, resistance is 5 ohm, capacitive reactance is 12 ohm, what is the impedance?

1. 5 ohm
2. 10 ohm
3. 12 ohm
4. 13 ohm

Options :

- 86435150897. 1
- 86435150898. 2
- 86435150899. 3
- 86435150900. 4

Question Number : 44 Question Id : 86435115067 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

If in an alternating current circuit, impedance is 26 ohm, capacitive reactance is 24 ohm, what is the resistance?

1. 25 ohm
2. 10 ohm
3. 12 ohm
4. 23 ohm

Options :

- 86435150901. 1
- 86435150902. 2
- 86435150903. 3
- 86435150904. 4

Question Number : 45 Question Id : 86435115068 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In an alternating current circuit, capacitance of $30 \mu\text{F}$ is connected to a supply of 200V, 50Hz. Find the current in the circuit.

1. 1.38 A
2. 1.89 A
3. 1.74 A
4. 0.89 A

Options :

- 86435150905. 1
- 86435150906. 2
- 86435150907. 3
- 86435150908. 4

Question Number : 46 Question Id : 86435115069 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A transformer cannot work on the DC supply because

1. There is no need to change the DC voltage
2. A DC circuit has more losses
3. Faraday's laws of electromagnetic induction are not valid since the rate of change of flux is zero
4. Cannot be determined

Options :

- 86435150909. 1
- 86435150910. 2
- 86435150911. 3
- 86435150912. 4

Question Number : 47 Question Id : 86435115070 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In a transformer the resistance between its primary and secondary is

1. Zero
2. Very small
3. Cannot be predicted
4. Infinite

Options :

- 86435150913. 1
- 86435150914. 2
- 86435150915. 3
- 86435150916. 4

Question Number : 48 Question Id : 86435115071 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

An ideal transformer will have maximum efficiency at a load such that

1. copper loss = iron loss
2. copper loss < iron loss
3. copper loss > iron loss
4. cannot be determined

Options :

- 86435150917. 1
- 86435150918. 2
- 86435150919. 3
- 86435150920. 4

Question Number : 49 Question Id : 86435115072 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Ideal transformer core has permeability equal to

1. Zero
2. Non-zero finite
3. Negative
4. Infinite

Options :

- 86435150921. 1
- 86435150922. 2
- 86435150923. 3
- 86435150924. 4

Question Number : 50 Question Id : 86435115073 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Turns ratio of a transformer is directly proportional to

1. Resistance ratio
2. Current ratio
3. Voltage ratio
4. Not proportional to any of the terms

Options :

- 86435150925. 1
- 86435150926. 2
- 86435150927. 3
- 86435150928. 4

Question Number : 51 Question Id : 86435115074 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

For a given transformer, turns ratio is equal to a . What will be the impedance of primary with respect to secondary?

1. a^2 times the secondary impedance
2. a times secondary impedance
3. secondary impedance/ a
4. secondary impedance/ a^2

Options :

- 86435150929. 1
- 86435150930. 2
- 86435150931. 3
- 86435150932. 4

Question Number : 52 Question Id : 86435115075 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

For a transformer with primary turns 400, secondary turns 100, if 20A current is flowing through primary, we will get

1. 80A at secondary
2. 5A at secondary
3. 800A at secondary
4. 40A at secondary

Options :

- 86435150933. 1
- 86435150934. 2
- 86435150935. 3
- 86435150936. 4

Question Number : 53 Question Id : 86435115076 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What will happen if the back emf of a DC motor vanishes suddenly?

1. The motor will stop
2. The motor will continue to run
3. The armature may burn
4. The motor will run noisy

Options :

86435150937. 1

86435150938. 2

86435150939. 3

86435150940. 4

Question Number : 54 Question Id : 86435115077 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What will happen, with the increase in speed of a DC motor?

1. Back emf increase but line current falls.
2. Back emf falls and line current increase.
3. Both back emf as well as line current increase.
4. Both back emf as well as line current fall.

Options :

86435150941. 1

86435150942. 2

86435150943. 3

86435150944. 4

Question Number : 55 Question Id : 86435115078 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT the operating characteristics of a DC generator?

1. No-load characteristics
2. Load characteristics
3. External characteristics
4. Internal characteristics

Options :

- 86435150945. 1
- 86435150946. 2
- 86435150947. 3
- 86435150948. 4

Question Number : 56 Question Id : 86435115079 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Direction of rotation of motor is determined by

1. Faraday's law
2. Lenz's law
3. Coulomb's law
4. Fleming's left-hand rule

Options :

- 86435150949. 1
- 86435150950. 2
- 86435150951. 3
- 86435150952. 4

Question Number : 57 Question Id : 86435115080 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In which of the following cases will we get maximum power?

1. $E_a = 2 \times$ supply voltage
2. $E_a =$ supply voltage
3. Supply voltage = $2 \times E_a$
4. supply voltage = $4 \times E_a$

Options :

86435150953. 1
86435150954. 2
86435150955. 3
86435150956. 4

Question Number : 58 Question Id : 86435115081 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Given that conductor current is in the same direction of conductor emf, then in which mode is the machine operating?

1. Motoring
2. Generating
3. Can't be determined using directions
4. In both modes for different cycles

Options :

86435150957. 1
86435150958. 2
86435150959. 3
86435150960. 4

Sub-Section Number :

2

Sub-Section Id :

864351810

Question Shuffling Allowed :

Yes

Question Number : 59 Question Id : 86435115082 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In a DC machine, average energy stored in the magnetic field remains constant, independent of the armature rotation.

1. True
2. False

Options :

- 86435150961. 1
- 86435150962. 2

Sub-Section Number : 3
Sub-Section Id : 864351811
Question Shuffling Allowed : Yes

Question Number : 60 Question Id : 86435115083 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Characteristics of separately excited DC generator are drawn by keeping

1. Field current and speed both constant
2. Field current and speed both variable
3. Field current constant and speed variable
4. Field current variable and speed constant

Options :

- 86435150963. 1
- 86435150964. 2
- 86435150965. 3
- 86435150966. 4

Question Number : 61 Question Id : 86435115084 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following characteristics lies above all others?

1. Differential compound
2. Under compound
3. Level compound
4. Over compound

Options :

- 86435150967. 1
- 86435150968. 2
- 86435150969. 3
- 86435150970. 4

Question Number : 62 Question Id : 86435115085 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following has different external characteristics compared to the others?

1. Self-excited DC shunt generator
2. Separately excited generator
3. Compound DC generator
4. Series DC generator

Options :

- 86435150971. 1
- 86435150972. 2
- 86435150973. 3
- 86435150974. 4

Question Number : 63 Question Id : 86435115086 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A three-phase slip ring induction motor is fed from the rotor side with the stator winding short-circuited. The frequency of the current flowing in the short-circuited stator is

1. Slip frequency
2. Supply frequency
3. The frequency corresponding to rotor speed
4. Zero

Options :

- 86435150975. 1
- 86435150976. 2
- 86435150977. 3
- 86435150978. 4

Question Number : 64 Question Id : 86435115087 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

An 8-pole, 3-phase, 50 Hz induction motor is operating at a speed of 720 rpm. The frequency of the rotor current of the motor in Hz is

1. 2
2. 4
3. 3
4. 1

Options :

- 86435150979. 1
- 86435150980. 2
- 86435150981. 3
- 86435150982. 4

Question Number : 65 Question Id : 86435115088 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The frame of an induction motor is made of

1. Aluminum
2. Silicon steel
3. Cast iron
4. Stainless steel

Options :

- 86435150983. 1
- 86435150984. 2
- 86435150985. 3
- 86435150986. 4

Question Number : 66 Question Id : 86435115089 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In an induction motor, when the number of stator slots is equal to an integral number of rotor slots then

1. There may be a discontinuity in torque slip characteristics
2. A high starting torque will be available
3. The maximum torque will be high
4. The machine may fail to start

Options :

- 86435150987. 1
- 86435150988. 2
- 86435150989. 3
- 86435150990. 4

Question Number : 67 Question Id : 86435115090 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In cables, the charging current

1. Leads the voltage by 90°
2. Lags the voltage by 90°
3. Is in phase with voltage
4. Is out of phase with voltage

Options :

- 86435150991. 1
- 86435150992. 2
- 86435150993. 3
- 86435150994. 4

Question Number : 68 Question Id : 86435115091 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A 3-phase induction motor runs at almost 1000 rpm at no load and 950 rpm at full load when supplied with power from a 50 Hz, 3-phase supply. What is the corresponding speed of the rotor field with respect to the rotor?

1. 30 revolution per minute
2. 40 revolution per minute
3. 60 revolution per minute
4. 50 revolution per minute

Options :

- 86435150995. 1
- 86435150996. 2
- 86435150997. 3
- 86435150998. 4

Question Number : 69 Question Id : 86435115092 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Calculate the active power in a 487 H inductor.

1. 2482 W
2. 1545 W
3. 4565 W
4. 0 W

Options :

- 86435150999. 1
- 86435151000. 2
- 86435151001. 3
- 86435151002. 4

Question Number : 70 Question Id : 86435115093 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following materials is used for insulation in cables?

1. Varnished cambric
2. Rubber
3. Paper
4. All of the above

Options :

- 86435151003. 1
- 86435151004. 2
- 86435151005. 3
- 86435151006. 4

Question Number : 71 Question Id : 86435115094 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Name the cable or conductor which connects the distributor to the consumer terminal?

1. Service main
2. Feeder
3. Distributor
4. Bus bar

Options :

- 86435151007. 1
- 86435151008. 2
- 86435151009. 3
- 86435151010. 4

Question Number : 72 Question Id : 86435115095 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The operating voltage of extra high tension cable is up to

1. 11 kV
2. 33 kV
3. 66 kV
4. Above 66 kV

Options :

- 86435151011. 1
- 86435151012. 2
- 86435151013. 3
- 86435151014. 4

Question Number : 73 Question Id : 86435115096 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The distributors for residential areas are

1. Three phase four wire
2. Three phase three wire
3. Single phase wire
4. Two phase wire

Options :

- 86435151015. 1
- 86435151016. 2
- 86435151017. 3
- 86435151018. 4

Question Number : 74 Question Id : 86435115097 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A three phase four wire system is commonly used for

1. Transmission
2. Primary distribution
3. Secondary distribution
4. Secondary transmission

Options :

- 86435151019. 1
- 86435151020. 2
- 86435151021. 3
- 86435151022. 4

Question Number : 75 Question Id : 86435115098 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fill in the blank

Moisture content in the soil _____ the earth soil resistance.

1. Increase
2. Decrease
3. Does not affect
4. None of the above

Options :

- 86435151023. 1
- 86435151024. 2
- 86435151025. 3
- 86435151026. 4

Question Number : 76 Question Id : 86435115099 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Generally grounding is provided for

1. safety of the equipment only
2. safety of the operating personal
3. Both 1 and 2
4. None of the above

Options :

- 86435151027. 1
- 86435151028. 2
- 86435151029. 3
- 86435151030. 4

Question Number : 77 Question Id : 86435115100 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

During maintenance, EVH equipment should first be isolated and connected to the ground

1. To provide low impedance
2. To discharge the charging capacitance to ground
3. To protect operating personal
4. Both 1 and 3

Options :

- 86435151031. 1
- 86435151032. 2
- 86435151033. 3
- 86435151034. 4

Question Number : 78 Question Id : 86435115101 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The objective of earthing or grounding is to provide

1. Low resistance as possible to the ground
2. High resistance as possible to the ground
3. Flow of positive, negative and zero sequence current
4. None of the above

Options :

- 86435151035. 1
- 86435151036. 2
- 86435151037. 3
- 86435151038. 4

Question Number : 79 Question Id : 86435115102 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Earth wire or ground wire is made of

1. Copper
2. Aluminium
3. Galvanized steel
4. Iron

Options :

- 86435151039. 1
- 86435151040. 2
- 86435151041. 3
- 86435151042. 4

Question Number : 80 Question Id : 86435115103 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

How many categories can the synchronous motors be divided into?

1. 4
2. 3
3. 5
4. 2

Options :

- 86435151043. 1
- 86435151044. 2
- 86435151045. 3
- 86435151046. 4

Question Number : 81 Question Id : 86435115104 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What is the rating of the hydro-generators?

1. 750 MW
2. 1000 MW
3. 20 MW
4. 700 MW

Options :

- 86435151047. 1
- 86435151048. 2
- 86435151049. 3
- 86435151050. 4

Question Number : 82 Question Id : 86435115105 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

An induction motor can be said to be analogous to

1. Transformer
2. Synchronous motor
3. Universal motor
4. Stepper motor

Options :

- 86435151051. 1
- 86435151052. 2
- 86435151053. 3
- 86435151054. 4

Question Number : 83 Question Id : 86435115106 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The rated current in induction motor for a three phase system is 100A. What can be the no load estimated current for the machine?

1. 12 A
2. 20 A
3. 30 A
4. 5 A

Options :

- 86435151055. 1
- 86435151056. 2
- 86435151057. 3
- 86435151058. 4

Question Number : 84 Question Id : 86435115107 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The no load current of the transformer is very less due to

1. mutual flux having low reluctance iron core
2. mutual flux having high reluctance iron core
3. leakage flux having low reluctance iron core
4. leakage flux having high reluctance iron core

Options :

- 86435151059. 1
- 86435151060. 2
- 86435151061. 3
- 86435151062. 4

Question Number : 85 Question Id : 86435115108 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

At no load, induction motor has a possible power factor of

1. 0.2
2. 0.5
3. 0.65
4. 0

Options :

- 86435151063. 1
- 86435151064. 2
- 86435151065. 3
- 86435151066. 4

Question Number : 86 Question Id : 86435115109 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Mechanically air gaps in induction motor are kept very low to avoid

1. lower power factor
2. lagging nature
3. magnetizing current
4. All of the above

Options :

- 86435151067. 1
- 86435151068. 2
- 86435151069. 3
- 86435151070. 4

Question Number : 87 Question Id : 86435115110 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The great advantage of the double squirrel-cage induction motor over single cage rotor is that its

1. efficiency is higher
2. power factor is higher
3. slip is larger
4. starting current is lower

Options :

- 86435151071. 1
- 86435151072. 2
- 86435151073. 3
- 86435151074. 4

Question Number : 88 Question Id : 86435115111 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following statements is/are correct regarding the generation of EMF in rotating electrical machines in the armature winding?

EMF is generated by

1. rotating armature windings through a magnetic field
2. rotating magnetic field with respect to the armature windings
3. designing the magnetic circuit to have variable reluctance with rotor rotation
4. All of the above

Options :

- 86435151075. 1
- 86435151076. 2
- 86435151077. 3
- 86435151078. 4

Question Number : 89 Question Id : 86435115112 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Normal transformers are designed to have maximum efficiency at

1. Nearly full load
2. 70% full load
3. 50% full load
4. No load

Options :

- 86435151079. 1
- 86435151080. 2
- 86435151081. 3
- 86435151082. 4

Question Number : 90 Question Id : 86435115113 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

For a given transformer, operating at constant load current, maximum efficiency will occur at

1. 0.8 leading power factor
2. 0.8 lagging power factor
3. Zero power factor
4. Unity power factor

Options :

- 86435151083. 1
- 86435151084. 2
- 86435151085. 3
- 86435151086. 4

Question Number : 91 Question Id : 86435115114 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The efficiencies of transformers compared to electric motors of the same power are

1. About the same
2. Much smaller
3. Much higher
4. Can't comment

Options :

- 86435151087. 1
- 86435151088. 2
- 86435151089. 3
- 86435151090. 4

Question Number : 92 Question Id : 86435115115 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A 500 kVA transformer has efficiency of 95% at full load and also at 60% of full load; both at unity power factor. Then P_i is

1. 16.45 kW
2. 9.87 kW
3. 14.57 kW
4. Can't be calculated

Options :

- 86435151091. 1
- 86435151092. 2
- 86435151093. 3
- 86435151094. 4

Question Number : 93 Question Id : 86435115116 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A power transformer operating at full load draws voltage and current equal to 200 V and 100 A respectively at 0.8 pf. Iron and copper losses are equal to 120 kW and 300kW. What is the efficiency?

1. 86.44%
2. 96.44%
3. 97.44%
4. 99.12%

Options :

- 86435151095. 1
- 86435151096. 2
- 86435151097. 3
- 86435151098. 4

Question Number : 94 Question Id : 86435115117 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

When do star/star transformers work satisfactorily?

1. Load is unbalanced only
2. Load is balanced only
3. On balanced as well as unbalanced loads
4. Independent of load type

Options :

- 86435151099. 1
- 86435151100. 2
- 86435151101. 3
- 86435151102. 4

Question Number : 95 Question Id : 86435115118 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In a three-phase star – delta transformer, what is the angle difference between primary and secondary phase voltages?

1. Delta side leads by 300
2. Delta side lags by 300
3. Star side leads by 300
4. Star side lags by 300

Options :

- 86435151103. 1
- 86435151104. 2
- 86435151105. 3
- 86435151106. 4

Question Number : 96 Question Id : 86435115119 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Delta/delta connection is also called

1. 00-connection
2. 900-connection
3. 1800-connection
4. 00/1800-connection

Options :

- 86435151107. 1
- 86435151108. 2
- 86435151109. 3
- 86435151110. 4

Question Number : 97 Question Id : 86435115120 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Transformer core is constructed for providing

1. Least effective magnetic linkage between two windings
2. Isolation between magnetic linkages of one coil from another
3. Most effective magnetic linkage between two windings
4. Cannot be determined

Options :

- 86435151111. 1
- 86435151112. 2
- 86435151113. 3
- 86435151114. 4

Question Number : 98 Question Id : 86435115121 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In various radio devices and testing instruments, we use

1. Iron core transformer
2. Air core transformer
3. W/O core transformer
4. Any transformer can be used

Options :

- 86435151115. 1
- 86435151116. 2
- 86435151117. 3
- 86435151118. 4

Question Number : 99 Question Id : 86435115122 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is the correct statement?

1. Shell type has more mechanical protection
2. Cooling is more in shell type
3. In core type sandwiched wiring is used
4. In core type concentric winding is used

Options :

- 86435151119. 1
- 86435151120. 2
- 86435151121. 3
- 86435151122. 4

Sub-Section Number : 4
Sub-Section Id : 864351812
Question Shuffling Allowed : Yes

Question Number : 100 Question Id : 86435115123 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

3/6-phase circuit is employed for providing DC path in some circuits.

1. True
2. False

Options :

- 86435151123. 1
- 86435151124. 2