Question 1: START

In a parallel circuit with two resistors, R1​ and R2, the total resistance is given by:

Question 1: END

Option\_a: R=R1​+R2

Option\_b: R=​(1/R1) + (1/R2)​

Option\_c: (R1 R2)/ (R1+R2)

Option\_d: (R1+R2)/2

correct\_option: c).(R1 R2)/ (R1+R2)

Question 2: START

According to Kirchhoff's Current Law (KCL), the algebraic sum of currents at a node is:

Question 2: END

Option\_a: Zero

Option\_b: Equal to the total voltage at the node

Option\_c: Equal to the sum of resistances at the node

Option\_d: Dependent on the values of current

correct\_option: a) Zero

Question 3: START

Ohm’s Law states that the current through a conductor between two points is directly proportional to the:

Question 3: END

Option\_a: Resistance between the points

Option\_b: Voltage between the points

Option\_c: Temperature difference

Option\_d: Power dissipated

correct\_option: b) Voltage between the points

Question 4: START

If a resistor of 10 Ω is connected across a 5 V battery, what is the current flowing through the resistor?

Question 4: END

Option\_a: 0.5 A

Option\_b: 1 A

Option\_c: 2 A

Option\_d: 5 A

correct\_option: a)0.5 A

Question 5: START

For a simple circuit with a 12 V battery and two series resistors, R1=2 Ω and R2​=4Ω, what is the voltage drop across R2​?

Question 5: END

Option\_a: 4V

Option\_b: 6V

Option\_c: 8V

Option\_d: 12 V

correct\_option: c)8 V

Question 6: START

Which of the following statements about Kirchhoff's Voltage Law (KVL) is correct?

Question 6: END

Option\_a: The sum of all voltage drops around a closed loop is always positive.

Option\_b: The sum of all voltage drops around a closed loop equals the total resistance.

Option\_c: The sum of all voltage drops around a closed loop is equal to the sum of all current sources.

Option\_d: The sum of all voltages around a closed loop is zero.

correct\_option: d)The sum of all voltages around a closed loop is zero.

Question 7: START

In a series circuit, the current flowing through each component is:

Question 7: END

Option\_a: The same

Option\_b: Different

Option\_c: Dependent on the voltage

Option\_d: Dependent on the resistance of each component

correct\_option: a) The same

Question 8: START

Two resistors of 5 Ω and 10 Ω are connected in parallel. If the current entering the parallel combination is 6 A, what is the current through the 10 Ω resistor?

Question 8: END

Option\_a: 2 A

Option\_b: 4 A

Option\_c: 5 A

Option\_d: 6 A

correct\_option: a) 2 A

Question 9: START

If a 5 Ω resistor is connected in series with a 10 Ω resistor across a 15 V battery, what is the current in the circuit?

Question 9: END

Option\_a: 1 A

Option\_b: 4 A

Option\_c: 5 A

Option\_d: 6 A

correct\_option: a) 1 A

Question 10: START

Kirchhoff's Voltage Law (KVL) is based on the conservation of:

Question 10: END

Option\_a: Charge

Option\_b: Energy

Option\_c: Momentum

Option\_d: Mass

correct\_option: b) Energy

Question 11: START

Two resistors R1​=3Ω and R2​=6Ω, are connected in series across a 36 V source. What is the voltage across R2 using the voltage division rule?

Question 11: END

Option\_a: 12 V

Option\_b: 18 V

Option\_c: 24 V

Option\_d: 30 V

correct\_option: c) 24 V

Question 12: START

Three resistors R1​=4Ω, R2​=5Ω, and R3​=6Ω are connected in series across a 45 V source. What is the voltage across R3​ using the voltage division rule?

Question 12: END

Option\_a: 10 V

Option\_b: 15 V

Option\_c: 20 V

Option\_d: 25 V

correct\_option: b) 15 V

Question 13: START

A circuit has two resistors R1​=2Ω and R2​=8Ω connected in parallel. If the total current entering the parallel combination is 20 A, what is the current through R1​ using the current division rule?

Question 13: END

Option\_a: 18 A

Option\_b: 10 A

Option\_c: 4 A

Option\_d: 2 A

correct\_option: a) 18 A

Question 14: START

Two resistors R1​=3Ω and R2​=12Ω, are connected in parallel across a 24 V source. What is the current through R1​ using the current division rule?

Question 14: END

Option\_a: 1 A

Option\_b: 2 A

Option\_c: 6 A

Option\_d: 8 A

correct\_option: d) 8 A

Question 15: START

In a series circuit with resistors R1​=10Ω, R2​=20Ω, and R3​=30Ω connected to a 60 V battery, calculate the voltage drop across R1​ using the voltage division rule.

Question 15: END

Option\_a: 10 V

Option\_b: 15 V

Option\_c: 20 V

Option\_d: 30 V

correct\_option: a) 10 V

Question 16: START

Three resistors R1​=2Ω, R2​=4Ω, and R3​=8Ω are connected in parallel. If the total current entering the parallel combination is 24 A, what is the current through R3​ using the current division rule?

Question 16: END

Option\_a: 3.4 A

Option\_b: 8 A

Option\_c: 12 A

Option\_d: 18 A

correct\_option: a) 3.4 A

Question 17: START

For a series circuit with resistors R1​=1Ω, R2​=4Ω, and R3​=5Ω, the total resistance is 10 Ω. If the circuit is powered by a 20 V source, what is the voltage drop across R2​ using the voltage division rule?

Question 17: END

Option\_a: 2 V

Option\_b: 8 V

Option\_c: 10 V

Option\_d: 5 V

correct\_option: b) 8 V

Question 18: START

In a parallel circuit, R1​=6Ω and R2​=3Ω with a total current of 18 A flowing into the combination. Calculate the current through R1​ using the current division rule.

Question 18: END

Option\_a: 6 A

Option\_b: 9 A

Option\_c: 12 A

Option\_d: 15 A

correct\_option: a) 6 A

Question 19: START

A 10 V source is connected across two resistors, R1​=3Ω and R2​=7Ω, in series. What is the voltage across R1​ using the voltage division rule?

Question 19: END

Option\_a: 3 V

Option\_b: 4 V

Option\_c: 5 V

Option\_d: 7 V

correct\_option: a) 3 V

Question 20: START

In a circuit with resistors R1​=5Ω and R2​=15Ω connected in parallel, the total current entering the combination is 40 A. Calculate the current through R2​ using the current division rule.

Question 20: END

Option\_a: 10 A

Option\_b: 20 A

Option\_c: 30 A

Option\_d: 40 A

correct\_option: a) 10 A

Question 21: START

Three resistors are connected in a star (Y) configuration with resistances RA​=5Ω, RB​=10Ω, and RC​=15Ω. What is the equivalent resistance between two terminals AB after converting the network to a delta (Δ) configuration?

Question 21: END

Option\_a: 15 Ω

Option\_b: 30 Ω

Option\_c: 50 Ω

Option\_d: 75 Ω

correct\_option: a) 15 Ω

Question 22: START

In a delta network, the resistances are given as RAB​=12Ω, RBC​=24Ω, and RCA​=36Ω. What is the equivalent resistance RA​ in the star network?

Question 22: END

Option\_a: 6 Ω

Option\_b: 8 Ω

Option\_c: 10 Ω

Option\_d: 12 Ω

correct\_option: a) 6 Ω

Question 23: START

For a delta network with resistances RAB​=30Ω, RBC​=60Ω, and RCA​=90Ω, the equivalent star resistance RB​ is given by which formula?

Question 23: END

Option\_a: RB=(RAB⋅RBC)/(RAB+RBC+RCA)

Option\_b: RB=(RBC⋅RCA)/(RAB+RBC+RCA)

Option\_c: RB=(RCA⋅RAB)/(RAB+RBC+RCA)

Option\_d: RB=(RAB⋅RBC⋅RCA)/(RAB+RBC+RCA)

correct\_option: a).RB=(RAB⋅RBC)/(RAB+RBC+RCA)

Question 24: START

In a star network, each resistor has a value of 10 Ω. After converting it to a delta network, what will be the value of each resistor in the delta configuration?

Question 24: END

Option\_a: 10 Ω

Option\_b: 20 Ω

Option\_c: 30 Ω

Option\_d: 40 Ω

correct\_option: c) 30 Ω

Question 25: START

If a delta network has resistors RAB​=6Ω, RBC​=12Ω, and RCA​=18Ω, find the equivalent star resistance RC​.

Question 25: END

Option\_a: 3 Ω

Option\_b: 4 Ω

Option\_c: 5 Ω

Option\_d: 6 Ω

correct\_option: d) 6 Ω

Question 26: START

In a star network with resistances RA​=2Ω, RB​=3Ω, and RC​=4Ω, what is the equivalent resistance between terminals after converting to a delta configuration?

Question 26: END

Option\_a: 9 Ω

Option\_b: 12 Ω

Option\_c: 15 Ω

Option\_d: 6.5 Ω

correct\_option: d) 6.5 Ω

Question 27: START

A delta network has resistances RAB​=10Ω, RBC​=15Ω, and RCA​=20Ω. What is the value of RA​ in the equivalent star network?

Question 27: END

Option\_a: 5 Ω

Option\_b: 4.44 Ω

Option\_c: 10 Ω

Option\_d: 12 Ω

correct\_option: b) 4.44 Ω

Question 28: START

In a balanced delta network, each resistor has a resistance of 12 Ω. If this network is converted to a star configuration, what will be the resistance of each resistor in the star network?

Question 28: END

Option\_a: 4 Ω

Option\_b: 8 Ω

Option\_c: 10 Ω

Option\_d: 10 Ω

correct\_option: a) 4 Ω

Question 29: START

Given a delta network with resistances RAB​=8Ω, RBC​=16Ω, and RCA​=24Ω, what is the total resistance across terminals A and B after converting it to a star network?

Question 29: END

Option\_a: 4 Ω

Option\_b: 6 Ω

Option\_c: 6.67 Ω

Option\_d: 12 Ω

correct\_option: c) 8 Ω

Question 30: START

In Thevenin’s Theorem, the Thevenin equivalent circuit for a linear two-terminal network consists of:

Question 30: END

Option\_a: An ideal current source and a resistor in series

Option\_b: An ideal voltage source and a resistor in series

Option\_c: A capacitor and a resistor in parallel

Option\_d: An inductor and a resistor in parallel

correct\_option: b) An ideal voltage source and a resistor in series

Question 31: START

For a given circuit, the open-circuit voltage across terminals A and B is 12 V, and the equivalent resistance seen from these terminals is 4 Ω. What is the Thevenin equivalent voltage and resistance?

Question 31: END

Option\_a: 6 V, 4 Ω

Option\_b: 12 V, 4 Ω

Option\_c: 12 V, 8 Ω

Option\_d: 24 V, 4 Ω

correct\_option: b) 12 V, 4 Ω

Question 32: START

In a circuit with a Thevenin equivalent voltage of 15 V and a Thevenin resistance of 5 Ω, what load resistance will maximize the power transferred to the load?

Question 32: END

Option\_a: 2.5 Ω

Option\_b: 5 Ω

Option\_c: 10 Ω

Option\_d: 15 Ω

correct\_option: b) 5 Ω

Question 33: START

Thevenin’s Theorem is applicable only to circuits that are:

Question 33: END

Option\_a: Linear and bilateral

Option\_b: Non-linear and unilateral

Option\_c: Linear and time-invariant

Option\_d: Non-linear and time-variant

correct\_option: a) Linear and bilateral

Question 34: START

If the load resistance RL​ is connected to a Thevenin equivalent circuit with a Thevenin voltage Vth​=10V and Thevenin resistance Rth​=5Ω, what is the current through RL​ when RL​=5Ω?

Question 34: END

Option\_a: 1 A

Option\_b: 2 A

Option\_c: 0.5 A

Option\_d: 10 A

correct\_option: a) 1 A

Question 35: START

In a circuit, the open-circuit voltage across two terminals is 20 V, and the short-circuit current across the same terminals is 5 A. What is the Thevenin resistance?

Question 35: END

Option\_a: 2 Ω

Option\_b: 4 Ω

Option\_c: 5 Ω

Option\_d: 10 Ω

correct\_option: b) 4 Ω

Question 36: START

A complex circuit has a Thevenin equivalent voltage of 25 V and a Thevenin resistance of 50 Ω. If a 50 Ω load is connected to the Thevenin equivalent, what is the voltage across the load?

Question 36: END

Option\_a: 12.5 V

Option\_b: 25 V

Option\_c: 50 V

Option\_d: 0 V

correct\_option: a) 12.5 V

Question 37: START

For maximum power transfer in a circuit, the load resistance RL​ should be:

Question 37: END

Option\_a: Twice the Thevenin resistance

Option\_b: Half the Thevenin resistance

Option\_c: Equal to the Thevenin resistance

Option\_d: Very large compared to the Thevenin resistance

correct\_option: C) Equal to the Thevenin resistance

Question 38: START

A network has an internal Thevenin resistance of 10 Ω and a Thevenin voltage of 40 V. To maximize power transfer, what power is delivered to the load?

Question 38: END

Option\_a: 40 W

Option\_b: 80 W

Option\_c: 160 W

Option\_d: 200 W

correct\_option: a) 40 W

Question 39: START

For a circuit with Thevenin equivalent voltage Vth​=12V and Thevenin resistance Rth​=6Ω, what is the current through a load resistance RL​=12Ω when connected across the terminals?

Question 39: END

Option\_a: 0.66 A

Option\_b: 1 A

Option\_c: 1.5 A

Option\_d: 2 A

correct\_option: a) 0.66 A

Question 40: START

In Norton’s Theorem, the Norton equivalent circuit of a linear two-terminal network consists of:

Question 40: END

Option\_a: An ideal current source and a resistor in series

Option\_b: An ideal voltage source and a resistor in series

Option\_c: An ideal current source and a resistor in parallel

Option\_d: A capacitor and an inductor in series

correct\_option: c) An ideal current source and a resistor in parallel

Question41: START

 In superposition theorem, when we consider the effect of one voltage source, all the other voltage sources are

Question41: END

Option\_a: Shorted

Option\_b: Opened

Option\_c: Removed

Option\_d: Undisturbed

correct\_option: Shorted

Question 42: START

In superposition theorem, when we consider the effect of one current source, all the other voltage sources are

Question42: END

Option\_a: Shorted

Option\_b: Opened

Option\_c: Removed

Option\_d: Undisturbed

correct\_option: Shorted

Question43: START

In superposition theorem, when we consider the effect of one voltage source, all the other current sources are

Question43: END

Option\_a: Shorted

Option\_b: Opened

Option\_c: Removed

Option\_d: Undisturbed

correct\_option: Opened

Question44: START

In superposition theorem, when we consider the effect of one current source, all the other current sources are

Question44: END

Option\_a: Shorted

Option\_b: Opened

Option\_c: Removed

Option\_d: Undisturbed

correct\_option: Opened

Question45: START

Superposition theorem is valid for

Question45: END

Option\_a: Linear systems

Option\_b: Non-linear systems

Option\_c: Both linear and non-linear systems

Option\_d: Neither linear nor non-linear systems

correct\_option: Linear systems

Question46: START

Superposition theorem does not work for

Question46: END

Option\_a: Current

Option\_b: Voltage

Option\_c: Power

Option\_d: Works for all: current, voltage and power

correct\_option: Power

Question47: START

Which of the following statements is/are correct regarding superposition theorem

(1). It can be used to calculate voltage , current and power

(2). It can be used to calculate voltage and current in a circuit containing resistor , inductor and diode.

(3). It can be used to calculate voltage and current in a circuit having linear elements resistor , capacitor and inductor

Question47: END

Option\_a: (1),(2) and (3)

Option\_b: (1) and (2) only

Option\_c: (3) only

Option\_d: (3) and (2) only

correct\_option: (3) only

Question48: START

For applying the superposition theorem, we need

Question48: END

Option\_a: No source

Option\_b: Only one source

Option\_c: Two or more sources

Option\_d: None of the options

correct\_option: Two or more sources

Question49: START

The maximum power drawn from source depends on \_\_\_\_\_\_\_\_\_\_

Question49: END

Option\_a: Value of source resistance

Option\_b: Value of load resistance

Option\_c: Both source and load resistance

Option\_d: Neither source or load resistance

correct\_option: Value of load resistance

Question50: START

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

Question50: END

Option\_a: greater than

Option\_b: less than

Option\_c: equal to

Option\_d: less than or equal to

correct\_option: equal to

Question51: START

What is the principle of the transformer?

Question51: END

Option\_a: Gauss law

Option\_b: Coulomb’s law

Option\_c: Electromagnetic induction

Option\_d: Ampere’s law

correct\_option: Electromagnetic induction

Question52: START

Voltage induced in secondary coil of transformer is given by\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Question52: END

Option\_a: NP\*VP/NS

Option\_b: NS\*VP/NP

Option\_c: (NP/VP)\*NS

Option\_d: NP/(VP\*NS)

correct\_option: NS\*VP/NP

Question53: START

According to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ induced e.m.f. opposes the cause due to which they

are produced

Question53: END

Option\_a: Lenz law

Option\_b: Newton’s law

Option\_c: Faraday’s law

Option\_d: Coulomb’s law

correct\_option: Lenz law

Question54: START

The emf induced in a coil having N turns is?

Question54: END

Option\_a: E = ϕ/t

Option\_b: E = N\*ϕ/t

Option\_c: E = N\*ϕ\*t

Option\_d: E = N 2 \*ϕ\*t

correct\_option: E = N\*ϕ/t

Question55: START

According to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ induced emf is equal to rate of change of magnetic flux

Question55: END

Option\_a: Newton’s law

Option\_b: Lenz law

Option\_c: Faraday’s law

Option\_d: Coulomb’s law

correct\_option: Faraday’s law

Question56: START

Transformer cores are laminated to reduce

Question56: END

Option\_a: Copper loss

Option\_b: Eddy current loss

Option\_c: Hysteresis loss

Option\_d: All of the above

correct\_option: Eddy current loss

Question57: START

To reduce hysteresis loss, transformer core is made of

Question57: END

Option\_a: Silicon steel

Option\_b: Aluminium

Option\_c: Copper

Option\_d: Lead

correct\_option: Silicon steel

Question58: START

If the transformer is loaded then the secondary terminal voltage \_\_\_\_\_\_ for lagging power

factor.

Question58: END

Option\_a: falls

Option\_b: rise

Option\_c: double

Option\_d: none of the above

correct\_option: falls

Question59: START

The efficiency of the transformer will be maximum when

Question59: END

Option\_a: Iron losses is equal to the twice of the copper losses

Option\_b: Copper losses is equal to the twice of the iron losses

Option\_c: Iron losses is equal to the copper losses

Option\_d: All of these

correct\_option: Iron losses is equal to the copper losses

Question60: START

Copper losses occurs due to ohmic resistance in

Question60: END

Option\_a: Primary winding

Option\_b: Secondary winding

Option\_c: Both primary and secondary winding

Option\_d: None of these

correct\_option: Both primary and secondary winding

Question61: START

In transformer if the secondary is open circuited then its terminal voltage is

Question61: END

Option\_a: kW

Option\_b: KVAR

Option\_c: kWh

Option\_d: KVA

correct\_option: KVA

Question62: START

Which of the following does not change in an ordinary transformer

Question62: END

Option\_a: Frequency

Option\_b: Voltage

Option\_c: Current

Option\_d: Power

correct\_option: Frequency

Question63: START

If primary number of turns are higher then, transformer is called \_\_\_\_\_\_\_\_\_Question63: END

Option\_a: Step-down

Option\_b: Step-up

Option\_c: One-one

Option\_d: Autotransformer

correct\_option: Step-down

Question64: START

If secondary number of turns are higher then, transformer is called \_\_\_\_\_\_\_\_\_Question64: END

Option\_a: Step-down

Option\_b: Step-up

Option\_c: One-one

Option\_d: Autotransformer

correct\_option: Step-up

Question65: START

The open circuit test in a transformer is used to measure\_\_

Question65: END

Option\_a: Copper loss

Option\_b: Winding loss

Option\_c: Total loss

Option\_d: Core loss

correct\_option: Core loss

Question66: START

Why OC test is performed on LV side?

Question66: END

Option\_a: Simple construction

Option\_b: Less voltage is required and parameters can be transformed to HV side

Option\_c: It’ll not give losses if conducted on HV side

Option\_d: HV side does not have connections for voltage

correct\_option: Less voltage is required and parameters can be transformed to HV side

Question67: START

While conducting short-circuit test on a transformer which side is short circuited?

Question67: END

Option\_a: High voltage side

Option\_b: Low voltage side

Option\_c: Primary side

Option\_d: Secondary side

correct\_option: Low voltage side

Question68: START

Which types of windings are used in transformer?Question68: END

Option\_a: Helical winding

Option\_b: Cylindrical winding

Option\_c: Continuous disc winding

Option\_d: All of above

correct\_option: All of above

Question69: START

Breather is provided in a transformer to

Question69: END

Option\_a: Absorb moisture of air during breathing

Option\_b: provide cold air in the transformer

Option\_c: The filter of transformer oil

Option\_d: None of above

correct\_option: Absorb moisture of air during breathing

Question70: START

Oil is provided in an oil filled transformer for

Question70: END

Option\_a: Lubrication

Option\_b: Insulation

Option\_c: cooling

Option\_d: both cooling and insulation

correct\_option: both cooling and insulation

Question71: START

Which of the following is not a part of transformer?

Question71: END

Option\_a: Conservator

Option\_b: breather

Option\_c: Exciter

Option\_d: Buchholz relay

correct\_option: Exciter

Question72: START

Noise of transformer mainly due to

Question72: END

Option\_a: Cooling fan

Option\_b: magnetostriction in an iron core

Option\_c: Mechanical vibration

Option\_d: All of the above

correct\_option: magnetostriction in an iron core

Question73: START

The part of a transformer which is visible from outside

Question73: END

Option\_a: Bushings

Option\_b: Core

Option\_c: Primary winding

Option\_d: Secondary winding

correct\_option: Bushings

Question74: START

Part of the transformer which undergoes most damage from overheating is \_\_

Question74: END

Option\_a: Iron core

Option\_b: Copper winding

Option\_c: Winding insulation

Option\_d: Frame or case

correct\_option: Winding insulation

Question75: START

Which is the most common, famous and adopted method of cooling of a power transformer?

Question75: END

Option\_a: Air blast cooling

Option\_b: Natural air cooling

Option\_c: Oil cooling

Option\_d: Any of the above method can be used

correct\_option: Oil cooling

Question76: START

Function of conservator in an electrical transformer is

Question76: END

Option\_a: Supply cooling oil to transformer in time of need

Option\_b: Provide fresh air for cooling the transformer

Option\_c: Protect the transformer from damage when oil expends due to heating

Option\_d: Cannot be determined

correct\_option: Protect the transformer from damage when oil expends due to heating

Question77: START

Which chemical is used in breather?

Question77: END

Option\_a: Asbestos fibre

Option\_b: Silica sand

Option\_c: Sodium chloride

Option\_d: Silica gel

correct\_option: Silica gel

Question78: START

Buchholz’s relay will give warning and protection against \_\_\_\_\_\_\_

Question78: END

Option\_a: Electrical fault inside the transformer itself

Option\_b: Electrical fault outside the transformer in outgoing feeder

Option\_c: For both outside and inside faults

Option\_d: Cannot be determined

correct\_option: Electrical fault inside the transformer itself

Question79: START

An auto transformer can be used as

Question79: END

Option\_a: Step up device

Option\_b: Step down device

Option\_c: Both step up and step down

Option\_d: None of the above

correct\_option: Both step up and step down

Question80: START

In an Auto Transformer, The Primary and Secondary are\_\_\_\_\_\_\_\_\_\_\_coupled.

Question80: END

Option\_a: Electrically only

Option\_b: Magnetically only

Option\_c: Both electrically & magnetically

Option\_d: None of the above

correct\_option: Both electrically & magnetically

Question81: START

A load test on a single-phase induction motor is conducted to evaluate its performance under different load conditions.

Question81: END

Option\_a: To determine the voltage drop

Option\_b: To evaluate motor performance under varying loads

Option\_c: To measure the speed of the motor only

Option\_d: To test the insulation resistance

correct\_option: To evaluate motor performance under varying loads

Question82: START

The efficiency of a single-phase transformer is maximum at:

Question82: END

Option\_a: Full load

Option\_b: Half load

Option\_c: No load

Option\_d: Quarter load

correct\_option: Half load

Question83: START

In an LVDT, the output voltage is zero when:

Question83: END

Option\_a: The core is at the null position

Option\_b: The core is fully inserted

Option\_c: The supply voltage is maximum

Option\_d: The frequency is maximum

correct\_option: The core is at the null position

Question84: START

Which type of meter is commonly used to measure energy consumption in households?

Question84: END

Option\_a: Ammeters

Option\_b: Voltmeters

Option\_c: Energy meters

Option\_d: Ohmmeters

correct\_option: Energy meters

Question85: START

The purpose of using a wattmeter is to measure:

Question85: END

Option\_a: Voltage

Option\_b: Current

Option\_c: Power

Option\_d: Resistance

correct\_option: Power

Question86: START

A Moving Coil (MC) instrument is primarily used for:

Question86: END

Option\_a: AC measurements

Option\_b: DC measurements

Option\_c: Both AC and DC measurements

Option\_d: Frequency measurements

correct\_option: DC measurements

Question87: START

The sensitivity of a wattmeter can be increased by:

Question87: END

Option\_a: Increasing the resistance of the current coil

Option\_b: Decreasing the resistance of the current coil

Option\_c: Increasing the inductance of the voltage coil

Option\_d: Decreasing the inductance of the voltage coil

correct\_option: Increasing the resistance of the current coil

Question88: START

An induction motor is commonly used in:

Question88: END

Option\_a: Power plants

Option\_b: Domestic appliances

Option\_c: Aircraft engines

Option\_d: Nuclear reactors

correct\_option: Domestic appliances

Question89: START

The function of a capacitor in a single-phase motor is to:

Question89: END

Option\_a: Start the motor

Option\_b: Increase the speed

Option\_c: Reduce the voltage

Option\_d: Decrease the current

correct\_option: Start the motor

Question90: START

The standard frequency of AC supply in India is:

Question90: END

Option\_a: 50 Hz

Option\_b: 60 Hz

Option\_c: 75 Hz

Option\_d: 100 Hz

correct\_option: 50 Hz

Question91: START

In the two wattmeter method, when the power factor is zero, the readings of wattmeters are:

Question91: END

Option\_a: Both positive

Option\_b: Both negative

Option\_c: One positive, one negative

Option\_d: Zero

correct\_option: One positive, one negative

Question92: START

The primary advantage of using an LVDT is its:

Question92: END

Option\_a: High accuracy

Option\_b: Low cost

Option\_c: Large size

Option\_d: High power consumption

correct\_option: High accuracy

Question93: START

The scale of a Moving Coil (MC) meter is typically:

Question93: END

Option\_a: Non-uniform

Option\_b: Uniform

Option\_c: Exponential

Option\_d: Logarithmic

correct\_option: Uniform

Question94: START

What is the phase difference between current and voltage in a purely capacitive circuit?

Question94: END

Option\_a: 0 degrees

Option\_b: 90 degrees

Option\_c: 180 degrees

Option\_d: 270 degrees

correct\_option: 90 degrees

Question95: START

Which instrument is used to measure high-frequency AC signals?

Question95: END

Option\_a: Moving Iron (MI) meter

Option\_b: Moving Coil (MC) meter

Option\_c: Electrodynamometer

Option\_d: Digital Oscilloscope

correct\_option: Digital Oscilloscope

Question96: START

The power factor of a purely inductive circuit is:

Question96: END

Option\_a: Unity

Option\_b: Zero

Option\_c: 0.5

Option\_d: Negative

correct\_option: Zero

Question97: START

In an energy meter, the term 'creep' refers to:

Question97: END

Option\_a: Unwanted slow rotation of the disc

Option\_b: Sudden increase in current

Option\_c: Sudden decrease in voltage

Option\_d: Constant power factor

correct\_option: Unwanted slow rotation of the disc

Question98: START

LVDTs are best suited for measuring:

Question98: END

Option\_a: High temperatures

Option\_b: Large displacements

Option\_c: Small displacements

Option\_d: High pressures

correct\_option: Small displacements

Question99: START

The slip of an induction motor increases with:

Question99: END

Option\_a: Increase in load

Option\_b: Decrease in load

Option\_c: Increase in speed

Option\_d: Increase in voltage

correct\_option: Increase in load

Question100: START

The moving coil meter works on the principle of:

Question100: END

Option\_a: Electromagnetic induction

Option\_b: Electrostatic effect

Option\_c: Thermionic emission

Option\_d: Motor effect

correct\_option: Motor effect

Question101: START

If a device consumes 2 kW power for 5 hours, the energy consumed is:

Question101: END

Option\_a: 10 kWh

Option\_b: 1 kWh

Option\_c: 5 kWh

Option\_d: 0.5 kWh

correct\_option: 10 kWh

Question102: START

What is the typical range of slip for a single-phase induction motor at full load?

Question102: END

Option\_a: 0% to 1%

Option\_b: 5% to 7%

Option\_c: 10% to 15%

Option\_d: 20% to 30%

correct\_option: 5% to 7%

Question103: START

The scale of a Moving Iron (MI) instrument is typically:

Question103: END

Option\_a: Uniform across all ranges

Option\_b: Narrower at low readings and wider at higher readings

Option\_c: Wider at low readings and narrower at higher readings

Option\_d: Identical to a Moving Coil (MC) instrument scale

correct\_option: Narrower at low readings and wider at higher readings

Question104: START

The primary winding of a transformer is connected to:

Question104: END

Option\_a: The load

Option\_b: The power supply

Option\_c: A capacitor

Option\_d: A resistor

correct\_option: The power supply

Question105: START

The power factor of a purely resistive circuit is:

Question105: END

Option\_a: 0

Option\_b: 0.5

Option\_c: 1

Option\_d: Negative

correct\_option: 1

Question106: START

What type of losses occur in the core of a transformer?

Question106: END

Option\_a: Copper losses

Option\_b: Hysteresis losses

Option\_c: Windage losses

Option\_d: Mechanical losses

correct\_option: Hysteresis losses

Question107: START

In an LVDT, what is the function of the core?

Question107: END

Option\_a: To provide insulation

Option\_b: To induce voltage

Option\_c: To measure temperature

Option\_d: To change the frequency

correct\_option: To induce voltage

Question108: START

The slip of an induction motor is defined as:

Question108: END

Option\_a: The difference between synchronous speed and rotor speed

Option\_b: The ratio of voltage to current

Option\_c: The difference between input and output power

Option\_d: The ratio of frequency to speed

correct\_option: The difference between synchronous speed and rotor speed

Question109: START

The standard unit for measuring electrical energy is:

Question109: END

Option\_a: Watt

Option\_b: Joule

Option\_c: Kilowatt-hour

Option\_d: Volt

correct\_option: Kilowatt-hour

Question110: START

The direction of rotation of a three-phase motor can be changed by:

Question110: END

Option\_a: Changing the voltage

Option\_b: Reversing two of the phase connections

Option\_c: Increasing the frequency

Option\_d: Adding a capacitor

correct\_option: Reversing two of the phase connections

Question111: START

The voltage regulation of a transformer is:

Question111: END

Option\_a: The ratio of load voltage to no-load voltage

Option\_b: The change in secondary voltage from no-load to full-load

Option\_c: The efficiency of the transformer

Option\_d: The resistance of the winding

correct\_option: The change in secondary voltage from no-load to full-load

Question112: START

What is the function of the commutator in a DC motor?

Question112: END

Option\_a: To change AC to DC

Option\_b: To reverse the direction of current

Option\_c: To increase voltage

Option\_d: To decrease resistance

correct\_option: To reverse the direction of current

Question113: START

An energy meter is calibrated in:

Question113: END

Option\_a: Volts

Option\_b: Watts

Option\_c: Amperes

Option\_d: kWh

correct\_option: kWh

Question114: START

The purpose of a starter in an induction motor is to:

Question114: END

Option\_a: Increase the speed

Option\_b: Limit the starting current

Option\_c: Decrease the voltage

Option\_d: Improve power factor

correct\_option: Limit the starting current

Question115: START

The efficiency of a transformer under full load is:

Question115: END

Option\_a: Always 100%

Option\_b: Less than 100%

Option\_c: More than 100%

Option\_d: Equal to the power factor

correct\_option: Less than 100%

Question116: START

A Moving Iron (MI) instrument is primarily used for:

Question116: END

Option\_a: DC measurements

Option\_b: High-frequency measurements

Option\_c: AC measurements

Option\_d: Resistance measurements

correct\_option: AC measurements

Question117: START

The purpose of a fuse in an electrical circuit is to:

Question117: END

Option\_a: Increase current

Option\_b: Protect against overcurrent

Option\_c: Measure voltage

Option\_d: Store energy

correct\_option: Protect against overcurrent

Question118: START

The typical range of efficiency for an induction motor is:

Question118: END

Option\_a: 50-60%

Option\_b: 70-80%

Option\_c: 85-95%

Option\_d: 100%

correct\_option: 85-95%

Question119: START

In a star-connected three-phase system, the line voltage is:

Question119: END

Option\_a: Equal to the phase voltage

Option\_b: Less than the phase voltage

Option\_c: More than the phase voltage

Option\_d: Zero

correct\_option: More than the phase voltage

Question120: START

The primary function of a circuit breaker is to:

Question120: END

Option\_a: Provide insulation

Option\_b: Switch the circuit on and off

Option\_c: Protect against overload

Option\_d: Store electrical energy

correct\_option: Protect against overload

Question 121: START

In a DC shunt motor, speed is related to armature current as

Question 121: END

Option\_a: Directly proportional to the armature current

Option\_b: Proportional to the square of the current

Option\_c: Independent of armature current

Option\_d:  Inversely proportional to the armature current

correct\_option: Inversely proportional to the armature current

Question 122: START

In a DC shunt motor for zero armature current we get speed

Question 122: END

Option\_a: Non-zero and minimum  
Option\_b: Zero  
Option\_c: Non-zero and maximum  
Option\_d: Doesn’t depend on armature current

correct\_option: - Zero

Question 123: START

As the load is increased the speed of DC shunt motor will

Question 123: END

Option\_a: Reduce slightly  
Option\_b: Increase slightly  
Option\_c: Increase proportionately  
Option\_d: Reduce rapidly

correct\_option: Increase slightly

Question 124: START

The armature torque of the DC shunt motor is proportional to

Question 124: END

Option\_a: Field flux only  
Option\_b: Armature current only  
Option\_c: Field flux and armature current  
Option\_d: Field current

correct\_option: Armature current only

Question 125: START

Correct equation of speed-torque characteristic of DC shunt motor is

Question 125: END

Option\_a: [Vt / kΦ] = [Ra / kl Φ2] T  
Option\_b: [Vt / kΦ2] =[Ra / kl Φ2] T  
Option\_c: [Vt / kΦ] = [Ra / kl Φ] T  
Option\_d: [Vt / kΦ2] =[Ra / kl Φ2] T

correct\_option:  [Vt / kΦ] – [Ra / kl Φ2] T

Question 126: START

For some percentage increase in the torque, which DC motor will have the least percentage increase of input current?

Question 126 : END

Option\_a: Series motor  
Option\_b: Shunt motor  
Option\_c: Cumulative compound motor  
Option\_d: Separately exited motor

correct\_option: Shunt motor

Question 127: START

If a DC shunt motor is working at full load and if shunt field circuit suddenly opens

Question 127: END

Option\_a: Will make armature to take heavy current, possibly burning it  
Option\_b: Will result in excessive speed, possibly destroying armature due to excessive centrifugal stresses  
Option\_c: Nothing will happen to motor  
Option\_d: Motor will come to stop

correct\_option: Will make armature to take heavy current, possibly burning it

Question 128: START

The speed of a DC shunt motor can be made more than full load speed by

Question 128: END

Option\_a: Reducing the field current  
Option\_b: Decreasing the armature current  
Option\_c: Increasing the armature current  
Option\_d: Increasing the excitation current

correct\_option: Reducing the field current

Question 129: START

No load speed of the DC shunt motor is 1322 rpm while full load speed is 1182 rpm. What will be the speed regulation?

Question 129: END

Option\_a: 12.82 %  
Option\_b: 11.8 %  
Option\_c: 16.6 %  
Option\_d: 14.2 %

correct\_option: 11.8 %

Question 130: START

Magnitude of flux in an energy meter varies \_

Question 130: END

Option\_a: due to abnormal currents and voltages  
Option\_b: due to high resistance and inductance values  
Option\_c: due to changes in the transformer turns  
Option\_d: due to the induced e.m.f in the windings

correct\_option: due to abnormal currents and voltages

Question 131: START

Energy meter creeps due to

Question 131: END

Option\_a: due to change in supply  
Option\_b: due to reversal in polarity of voltage  
Option\_c: due to asymmetry in magnetic circuit  
Option\_d: due to turns ratio of transformer

correct\_option: due to asymmetry in magnetic circuit

Question 132: START

How is the flux of shunt coil related to voltage?

Question 132: END

Option\_a: flux is proportional to square of voltage  
Option\_b: directly proportional  
Option\_c: inversely proportional  
Option\_d: independent of each other

correct\_option: flux is proportional to square of voltage

Question 133: START

Supply voltage in an energy meter is

Question 133: END

Option\_a: constant always  
Option\_b: zero always  
Option\_c: depends on the load  
Option\_d: can fluctuate

correct\_option: can fluctuate

Question134: START

How is the flux of shunt coil related to voltage?

Question134: END

Option\_a: flux is proportional to square of voltage  
Option\_b: directly proportional  
Option\_c: inversely proportional  
Option\_d: independent of each other

correct\_option: flux is proportional to square of voltage

Question 135: START

How can temperature effect be compensated in an energy meter?

Question 135: END

Option\_a: through heat sinks  
Option\_b: by a temperature shunt  
Option\_c: by using resistance  
Option\_d: by using a coolant

correct\_option: by a temperature shunt

Question 136: START

In some energy meters, creeping can be avoided by

Question 136: END

Option\_a: attaching small gold pieces  
Option\_b: attaching small aluminium pieces  
Option\_c: attaching small iron pieces  
Option\_d: attaching small zinc pieces

correct\_option: attaching small iron pieces

Question: 137 START

Routh Hurwitz criterion gives:

Question 137: END

Option\_a: Number of roots in the right half of the s-plane  
Option\_b: Value of the roots  
Option\_c: Number of roots in the left half of the s-plane  
Option\_d: Number of roots in the top half of the s-plane

correct\_option: Number of roots in the right half of the s-plane

Question138: START

Routh Hurwitz criterion cannot be applied when the characteristic equation of the system containing coefficient’s which is/are

Question138: END

Option\_a: Exponential function of s  
Option\_b: Sinusoidal function of s  
Option\_c: Complex  
Option\_d: Exponential and sinusoidal function of s and complex

correct\_option: Exponential and sinusoidal function of s and complex

Question139: START

Consider the following statement regarding Routh Hurwitz criterion

Question139: END

Option\_a: It gives absolute stability  
Option\_b: It gives gain and phase margin  
Option\_c: It gives the number of roots lying in RHS of the s-plane  
Option\_d: It gives gain, phase margin and number of roots lying in RHS of the s-plane

correct\_option: it gives gain, phase margin and number of roots lying in RHS of the s-plane

Question140: START

The order of the auxiliary polynomial is always:

Question140: END

Option\_a: Even  
Option\_b: Odd  
Option\_c: May be even or odd  
Option\_d: None of the mentioned

correct\_option: Even

Question141: START

Which of the test signals are best utilized by the stability analysis.

Question141: END

Option\_a: Impulse  
Option\_b: Step  
Option\_c: Ramp  
Option\_d: Parabolic

correct\_option: Impulse

Question142: START

The characteristic equation of a system is given as3s4+10s3+5s2+2=0. This system is:

Question142: END

Option\_a: Stable  
Option\_b: Marginally stable  
Option\_c: Unstable  
Option\_d: Linear

correct\_option: Unstable

Question143: START

The characteristic equation of a system is given ass3+25s2+10s+50=0. What is the number of the roots in the right half s-plane and the imaginary axis respectively?

Question143: END

Option\_a: 1,1  
Option\_b: 0,0  
Option\_c: 2,1  
Option\_d: 1,2

correct\_option: 0,0

Question144: START

The necessary condition for the stability of the linear system is that all the coefficients of characteristic equation 1+G(s)H(s) =0, be real and have the

Question144: END

Option\_a: Positive sign  
Option\_b: Negative sign  
Option\_c: Same sign  
Option\_d: Both positive and negative

correct\_option: Same sign

Question145: START

For making an unstable system stable:

Question145: END

Option\_a: Gain of the system should be increased  
Option\_b: Gain of the system should be decreased  
Option\_c: The number of zeroes to the loop transfer function should be increased  
Option\_d: The number of poles to the loop transfer function should be increased

correct\_option: Gain of the system should be decreased

Question 146: START

The order of the auxiliary polynomial is always:

Question 146: END

Option\_a: Even  
Option\_b: Odd  
Option\_c: May be even or odd  
Option\_d: None of the mentioned

correct\_option: Even

Question147: START

The major components of a controller are

Question147: END

Option\_a: Control element  
Option\_b: Error detector and control element  
Option\_c: Feedback element  
Option\_d: Error detector and feedback element

correct\_option: Error detector and control element

Question148: START

What is an electric drive?

Question148: END

Option\_a: A machine that converts electrical energy into kinetic energy  
Option\_b: A machine that converts mechanical energy into electrical energy  
Option\_c: A machine that converts electrical energy into mechanical energy  
Option\_d: A machine that converts kinetic energy into electrical energy

correct\_option: A machine that converts electrical energy into mechanical energy

Question149: START

Which of the following is used to build a electric drive?

Question149: END

Option\_a: Source  
Option\_b: Motor  
Option\_c: Control unit  
Option\_d: All of the mentioned

correct\_option: All of the mentioned

Question150: START

Which of the following is/are components of an electric drive?

Question150: END

Option\_a: Control unit and Power Modulator  
Option\_b: Electric Motor and Control System  
Option\_c: Input Command  
Option\_d: Sensing Device and Electric Motor

correct\_option: Electric Motor and Control System

Question151: START

Which of the following is a function of electric drive?

Question151: END

Option\_a: Transport energy from the storage system to the wheels  
Option\_b: Transport energy from the control system to the wheels  
Option\_c: Transport fuel from the electric motor to the wheels  
Option\_d: Transport fuel from the storage system to the wheels

correct\_option: Transport energy from the storage system to the wheels

Question152: START

Which of the following exhibits linearly rising load torque characteristics

Question152: END

Option\_a: Rolling Mills  
Option\_b: Fan load  
Option\_c: Separately excited dc generator connected to the resistive load  
Option\_d: Elevators

correct\_option: Separately excited dc generator connected to the resistive load

Question153: START

What is the maximum number of lighting points that can be connected in a circuit?

Question153: END

Option\_a: 5  
Option\_b: 10  
Option\_c: 8  
Option\_d: 12

correct\_option:10

Question154: START

Which material is used for wiring continuous bus bar?

Question154: END

Option\_a: Aluminium  
Option\_b: Copper  
Option\_c: Both (A) and (B)  
Option\_d: None of these

correct\_option: Aluminium

Question155: START

For what voltage levels are the screwed conduit circuits used?

Question155: END

Option\_a: Less than 250 V  
Option\_b: For voltages between 250 V – 600 V  
Option\_c: For voltages above 600 V  
Option\_d: None of these

correct\_option: For voltages between 250 V – 600 V

Question156: START

Which among these is a method of wiring?

Question156: END

Option\_a: Joint box  
Option\_b: Tee system  
Option\_c: Loop in system  
Option\_d: All of these

correct\_option All of these

Question157: START

Blinking of fluorescent tube may be on account of

Question157: END

Option\_a: Low circuit voltage

Option\_b: Loose contact

Option\_c: Defective starter

Option\_d: Any of the above

correct\_option: Any of the above

Question158: START

For operation of fluorescent tube on DC supply the additional device incorporated in the Tube circuit is a

Question158: END

Option\_a: Transformer

Option\_b: Resistor

Option\_c: Inductor

Option\_d: All of the above

correct\_option: Resistor

Question159: START

A capacitor is connected across the fluorescent tube circuit in order to

Question 159: END

Option\_a: Eliminate the noise

Option\_b:. Limit the current

Option\_c: Improve the power factor of the tube circuit  
Option\_d: None of the mentioned

correct\_option: Improve the power factor of the tube circuit

Question160: START

The Flickr effect of fluorescent lamps is more pronounced at

Question160: END

Option\_a: Lower voltages

Option\_b: Higher voltages

Option\_c: Higher frequencies

Option\_d: Lower frequencies

correct\_option: Lower frequencies

Question161: START

For a given system response y(t) to a unit step input u(t), what characteristic of the system can be determined if the response includes an exponential decay term?

Question161: END

Option\_a: The system is unstable

Option\_b: The system has underdamped poles

Option\_c: The system is critically damped

Option\_d: The system has no damping

correct\_option: The system has underdamped poles

Question162: START

If a unit impulse signal δ(t)\delta(t)δ(t) is applied to a linear time-invariant (LTI) system, which of the following can best describe the resulting output?

Question162: END

Option\_a: The output will be a scaled version of δ(t)\delta(t)δ(t)

Option\_b: The output will be the impulse response of the system

Option\_c: The output will be the step response of the system

Option\_d: The output will be zero for all time

correct\_option: The output will be the impulse response of the system

Question163: START

A unit ramp function r(t)=tu(t) is applied to a first-order system with a time constantWhich of the following best describes the output response?

Question163: END

Option\_a: It will have a constant steady-state value

Option\_b: It will linearly increase with time indefinitely

Option\_c: It will approach a steady-state ramp with a slope determined by τ\tauτ

Option\_d: It will exhibit an oscillatory response

correct\_option: It will approach a steady-state ramp with a slope determined by τ\tauτ

Question164: START

In control systems, which of the following input signals is often used to test the transient response characteristics of a system, particularly in feedback control design?

Question164: END

Option\_a: Unit ramp signal

Option\_b: Unit impulse signal

Option\_c: Exponential decay signal

Option\_d: Sinusoidal signal

correct\_option: Unit impulse signal

Question165: START

Which of the following best describes the response of a second-order system when excited by a unit step signal, if the system is underdamped?

Question165: END

Option\_a: A smooth exponential decay to zero

Option\_b: An oscillatory response with a decaying amplitude

Option\_c: A ramp response with steady-state error

Option\_d: A steady-state constant response with zero overshoot

correct\_option: An oscillatory response with a decaying amplitude

Question166: START

When comparing the Fourier series representation of a square wave and a sinusoidal wave of the same frequency, what key characteristic distinguishes them?

Question166: END

Option\_a: Square wave contains only even harmonics

Option\_b: Sinusoidal wave contains more harmonics

Option\_c: Square wave contains odd harmonics, sinusoidal contains only the fundamental

Option\_d: Sinusoidal wave has a flat amplitude spectrum

correct\_option: Square wave contains odd harmonics, sinusoidal contains only the fundamental

Question167: START

 In a DIT-FFT algorithm, what key operation differentiates it from the direct computation of the Discrete Fourier Transform (DFT)?

Question167: END

Option\_a: Computation is based on breaking the input sequence into even and odd parts

Option\_b: The output sequence is reversed

Option\_c: It only calculates half of the DFT coefficients

Option\_d: It requires complex conjugate multiplications at each step

correct\_option: Computation is based on breaking the input sequence into even and odd parts

Question168: START

In a DIF-FFT algorithm, what is the main reason for performing decimation on the output instead of the input sequence?

Question168: END

Option\_a: To minimize the total number of computations required

Option\_b: To apply twiddle factors more efficiently

Option\_c: To ensure that the input sequence remains in natural order

Option\_d: To reduce the memory usage during computation

correct\_option: To ensure that the input sequence remains in natural order

Question169: START

In a scenario where you need to minimize the number of arithmetic operations for a large input sequence, which FFT structure (DIT or DIF) would you prefer, and how would the choice impact the computation?

Question169: END

Option\_a: DIT, because it reduces complex multiplications in each stage

Option\_b: DIT, as it performs bit-reversal at the output, optimizing the sequence

Option\_c: DIF, as it places the twiddle factor multiplications in initial stages, reducing overall complexity

Option\_d: DIF, because it limits additions in the later stages

correct\_option: DIF, as it places the twiddle factor multiplications in initial stages, reducing overall complexity

Question170: START

How does the butterfly computation in DIT-FFT differ from that in DIF-FFT with respect to the application of twiddle factors?

Question170: END

Option\_a: DIT-FFT applies twiddle factors after the butterfly operation

Option\_b: DIT-FFT applies twiddle factors only at the last stage

Option\_c: DIF-FFT applies twiddle factors before the butterfly operation

Option\_d: Both algorithms apply twiddle factors at every stage

correct\_option: DIF-FFT applies twiddle factors before the butterfly operation

Question171: START

In an 8-point FFT, the DIT-FFT and DIF-FFT produce the same result but in different orders. What output difference specifically distinguishes the final outputs of DIT-FFT from DIF-FFT?

Question171: END

Option\_a: DIT-FFT provides output in bit-reversed order, while DIF-FFT provides it in natural order

Option\_b: DIT-FFT provides output in natural order, while DIF-FFT provides it in bit-reversed order

Option\_c: Both algorithms output in bit-reversed order

Option\_d: Both algorithms output in natural order

correct\_option: DIT-FFT provides output in bit-reversed order, while DIF-FFT provides it in natural order

Question172: START

Given that both DIT and DIF FFTs involve recursive butterfly operations, in what case would the butterfly structure in DIT be more advantageous than DIF, especially in terms of implementation on a software-based digital signal processor (DSP)?

Question172: END

Option\_a: When the input data is naturally in bit-reversed order

Option\_b: When the algorithm needs to minimize memory for each butterfly stage

Option\_c: When the DSP is optimized for forward-order computations, aligning with DIT’s bit-reversed input order

Option\_d: When minimizing latency across stages is essential

correct\_option: When the DSP is optimized for forward-order computations, aligning with DIT’s bit-reversed input order

Question173: START

You are comparing the speed and efficiency of DIT and DIF FFT algorithms for a research project on high-frequency data processing. Which key factors would you prioritize in selecting one algorithm over the other, and what would be your choice?

Question173: END

Option\_a: Choose DIT for lower frequency resolution and simplicity

Option\_b: Choose DIF for faster computation in hardware due to in-place input structure Option\_c: Choose DIT to reduce the total memory requirement

Option\_d: Choose DIF to minimize frequency resolution in final stages

correct\_option: Choose DIF for faster computation in hardware due to in-place input structure

Question174: START

In designing an FFT algorithm for adaptive filtering applications, where rapid and efficient frequency updates are essential, would DIT or DIF be preferable, and why?

Question174: END

Option\_a: DIT, since it can more easily accommodate dynamic input changes

Option\_b: DIF, as it optimizes the use of twiddle factors in each stage

Option\_c: DIT, due to its reduced need for twiddle factor adjustments

Option\_d: DIF, as it allows for quick adjustments with natural order inputs

correct\_option: DIF, as it allows for quick adjustments with natural order inputs

Question175: START

If your goal is to implement a parallel FFT computation on a multicore processor, which algorithm (DIT or DIF) would facilitate more efficient parallel processing, and what is the reason behind this choice?

Question175: END

Option\_a: DIT, as it allows parallel processing through its decimation structure

Option\_b: DIF, because it organizes computations such that later stages can be parallelized

Option\_c: DIF, as it provides natural ordering at each stage, simplifying data distribution across cores

Option\_d: DIT, since it inherently minimizes the interdependencies between stages

correct\_option: DIF, as it provides natural ordering at each stage, simplifying data distribution across cores

Question176: START

If you were given an 8-point FFT to compute by hand and needed the simplest approach to verify the results, which algorithm (DIT or DIF) would you select, and what would be the rationale behind your choice?

Question176: END

Option\_a: DIT, because it provides intermediate results that are easy to validate at each stage

Option\_b: DIF, as it maintains a straightforward order of input operations

Option\_c: DIF, since it produces outputs in natural order, making verification easier

Option\_d: DIT, as it minimizes the twiddle factor computations required for each step correct\_option: DIF, since it produces outputs in natural order, making verification easier

Question177: START

system produces zero output for one input and same gives the same output for several other inputs. What is the system called?

a) Non – invertible System

b) Invertible system

c) Non – causal system

d) Causal system

Question177: END

Option\_a: Non – invertible System

Option\_b: Invertible system

Option\_c: Non – causal system

Option\_d: Causal system

correct\_option Non – invertible System

Question178: START

How is a linear function described as?

a) Zero in Finite out

b) Zero in infinite out

c) Zero in zero out

d) Zero in Negative out

Question178: END

Option\_a: Zero in Finite out

Option\_b: Zero in infinite out

Option\_c: Zero in zero out

Option\_d: Zero in Negative out

correct\_option: Zero in zero out

Question179: START

If n tends to infinity, is the accumulator function an unstable one?  
Question179: END

Option\_a: The function is marginally stable  
Option\_b: The function is unstable

Option\_c: The function is stable

Option\_d: None of the mentioned

correct\_option: The function is unstable

Question180: START

Determine the discrete-time signal: x(n)=1 for n≥0 and x(n)=0 for n<0  
Question180: END

Option\_a: Unit ramp sequence

Option\_b: Unit impulse sequence  
Option\_c: Exponential sequence  
Option\_d: Unit step sequence

correct\_option: Unit step sequence

Question181: START

In the context of digital filter design, what is the primary purpose of using the Bilinear Transformation technique?

Question181: END

Option\_a: To preserve the frequency response of an analog filter exactly

Option\_b: To perform a one-to-one mapping of the impulse response

Option\_c: To optimize the phase response of the filter

Option\_d: To map the entire analog frequency range to the digital frequency range without aliasing

correct\_option To map the entire analog frequency range to the digital frequency range without aliasing

Question182: START

Which of the following best describes how the Bilinear Transformation maps the analog s-plane to the digital z-plane?

Question182: END

Option\_a: It maps the entire left half of the s-plane to the entire z-plane

Option\_b: It maps the origin of the s-plane to infinity in the z-plane

Option\_c: It maps the jω-axis to the unit circle in the z-plane

Option\_d: It maps the right half of the s-plane to the left half of the z-plane

correct\_option: It maps the jω-axis to the unit circle in the z-plane

Question183: START

In Impulse Invariant Transformation, what is a primary drawback that may arise when designing digital filters from analog prototypes?

Question183: END

Option\_a: Aliasing, as it does not prevent overlap of the frequency spectrum

Option\_b: Frequency warping, causing an inaccurate mapping of frequencies

Option\_c: Non-causal filter design, making it impossible for real-time applications

Option\_d: A need for high sampling rates to achieve accurate results

correct\_option: Aliasing, as it does not prevent overlap of the frequency spectrum

Question184: START

What is the nature of the following function: y[n] = y[n-1] + x[n]?  
Question184: END

Option\_a: Integrator  
Option\_b: Differentiator

Option\_c: Subtractor

Option\_d: Accumulator

correct\_option: Accumulator

Question185: START

Which of the following transformations is better suited for low-pass filter designs when a precise match between analog and digital frequency response is critical?

Question185: END

Option\_a: Impulse Invariant Transformation, as it avoids aliasing

Option\_b: Bilinear Transformation, as it warps frequencies to maintain shape

Option\_c: Impulse Invariant Transformation, due to its simple one-to-one mapping

Option\_d: Bilinear Transformation, as it provides a more accurate mapping at low frequencies correct\_option: Bilinear Transformation, as it provides a more accurate mapping at low frequencies

Question186: START

In Bilinear Transformation, what effect does the frequency warping have on high-frequency components when transforming from analog to digital?

Question186: END

Option\_a: High-frequency components are compressed toward the Nyquist frequency Option\_b: High-frequency components are stretched uniformly across the frequency axis

Option\_c: High-frequency components are mapped to low frequencies, creating aliasing Option\_d: High-frequency components remain unaffected by warping

correct\_option: High-frequency components are compressed toward the Nyquist frequency

Question187: START

In designing a high-pass filter using Impulse Invariant Transformation, what must be considered to reduce the effects of aliasing?

Question187: END

Option\_a: Use a very low cutoff frequency

Option\_b: Increase the sampling frequency to minimize aliasing

Option\_c: Apply a pre-warping technique

Option\_d: Design a low-pass filter instead and convert it to high-pass

correct\_option: Increase the sampling frequency to minimize aliasing

Question188: START

How does the Impulse Invariant Transformation maintain the time-domain characteristics of an analog filter when transforming it to a digital filter?

Question188: END

Option\_a: It maps each impulse response sample in the analog domain to the digital domain

Option\_b: It applies a pre-warping effect to match impulse timings

Option\_c: It mirrors the analog filter’s poles exactly onto the z-plane

Option\_d: It uses zero-order hold to approximate the analog response

correct\_option: It maps each impulse response sample in the analog domain to the digital domain

Question189: START

Consider designing a band-pass digital filter. Given that both Bilinear Transformation and Impulse Invariant Transformation are options, which would you choose and why?

Question189: END

Option\_a: Impulse Invariant, to maintain the time-domain characteristics of the analog filter

Option\_b: Impulse Invariant, to simplify the mapping of high frequencies

Option\_c: Bilinear, to avoid frequency warping in the lower frequency range

Option\_d: Bilinear, to avoid aliasing and ensure accurate frequency mapping

correct\_option: Bilinear, to avoid aliasing and ensure accurate frequency mapping

Question190: START

For an analog filter with a cutoff frequency close to the Nyquist limit, why would Bilinear Transformation be less ideal for digital conversion, and what would you do to mitigate this issue?

Question190: END

Option\_a: Frequency warping distorts high frequencies, so apply pre-warping to compensate

Option\_b: It fails to map lower frequencies accurately; increase sampling rate

Option\_c: Impulse response aliasing; switch to Impulse Invariant Transformation

Option\_d: It inverts the phase response; adjust the pole-zero configuration

correct\_option: Frequency warping distorts high frequencies, so apply pre-warping to compensate

Question191: START

Which of the following best explains why a Low Pass Filter is often used in anti-aliasing applications?

Question191: END

Option\_a: It allows only high frequencies to pass, reducing high-frequency noise

Option\_b: It blocks low frequencies, ensuring only high-frequency components are sampled

Option\_c: It attenuates high frequencies, limiting the bandwidth and preventing aliasing

Option\_d: It mirrors frequencies to reduce spectral overlap

correct\_option It attenuates high frequencies, limiting the bandwidth and preventing aliasing

Question192: START

For audio applications where low-frequency noise is common, which filter type is typically used to remove low-frequency interference while preserving high-frequency components of the signal?

Question192: END

Option\_a: Low Pass Filter

Option\_b: High Pass Filter

Option\_c: Band Pass Filter

Option\_d: Band Reject Filter

correct\_option: High Pass Filter

Question193: START

In designing a Band Pass Filter, what characteristic must be carefully controlled to ensure the filter accurately targets the desired frequency band?

Question193: END

Option\_a: The passband ripple

Option\_b: Only the cutoff frequency of the high-pass component

Option\_c: The roll-off rate of both the low- and high-frequency cutoffs

Option\_d: The gain of the entire frequency range

correct\_option: The roll-off rate of both the low- and high-frequency cutoffs

Question194: START

Which of the following filter types would be most effective in removing a specific interfering frequency within a signal while leaving the surrounding frequencies largely unaffected?

Question194: END

Option\_a: Low Pass Filter

Option\_b: High Pass Filter

Option\_c: Band Pass Filter

Option\_d: Band Reject Filter

correct\_option: Band Reject Filter

Question195: START

Suppose you are designing a filter for an audio application to enhance vocals between 300 Hz and 3 kHz while attenuating other frequencies. Which type of filter is most appropriate, and why?

Question195: END

Option\_a: Low Pass Filter, to allow all frequencies below 3 kHz

Option\_b: High Pass Filter, to remove frequencies below 300 Hz

Option\_c: Band Pass Filter, to pass frequencies only between 300 Hz and 3 kHz

Option\_d: Band Reject Filter, to eliminate all frequencies except 300 Hz to 3 kHz

Question196: START

When designing a High Pass Filter for a real-time signal processing system, what potential limitation should you consider regarding the filter’s cutoff frequency, and why?

Question196: END

Option\_a: The cutoff should be very low to preserve low-frequency components

Option\_b: The cutoff should be chosen carefully to avoid unwanted phase distortion near the cutoff frequency

Option\_c: The cutoff should be very high to allow only high-frequency signals to pass through Option\_d: The cutoff must be flexible to adapt to different signal requirements

correct\_option: The cutoff should be chosen carefully to avoid unwanted phase distortion near the cutoff frequency

Question197: START

In wireless communication systems, which type of filter would be chosen to eliminate unwanted signals from neighboring frequency bands, and what is a key requirement of this filter’s design?

Question197: END

Option\_a: Low Pass Filter, with sharp roll-off

Option\_b: High Pass Filter, with gradual roll-off

Option\_c: Band Pass Filter, with a narrow bandwidth

Option\_d: Band Reject Filter, with selective attenuation

correct\_option: Band Reject Filter, with selective attenuation

Question198: START

For a seismic signal processing application that requires monitoring frequencies between 0.1 Hz and 10 Hz, which filter design would you choose and why?

Question198: END

Option\_a: Low Pass Filter, to attenuate all frequencies above 10 Hz

Option\_b: High Pass Filter, to pass all frequencies above 0.1 Hz

Option\_c: Band Pass Filter, to pass frequencies only between 0.1 Hz and 10 Hz

Option\_d: Band Reject Filter, to eliminate frequencies outside of the range 0.1 Hz to 10 Hz

correct\_option: Band Pass Filter, to pass frequencies only between 0.1 Hz and 10 Hz

Question199: START

You are developing a filter to isolate and analyze harmonic frequencies within a power signal. Which type of filter would allow you to observe harmonic components while filtering out both high- and low-frequency noise?

Question199: END

Option\_a: Low Pass Filter, with a low cutoff frequency

Option\_b: High Pass Filter, with a high cutoff frequency

Option\_c: Band Pass Filter, with a narrow passband centered on the harmonic frequencies

Option\_d: Band Reject Filter, tuned to remove the fundamental frequency only

correct\_option: Band Pass Filter, with a narrow passband centered on the harmonic frequencies

Question200: START

If you need to design a filter for biomedical signals to suppress 60 Hz power line interference while preserving other signal frequencies, which filter type would you select and how would it be configured?

Question200: END

Option\_a: Low Pass Filter with cutoff below 60 Hz

Option\_b: High Pass Filter with cutoff above 60 Hz

Option\_c: Band Pass Filter targeting the desired biomedical signal frequencies only

Option\_d: Band Reject Filter centered at 60 Hz to suppress interference specifically

correct\_option: Band Reject Filter centered at 60 Hz to suppress interference specifically

Question201: START

A circuit has a Norton equivalent current of 3 A and a Norton resistance of 4 Ω. What is the equivalent Thevenin voltage?

Question201: END

Option\_a: 3 V

Option\_b: 6 V

Option\_c: 12 V

Option\_d: 15 V

correct\_option: c) 12 V

Question202: START

A circuit has a Norton equivalent current of 3 A and a Norton resistance of 4 Ω. What is the equivalent Thevenin voltage?

Question202: END

Option\_a: 10 V

Option\_b: 12 V

Option\_c: 13 V

Option\_d: 14 V

correct\_option: b) 12 V

Question203: START

If the open-circuit voltage across terminals is 24 V and the short-circuit current across the same terminals is 6 A, what is the Norton resistance?

Question203: END

Option\_a: 2 Ω

Option\_b: 3 Ω

Option\_c: 4 Ω

Option\_d: 6 Ω

correct\_option: b) 4 Ω

Question204: START

In a Norton equivalent circuit with Norton current IN=10 A and Norton resistance RN​=5Ω, what is the current through a 5 Ω load connected across the terminals?

Question204: END

Option\_a: 2 A

Option\_b: 5 A

Option\_c: 7.5 A

Option\_d: 10 A

correct\_option: b) 5 A

Question205: START

The Norton resistance of a network is found to be 10 Ω, and the Norton current is 2 A. If a load resistance of 10 Ω is connected across the terminals, what is the voltage across the load?

Question205: END

Option\_a: 5 V

Option\_b: 10 V

Option\_c: 15 V

Option\_d: 20 V

correct\_option: b) 10 V

Question206: START

In Norton’s Theorem, what happens to all independent sources in the network while calculating the Norton resistance?

Question206: END

Option\_a: All voltage sources are short-circuited, and current sources are left open

Option\_b: All voltage sources are open-circuited, and current sources are shorted

Option\_c: All sources are turned off, meaning voltage sources are shorted, and current sources are opened

Option\_d: No change is made to the sources

correct\_option: c) All sources are turned off, meaning voltage sources are shorted, and current sources are opened

Question207: START

For a network with a Norton equivalent current of 15 A and a Norton resistance of 3 Ω, calculate the power delivered to a 3 Ω load resistor.

Question207: END

Option\_a: 37.5 W

Option\_b: 168.75 W

Option\_c: 75 W

Option\_d: 112.5 W

correct\_option: b) 168.75 W

Question208: START

A Norton equivalent circuit has a current source of 8 A and a parallel resistance of 6 Ω. If a 12 Ω resistor is connected across the terminals, what is the equivalent current through the 12 Ω resistor.

Question208: END

Option\_a: 2 A

Option\_b: 3 A

Option\_c: 4 A

Option\_d: 6 A

correct\_option: b) 3 A

Question209: START

In a circuit, the open-circuit voltage is measured as 50 V, and the short-circuit current is 5 A. What is the Norton equivalent current and resistance?

Question209: END

Option\_a: 5 A, 10 Ω

Option\_b: 10 A, 5 Ω

Option\_c: 2.5 A, 20 Ω

Option\_d: 4 A, 12.5 Ω

correct\_option: a) 5 A, 10 Ω

Question210: START

Norton's theorem is used to simplify which of the following types of electrical circuits?

Question210: END

Option\_a: Only AC circuits

Option\_b: Only DC circuits

Option\_c: Both AC and DC circuits

Option\_d: Only resistive circuits

correct\_option: c) Both AC and DC circuits

Question211: START

What is the maximum power that can be transferred to R in the circuit shown below?

Question211: END

Option\_a: 2 W

Option\_b: 4 W

Option\_c: 8 W

Option\_d: 16 W

correct\_option: 8 W

Question212: START

When the load resistance equal to source resistance, which of the following is maximum

Question212: END

Option\_a: Voltage

Option\_b: Current

Option\_c: Power

Option\_d: Power factor

correct\_option: Power

Question213: START

Which of the following transformer, Buchholz’s relay can be fixed on?

Question213: END

Option\_a: Welding transformers

Option\_b: Oil cooled transformers

Option\_c: Auto-transformers

Option\_d: Air-cooled transformers

correct\_option: Oil cooled transformers

Question214: START

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

Question214: END

Option\_a: copper loss > iron loss

Option\_b: cannot be determined

Option\_c: copper loss = iron loss

Option\_d: copper loss < iron loss

correct\_option: copper loss = iron loss

Question215: START

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

Question215: END

Option\_a: 800A at secondary

Option\_b: 40A at secondary

Option\_c: 80A at secondary

Option\_d: 5A at secondary

correct\_option: 80A at secondary

Question216: START

The full-load copper loss of a transformer is 1600 W. At half-load, the copper loss will be \_\_\_\_\_\_\_

Question216: END

Option\_a: 1600 W

Option\_b: 6400 W

Option\_c: 400 W

Option\_d: 800 W

correct\_option: 400 W

Question217: START

Power transformers other than distribution transformers are generally designed to have maximum efficiency around \_\_\_\_\_\_

Question217: END

Option\_a: 10% overload

Option\_b: Near full-load

Option\_c: Half-load

Option\_d: No-load

correct\_option: Near full-load

Question218: START

No-load current in the transformer is \_\_\_\_\_\_\_

Question218: END

Option\_a: Sinusoidal distorted

Option\_b: Sinusoidal

Option\_c: Steps

Option\_d: Straight DC

correct\_option: Sinusoidal distorted

Question219: START

For a 20kVA transformer with a turn ratio of 0.4 what amount of total power is transferred inductively?

Question219: END

Option\_a: 10kVA

Option\_b: 8kVA

Option\_c: 50kVA

Option\_d: 12kVA

correct\_option: 12kVA

Question220: START

Which of the following is the major requirement for the transformers used for electronic purposes?

Question220: END

Option\_a: Constant amplitude voltage gain

Option\_b: Perfect DC isolation, maximum efficiency and constant voltage gain

Option\_c: Perfect DC isolation

Option\_d: Maximum efficiency

correct\_option: Constant amplitude voltage gain

Question221: START

Which type of motor is typically used in electric vehicles for its high torque capabilities?

Question221: END

Option\_a: Induction Motor

Option\_b: Synchronous Motor

Option\_c: Stepper Motor

Option\_d: DC Shunt Motor

correct\_option: Induction Motor

Question222: START

The primary purpose of using a voltage stabilizer in an electrical system is to:

Question222: END

Option\_a: Increase power factor

Option\_b: Reduce energy consumption

Option\_c: Maintain constant voltage output

Option\_d: Protect against short circuits

correct\_option: Maintain constant voltage output

Question223: START

What is the typical power factor range for industrial loads?

Question223: END

Option\_a: 0.2 to 0.5

Option\_b: 0.5 to 0.7

Option\_c: 0.7 to 0.9

Option\_d: 0.9 to 1.0

correct\_option: 0.7 to 0.9

Question224: START

In a three-phase power system, the type of connection that allows for reduced conductor material is:

Question224: END

Option\_a: Delta connection

Option\_b: Star connection

Option\_c: Series connection

Option\_d: Parallel connection

correct\_option: Star connection

Question225: START

The insulation resistance of a good electrical cable should be:

Question225: END

Option\_a: High

Option\_b: Low

Option\_c: Zero

Option\_d: Variable

correct\_option: High

Question226: START

The synchronous speed of a 4-pole motor operating on a 50 Hz supply is:

Question226: END

Option\_a: 750 RPM

Option\_b: 1500 RPM

Option\_c: 3000 RPM

Option\_d: 3600 RPM

correct\_option: 1500 RPM

Question227: START

A rheostat is used in an electrical circuit to:

Question227: END

Option\_a: Increase current

Option\_b: Decrease voltage

Option\_c: Control resistance

Option\_d: Store charge

correct\_option: Control resistance

Question228: START

The primary function of a transformer is to:

Question228: END

Option\_a: Convert AC to DC

Option\_b: Step up or step down voltage

Option\_c: Store electrical energy

Option\_d: Regulate current flow

correct\_option: Step up or step down voltage

Question229: START

Which material is commonly used for the core of a transformer?

Question229: END

Option\_a: Aluminum

Option\_b: Copper

Option\_c: Silicon steel

Option\_d: Plastic

correct\_option: Silicon steel

Question230: START

A power factor of 1 indicates that the load is:

Question230: END

Option\_a: Purely resistive

Option\_b: Purely inductive

Option\_c: Purely capacitive

Option\_d: Non-linear

correct\_option: Purely resistive

Question 231: START

 The Routh-Hurwitz criterion cannot be applied when the characteristic equation of the system contains any coefficients which is :

Question 231: END

Option\_a: Negative real and exponential function

Option\_b: Negative real, both exponential and sinusoidal function of s

Option\_c: Both exponential and sinusoidal function of s

Option\_d: Complex, both exponential and sinusoidal function of s

correct\_option: Negative real, both exponential and sinusoidal function of s

Question 232: START

  The given characteristic equation s4+s3+2s2+2s+3=0 has:

Question 232: END

Option\_a:  Zero root in the s-plane

Option\_b:  One root in the RHS of s-plane

Option\_c: Two root in the RHS of s-plane

Option\_d:  Three root in the RHS of s-plane

correct\_option: Two root in the RHS of s-plane

Question 233: START

The wattmeter reading while measuring the reactive power with wattmeter is?

Question 233: END

Option\_a: VLILsecØ  
Option\_b: VLILsinØ  
Option\_c:  VLILtanØ  
Option\_d: VLILcosØ

correct\_option: - VLILsinØ

Question 234: START

The total reactive power in the load while measuring the reactive power with wattmeter is? Question 234: END

Option\_a: √3VLILcosØ  
Option\_b: √3VLILtanØ  
Option\_c: √3VLILsinØ  
Option\_d: √3 VLILsecØ

correct\_option: √3VLILsinØ

Question 235: START

 In which of the following motor, ratio of starting torque to full-load torque will be least?

Question 235: END

Option\_a: DC series motors  
Option\_b: DC shunt motors  
Option\_c: DC compound motors  
Option\_d: Synchronous motors

correct\_option: DC shunt motors

Question 236: START

Which of the following is a function of electric drive?

Question 236: END

Option\_a: Transport energy from the storage system to the wheels  
Option\_b: Transport energy from the control system to the wheels  
Option\_c: Transport fuel from the electric motor to the wheels  
Option\_d: Transport fuel from the storage system to the wheels

correct\_option: Transport energy from the storage system to the wheels

Question 237: START

In the rotor voltage injection method, when an external voltage source is in phase with the main voltage then speed will

Question 237: END

Option\_a: Decrease  
Option\_b: First increases then decrease  
Option\_c: Increase  
Option\_d: Remain unchanged

correct\_option: Increase

Question 238: START

Which of the following motor is a 1-Φ AC motor?

Question 238: END

Option\_a: Shunt motor  
Option\_b: Capacitor run  
Option\_c: Series motor  
Option\_d: Synchronous motor

correct\_option: Capacitor run

Question 239: START

The wattmeter method is used to measure power in a three-phase load. The wattmeter readings are 400W and -35W. Calculate the total active power.

Question 239: END

Option\_a: 360  
Option\_b: 365  
Option\_c: 370  
Option\_d: 375

correct\_option: 365

Question 240: START

What is the unit of the apparent or complex power?

Question 240: END

Option\_a: VA  
Option\_b: ohm  
Option\_c: Volt  
Option\_d: VAR

correct\_option: VA

Question241: START

Analyze the purpose of a low pass filter in an audio system. In what scenarios would it be most effectively applied?

Question241: END

Option\_a: To allow high frequencies for bass enhancement

Option\_b: To pass only low frequencies, filtering out noise

Option\_c: To block interference in low-frequency bands

Option\_d: To pass all frequencies uniformly

correct\_option: To pass only low frequencies, filtering out noise

Question242: START

Identify the application that would benefit from a high pass filter. Why is this choice significant?

Question242: END

Option\_a: To improve the bass response in a subwoofer

Option\_b: To allow only high frequencies in tweeters

Option\_c: Band Pass Filter targeting the desired biomedical signal frequencies only

Option\_d: To enhance the entire frequency range in speakers  
correct\_option: To allow only high frequencies in tweeters

Question243: START

If you need to allow a specific range of frequencies to pass through a system while attenuating others, which filter would you use and why?

Question243: END

Option\_a: Low pass filter for reducing high frequencies

Option\_b: High pass filter for reducing low frequencies

Option\_c: Band pass filter to isolate a frequency range

Option\_d: Band reject filter for suppressing a range

correct\_option: Band pass filter to isolate a frequency range

Question244: START

Evaluate a band reject filter's role in eliminating specific interference signals. In what type of signal processing is this useful?

Question244: END

Option\_a: Low pass filter for audio signal noise

Option\_b: High pass filter for eliminating low-frequency hums

Option\_c: Notch filter to remove 60 Hz electrical noise

Option\_d: Band pass filter for passing only desired signals

correct\_option: Notch filter to remove 60 Hz electrical noise

Question245: START

Compare the frequency response characteristics of band pass and band reject filters. What insights can be drawn from their operational differences?

Question245: END

Option\_a: Band pass filter passes all frequencies

Option\_b: Band reject filter passes frequencies within a certain range

Option\_c: Band pass filter blocks all frequencies

Option\_d: Band pass passes within a range; band reject blocks a range

correct\_option: Band pass passes within a range; band reject blocks a range

Question246: START

Explain the significance of the cutoff frequency in a filter design. How does this affect the filter's performance?

Question246: END

Option\_a: It defines where 90% power is transmitted

Option\_b: It is where the output falls to 70.7% of input power

Option\_c: It has no significant effect on performance

Option\_d: It causes full power output at all frequencies

correct\_option: It is where the output falls to 70.7% of input power

Question247: START

If a system requires the elimination of high-frequency noise, which type of filter would you analyze and choose?

Question247: END

Option\_a: High pass filter to block low-frequency signals

Option\_b: Band pass filter to block a wide range

Option\_c: Low pass filter to eliminate high-frequency noise

Option\_d: Band reject filter to eliminate specific noise frequencies

correct\_option: Low pass filter to eliminate high-frequency noise

Question248: START

Examine why an operational amplifier is essential in an active filter circuit. What role does it play in signal processing?

Question248: END

Option\_a: Provides resistance

Option\_b: Supplies capacitance for frequency adjustment

Option\_c: Adds gain and stability to filter performance

Option\_d: Reduces the signal power

correct\_option: Adds gain and stability to filter performance

Question249: START

Analyze the relationship between the highest and lowest cutoff frequencies in a band pass filter. How would this define the filter’s bandwidth?

Question249: END

Option\_a: The sum of the frequencies

Option\_b: The difference between the frequencies

Option\_c: The product of the frequencies

Option\_d: Double the highest frequency

correct\_option: The difference between the frequencies

Question250: START

Consider a scenario where frequencies within a narrow range need to be blocked while all others are allowed. Which filter would you choose and why?

Question250: END

Option\_a: Low pass filter for only low-frequency signals

Option\_b: High pass filter for only high-frequency signals

Option\_c: Band pass filter to allow a specific range

Option\_d: Band reject filter to block a specific frequency range

correct\_option: Band reject filter to block a specific frequency range

Question251: START

Norton's theorem states that any two-terminal linear network can be replaced by:

Question251: END

Option\_a: A voltage source in series with a resistor

Option\_b: A current source in parallel with a resistor

Option\_c: A current source in series with a resistor

Option\_d: A voltage source in parallel with a resistor

correct\_option: A current source in parallel with a resistor

Question252: START

In Norton's theorem, the equivalent current source is called:

Question252: END

Option\_a: Thevenin resistance

Option\_b: Norton resistance

Option\_c: Norton current

Option\_d: Short-circuit current

correct\_option: Short-circuit current

Question253: START

To find the Norton resistance of a network, we:

Question253: END

Option\_a: Open-circuit the load

Option\_b: Short-circuit the load

Option\_c: Remove all independent sources

Option\_d: Replace independent sources with their internal resistances

correct\_option: Replace independent sources with their internal resistances

Question254: START

The relationship between Norton's and Thevenin's equivalent circuits is:

Question254: END

Option\_a: They are completely unrelated

Option\_b: They are inversely proportional

Option\_c: They are duals of each other

Option\_d: They are exactly the same

correct\_option: They are duals of each other

Question255: START

What is the unit of the Norton current?

Question255: END

Option\_a: Ohm

Option\_b: Ampere

Option\_c: Volt

Option\_d: Siemens

correct\_option: Ampere

Question256: START

What is the unit of the Norton current?

Question256: END

Option\_a: Ohm

Option\_b: Ampere

Option\_c: Volt

Option\_d: Siemens

correct\_option: Ampere

Question257: START

Norton’s Theorem is used for

Question257: END

Option\_a: Finding equivalent voltage

Option\_b: Simplifying a circuit for analysis

Option\_c: Calculating complex impedance

Option\_d: Reducing power consumption

correct\_option: Simplifying a circuit for analysis

Question258: START

Norton’s Theorem is valid for which type of circuits?

Question258: END

Option\_a: Nonlinear circuits

Option\_b: Linear and bilateral circuits

Option\_c: AC circuits only

Option\_d: Unilateral circuits

correct\_option: Linear and bilateral circuits

Question259: START

What happens to the Norton current if the resistance in the load increases?

Question259: END

Option\_a: It increases

Option\_b: It decreases

Option\_c: It remains constant

Option\_d: It depends on the voltage

correct\_option: It remains constant

Question260: START

If the load resistance is equal to the Norton resistance, the power transferred to the load is:

Question260: END

Option\_a: Maximum

Option\_b: Minimum

Option\_c: Zero

Option\_d: Infinite

correct\_option: Maximum

Question261: START

To convert Thevenin's equivalent circuit to Norton's equivalent circuit

Question261: END

Option\_a: Replace the voltage source with a current source

Option\_b: Replace the resistance with a capacitance

Option\_c: Replace the current source with a voltage source

Option\_d: Short-circuit the Thevenin resistance

correct\_option: Replace the voltage source with a current source

Question262: START

If the load resistance equals the Thevenin resistance, the power delivered to the load is:

Question262: END

Option\_a: Maximum

Option\_b: Minimum

Option\_c: Zero

Option\_d: Infinite

correct\_option: Maximum

Question263: START

In a Delta (Δ) connection, the loads are connected:

Question263: END

Option\_a: In parallel

Option\_b: In series

Option\_c: End-to-end in a closed loop

Option\_d: To a common neutral point

correct\_option: End-to-end in a closed loop

Question264: START

What is the advantage of using a Star connection over a Delta connection?

Question264: END

Option\_a: Higher current capacity

Option\_b: Lower line voltage for the same phase voltage

Option\_c: Requires fewer wires for transmission

Option\_d: Allows for a neutral point

correct\_option: Allows for a neutral point

Question265: START

In which type of connection is a neutral wire typically available?

Question265: END

Option\_a: Star connection

Option\_b: Delta connection

Option\_c: Both Star and Delta connections

Option\_d: Neither

correct\_option: Star connection

Question266: START

Which connection (Star or Delta) is more commonly used in long-distance power transmission?

Question266: END

Option\_a: Star connection

Option\_b: Delta connection

Option\_c: Both equally

Option\_d: Neither

correct\_option: Star connection

Question267: START

The Current Division Rule is primarily based on:

Question267: END

Option\_a: Kirchhoff’s Voltage Law

Option\_b: Kirchhoff’s Current Law

Option\_c: Ohm’s Law

Option\_d: Conservation of Power

correct\_option: Kirchhoff’s Current Law

Question268: START

The total resistance of two parallel resistors, R1​ and R2​, is given by:

Question268: END

Option\_a: R1​+R2​

Option\_b: R1 R2​​/(R1+R2)

Option\_c: R1 R2​

Option\_d: R12​+R22​

correct\_option: R1 R2​​/(R1+R2)

Question269: START

In a series circuit with resistors R1​=10Ω, R2=20Ω, and a 30V supply, the voltage across R2​ is:

Question269: END

Option\_a: 10V

Option\_b: 20V

Option\_c: 15V

Option\_d: 5V

correct\_option: 20V

Question270: START

If two parallel resistors R1=5 Ω and R2=10 Ω are connected to a 10A source, the current through R1​ is:

Question270: END

Option\_a: 2A

Option\_b: 5A

Option\_c: 6.67A

Option\_d: 10A

correct\_option: 6.67A

Question271: START

For resistors R1​ and R2​ in parallel, the resistor with the smaller resistance:

Question271: END

Option\_a: Carries more current

Option\_b: Carries less current

Option\_c: Carries equal current

Option\_d: Has no effect on the current

correct\_option: Carries more current

Question272: START

The Voltage Division Rule is valid only if:

Question272: END

Option\_a: The circuit is a parallel network

Option\_b: The resistors have equal values

Option\_c: The resistors are connected in series

Option\_d: The resistors are connected to a DC source

correct\_option: The resistors are connected in series

Question273: START

The Current Division Rule is applicable for:

Question273: END

Option\_a: Resistors in series

Option\_b: Resistors in parallel

Option\_c: Any type of circuit

Option\_d: Capacitors in series

correct\_option: Resistors in parallel

Question274: START

The Voltage Division Rule is used to calculate:

Question274: END

Option\_a: Voltage across series resistors

Option\_b: Voltage across parallel resistors

Option\_c: Current through series resistors

Option\_d: Current through parallel resistors

correct\_option: Voltage across series resistors

Question275: START

In a parallel circuit, the total current is:

Question275: END

Option\_a: Equal to the smallest branch current.

Option\_b: Equal to the largest branch current.

Option\_c: The sum of all branch currents

Option\_d: Zero.

correct\_option: The sum of all branch currents

Question276: START

Ohm’s Law applies to:

Question276: END

Option\_a: Nonlinear circuits

Option\_b: Only AC circuits

Option\_c: Only DC circuits

Option\_d: Both AC and DC circuits

correct\_option: Both AC and DC circuits

Question277: START

What is the current through a 10Ω resistor when a 5V source is connected across it?

Question277: END

Option\_a: 0.5A

Option\_b: 2A

Option\_c: 5A

Option\_d: 10A

correct\_option: 0.5A

Question278: START

In a circuit, if 10A flows into a junction and 4A flows out, what is the remaining current outflow?

Question278: END

Option\_a: 4A

Option\_b: 6A

Option\_c: 10A

Option\_d: 14A

correct\_option: 6 A

Question279: START

Kirchhoff's Voltage Law (KVL) is based on the principle of:

Question279: END

Option\_a: Conservation of charge

Option\_b: Conservation of energy

Option\_c: Conservation of momentum

Option\_d: None of the above

correct\_option: Conservation of energy

Question280: START

Kirchhoff's Current Law (KCL) states:

Question280: END

Option\_a: The total voltage around a closed loop is zero

Option\_b: The sum of currents entering a junction equals the sum leaving it.

Option\_c: Voltage across a resistor is proportional to the current

Option\_d: Power dissipated is proportional to resistance.

correct\_option: The sum of currents entering a junction equals the sum leaving it.

Question281: START

A superposition theorem deals with \_\_\_\_ type of supplies connected in an electrical circuit?

Question281: END

Option\_a: Independent

Option\_b: Dependent

Option\_c: Linear

Option\_d: Both b and c

correct\_option: Independent

Question282: START

Superposition theorem explains about \_\_\_ type of network?

Question282: END

Option\_a: Linear

Option\_b: Non-Linear

Option\_c: Zero network

Option\_d: Both b and c

correct\_option: Linear

Question283: START

Which of the following are included in a superposition based theorem?

Question283: END

Option\_a: Linear networks

Option\_b: AC, DC circuits

Option\_c: Norton

Option\_d: All the above

correct\_option: All the above

Question284: START

Superposition theorem is applicable for \_\_\_ type of analysis?

Question284: END

Option\_a: Network

Option\_b: Electric

Option\_c: Mechanical

Option\_d: Both a and b

correct\_option: Both a and b

Question285: START

Network based analysis is used to identify \_\_\_\_\_\_ parameter?

Question285: END

Option\_a: Voltage

Option\_b: Current

Option\_c: Resistance

Option\_d: Both a and b

correct\_option: Both a and b

Question286: START

\_\_\_ is the term that defines a device with 2 or multiple terminals with flow of current?

Question286: END

Option\_a: Component

Option\_b: Node

Option\_c: Mesh

Option\_d: Port

correct\_option: Component

Question287: START

Which of the following are network theorems?

Question287: END

Option\_a: Superposition theorem

Option\_b: Thevenins theorem

Option\_c: Nortons theorem

Option\_d: All the above

correct\_option: All the above

Question288: START

In a superposition theorem the sources act \_\_\_\_\_\_?

Question288: END

Option\_a: Independently

Option\_b: Dependently

Option\_c: Constantly

Option\_d: Both a and b

correct\_option: Independently

Question289: START

Which of the following parameter is calculated via superposition theorem?

Question289: END

Option\_a: Voltage drop

Option\_b: Current drop

Option\_c: Potential difference

Option\_d: Resistance

correct\_option: Voltage drop

Question290: START

Which of the following is the first step of superposition theorem?

Question290: END

Option\_a: Connect DC supply

Option\_b: Calculate over current flow

Option\_c: Connect voltage source

Option\_d: Calculate each branch current

correct\_option: Connect DC supply

Question291: START

The MPTT states that maximum power is transferred from a source to a load when the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

Question291: END

Option\_a: Load resistance is maximum

Option\_b: Load resistance is minimum

Option\_c: Source resistance is maximum

Option\_d: Source resistance is equal to the load resistance

correct\_option: Source resistance is equal to the load resistance

Question292: START

According to the Maximum Power Transfer Theorem, the efficiency of power transfer is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

Question292: END

Option\_a: 50%

Option\_b: 75%

Option\_c: 100%

Option\_d: Depends on the circuit configuration

correct\_option:

Question293: START

The Maximum Power Transfer Theorem is applicable for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

Question293: END

Option\_a: DC circuits

Option\_b: AC circuits

Option\_c: Both DC and AC

Option\_d: Neither DC nor AC

correct\_option: Both DC and AC

Question294: START

According to the Maximum Power Transfer Theorem, the maximum power transferred to the load is given by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

Question294: END

Option\_a: P = V^2/R

Option\_b: P = I^2\*R

Option\_c: P = V\*I

Option\_d: P = R/(V\*I)

correct\_option: = I^2\*R

Question295: START

The Maximum Power Transfer Theorem is based on the concept of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

Question295: END

Option\_a: Ohm’s Law

Option\_b: Kirchhoff’s Laws

Option\_c: Thevenin’s Theorem

Option\_d: Superposition Principle

correct\_option: Thevenin’s Theorem

Question296: START

Transformer works on \_\_\_\_\_\_ principle.

Question296: END

Option\_a: Gauss’s law

Option\_b: Fleming’s right-hand rule

Option\_c: Faraday’s law of electromagnetic induction

Option\_d: Fleming’s left-hand rule

correct\_option: Faraday’s law of electromagnetic induction

Question297: START

A step-up transformer has \_\_\_\_\_ number of turns on primary winding and \_\_\_\_\_ number of turns on secondary winding.

Question297: END

Option\_a: Less, More

Option\_b: More, More

Option\_c: More, Less

Option\_d: Less, Less

correct\_option: Less, More

Question298: START

A step-down transformer has \_\_\_\_\_ number of turns on primary winding and \_\_\_\_\_ number of turns on secondary winding

Question298: END

Option\_a: Less, More

Option\_b: More, More

Option\_c: More, Less

Option\_d: Less, Less

correct\_option: More, Less

Question299: START

A transformer is a \_\_\_\_\_ device.

Question299: END

Option\_a: Static

Option\_b: Dynamic

Option\_c: Static and Dynamic

Option\_d: None of the above

correct\_option: Static

Question300: START

In a transformer the relation between the input frequency and the output voltage on secondary winding is \_\_\_\_\_.

Question300: END

Option\_a: Same

Option\_b: increases

Option\_c: decreases

Option\_d: Increases and decreases with time

correct\_option: Same

Question301: START

Copper losses in a transformer are measured using \_\_\_\_\_.

Question301: END

Option\_a: Closed circuit

Option\_b: Open circuit

Option\_c: Both a & b

Option\_d: None of the above

correct\_option: Open circuit

Question302: START

What is the functionality of a breather in a transformer?

Question302: END

Option\_a: It absorbs the moisture of air during breathing

Option\_b: Passes cold air to the transformer

Option\_c: It is the transformer oil filter

Option\_d: Both a & b

correct\_option: It absorbs the moisture of air during breathing

Question303: START

What is basic functionality of a transformer?

Question303: END

Option\_a: Voltage to current converter

Option\_b: Current to voltage converter

Option\_c: Frequency converter

Option\_d: None of the above

correct\_option:

Question304: START

The core of a transformer is laminated for \_\_\_\_\_ reason

Question304: END

Option\_a: Minimize hysteresis loss

Option\_b: Minimize eddy & hysteresis current loss

Option\_c: Lowers eddy current loss

Option\_d: Copper loss

correct\_option: Lowers eddy current loss

Question305: START

What is the need of performing a short circuit test in a transformer?

Question305: END

Option\_a: To find copper loss

Option\_b: To find core loss

Option\_c: To find insulation resistance

Option\_d: To find complete loss

correct\_option: To find copper loss

Question306: START

Which losses in a transformer is zero at full load?

Question306: END

Option\_a: Core loss

Option\_b: Eddy current loss

Option\_c: Copper loss

Option\_d: Friction loss

correct\_option: Eddy current loss

Question307: START

The current rating of a transformer is expressed as\_\_\_\_\_.

Question307: END

Option\_a: Kilowatts

Option\_b: KVAR

Option\_c: Kilo-volt-ampere

Option\_d: Ampere

correct\_option: Kilo-volt-ampere

Question308: START

What is the purpose of oil in an oil-filled transformer?

Question308: END

Option\_a: Insulate

Option\_b: Resistance

Option\_c: Cooling

Option\_d: Both a & c

correct\_option: Both a & c

Question309: START

Which of the following component is not related to the transformer?

Question309: END

Option\_a: Breather

Option\_b: Conservator

Option\_c: Buchholz relay

Option\_d: Exciter

correct\_option: Exciter

Question310: START

Which component of the transformer causes noise?

Question310: END

Option\_a: Vibration due to mechanical motion

Option\_b: Fan that is used for cooling purpose

Option\_c: Iron core which contains magnetostriction

Option\_d: All the above

correct\_option: Iron core which contains magnetostriction

Question311: START  
What is the main objective of conducting a load test on a single-phase induction motor?  
Question311: END

Option\_a: To determine the starting current  
Option\_b: To evaluate performance under load conditions  
Option\_c: To test insulation resistance  
Option\_d: To measure winding resistance  
correct\_option: To evaluate performance under load conditions

Question312: START  
During a load test on a single-phase induction motor, what does voltage regulation measure?  
Question312: END

Option\_a: Speed variation under load  
Option\_b: Voltage drop from no load to full load  
Option\_c: Power consumption  
Option\_d: Efficiency under load  
correct\_option: Voltage drop from no load to full load

Question313: START  
Which parameter indicates the efficiency of a single-phase induction motor during a load test?  
Question313: END

Option\_a: Torque  
Option\_b: Current  
Option\_c: Power factor  
Option\_d: Power output-to-input ratio  
correct\_option: Power output-to-input ratio

Question314: START  
What does LVDT stand for?  
Question314: END

Option\_a: Linear Variable Differential Transformer  
Option\_b: Load Voltage Differential Transformer  
Option\_c: Low Voltage Direct Transformer  
Option\_d: Line Voltage Dual Transformer  
correct\_option: Linear Variable Differential Transformer

Question315: START  
What is the principle of operation of an LVDT?  
Question315: END

Option\_a: Resistance change  
Option\_b: Capacitance change  
Option\_c: Inductance change  
Option\_d: Magnetic flux change  
correct\_option: Inductance change

Question316: START  
In an LVDT, which component moves to produce a variable output?  
Question316: END

Option\_a: Primary coil  
Option\_b: Secondary coil  
Option\_c: Magnetic core  
Option\_d: Calibration knob  
correct\_option: Magnetic core

Question317: START  
The two-wattmeter method is used to measure power in which type of system?  
Question317: END

Option\_a: Single-phase AC  
Option\_b: Three-phase AC  
Option\_c: DC  
Option\_d: Mixed-phase system  
correct\_option: Three-phase AC

Question318: START  
When does one wattmeter show zero reading in a two-wattmeter method?  
Question318: END

Option\_a: Power factor is 1  
Option\_b: Power factor is 0  
Option\_c: Power factor is 0.5  
Option\_d: Power factor is 0.866  
correct\_option: Power factor is 0

Question319: START  
In the two-wattmeter method, the total power is calculated as:  
Question319: END

Option\_a: W1 × W2  
Option\_b: W1 + W2  
Option\_c: (W1 - W2)/2  
Option\_d: (W1 + W2)/2  
correct\_option: W1 + W2

Question320: START  
What does an energy meter measure in an electrical circuit?  
Question320: END

Option\_a: Instantaneous power  
Option\_b: Total energy consumed  
Option\_c: Voltage levels  
Option\_d: Current flow  
correct\_option: Total energy consumed

Question321: START  
What is the unit of measurement for energy in an energy meter?  
Question321: END

Option\_a: Watts  
Option\_b: Ampere-hours  
Option\_c: Watt-hours  
Option\_d: Joules  
correct\_option: Watt-hours

Question322: START  
Which type of energy meter is commonly used for residential purposes?  
Question322: END

Option\_a: Induction type  
Option\_b: Digital type  
Option\_c: Electronic type  
Option\_d: All of the above  
correct\_option: All of the above

Question323: START  
Which component of the induction motor is responsible for inducing EMF in the rotor during operation?  
Question323: END

Option\_a: Stator  
Option\_b: Rotor windings  
Option\_c: Slip rings  
Option\_d: Commutator  
correct\_option: Stator

Question324: START  
What happens to the efficiency of a single-phase induction motor as the load increases?  
Question324: END

Option\_a: Efficiency decreases  
Option\_b: Efficiency increases  
Option\_c: Efficiency remains constant  
Option\_d: Efficiency fluctuates randomly  
correct\_option: Efficiency increases

Question325: START  
What is the typical power factor range of a single-phase induction motor under full load?  
Question325: END

Option\_a: 0.1 to 0.3  
Option\_b: 0.4 to 0.6  
Option\_c: 0.7 to 0.9  
Option\_d: 1.0  
correct\_option: 0.7 to 0.9

Question326: START  
What is the primary advantage of using an LVDT in measurement systems?  
Question326: END

Option\_a: High accuracy and reliability  
Option\_b: Easy to manufacture  
Option\_c: High cost-effectiveness  
Option\_d: Limited range of operation  
correct\_option: High accuracy and reliability

Question327: START  
What kind of output does an LVDT produce?  
Question327: END

Option\_a: Digital output  
Option\_b: AC voltage proportional to displacement  
Option\_c: DC voltage proportional to displacement  
Option\_d: Pulsed signal  
correct\_option: AC voltage proportional to displacement

Question328: START  
What is the role of the null position in an LVDT?  
Question328: END

Option\_a: Maximum output voltage  
Option\_b: Minimum displacement  
Option\_c: Zero output voltage  
Option\_d: Calibration reference point  
correct\_option: Zero output voltage

Question329: START  
In the two wattmeter method, when the power factor is 0.5, what is the ratio of the two wattmeter readings?  
Question329: END

Option\_a: Equal readings  
Option\_b: Opposite and equal magnitudes  
Option\_c: One is double the other  
Option\_d: One is zero, and the other is maximum  
correct\_option: Opposite and equal magnitudes

Question330: START  
If both wattmeters show positive readings in a two-wattmeter method, what can be concluded about the power factor?  
Question330: END

Option\_a: Power factor is less than 0.5  
Option\_b: Power factor is greater than 0.5  
Option\_c: Power factor is zero  
Option\_d: Power factor is negative  
correct\_option: Power factor is greater than 0.5

Question331: START  
Which phase sequence is assumed when using the two wattmeter method?  
Question331: END

Option\_a: ABC  
Option\_b: BAC  
Option\_c: Random  
Option\_d: No assumption  
correct\_option: ABC

Question332: START  
Which of the following can cause errors in energy meter readings?  
Question332: END

Option\_a: Temperature variations  
Option\_b: Harmonics in the supply  
Option\_c: Magnetic interference  
Option\_d: All of the above  
correct\_option: All of the above

Question333: START  
What is the typical accuracy class of an energy meter used for commercial purposes?  
Question333: END

Option\_a: 0.1%  
Option\_b: 1%  
Option\_c: 5%  
Option\_d: 10%  
correct\_option: 1%

Question334: START  
Which type of energy meter is preferred for measuring reactive power?  
Question334: END

Option\_a: Electromechanical meter  
Option\_b: Induction-type watt-hour meter  
Option\_c: Digital energy meter  
Option\_d: None of the above  
correct\_option: Digital energy meter

Question335: START  
Why is an induction motor called a self-starting motor?  
Question335: END

Option\_a: It does not require external starting mechanisms  
Option\_b: It has high starting torque  
Option\_c: It uses capacitor starting  
Option\_d: It requires a rotor winding  
correct\_option: It does not require external starting mechanisms

Question336: START  
What is the function of slip in an induction motor?  
Question336: END

Option\_a: Synchronize rotor and stator speeds  
Option\_b: Allow the rotor to lag behind the synchronous speed  
Option\_c: Increase power factor  
Option\_d: Reduce heat generation  
correct\_option: Allow the rotor to lag behind the synchronous speed

Question337: START  
What is the function of damping torque in an energy meter?  
Question337: END

Option\_a: To measure power factor  
Option\_b: To reduce vibrations and stabilize the pointer  
Option\_c: To increase sensitivity  
Option\_d: To reduce measurement time  
correct\_option: To reduce vibrations and stabilize the pointer

Question338: START  
How is overloading prevented in a wattmeter?  
Question338: END

Option\_a: By using a fuse  
Option\_b: By limiting the current range  
Option\_c: By installing a circuit breaker  
Option\_d: By calibrating the wattmeter  
correct\_option: By limiting the current range

Question339: START  
What is the major limitation of an analog energy meter?  
Question339: END

Option\_a: Low accuracy  
Option\_b: Cannot measure AC power  
Option\_c: Cannot measure reactive power  
Option\_d: Susceptible to temperature changes  
correct\_option: Low accuracy

Question340: START  
Which of the following factors affects the calibration of an LVDT?  
Question340: END

Option\_a: Temperature  
Option\_b: Core material  
Option\_c: Frequency of excitation  
Option\_d: All of the above  
correct\_option: All of the above

Question 341: START

Consider the following statements:  
Routh-Hurwitz criterion gives:  
1. Absolute stability  
2. The number of roots lying on the right half of the s-plane  
3. The gain margin and the phase margin

Question 341: END

Option\_a: 1,2 and3  
Option\_b: 1 and 2  
Option\_c: 2 and 3  
Option\_d: 1 and 3

correct\_option: 1 and 2

Question 242: START

Which of the following techniques is utilized to determine at the actual point at which the root locus crosses the imaginary axis?

Question 242: END

Option\_a: Nyquist technique  
Option\_b: Routh-Hurwitz technique  
Option\_c: Nichol’s technique  
Option\_d: Bode technique

correct\_option: Routh-Hurwitz technique

Question 343: START

Due to which of the following reasons excessive band width in control systems should be avoided?

Question 343: END

Option\_a: It leads to slow speed of response  
Option\_b: It leads to low relative stability  
Option\_c: Noise is proportional to bandwidth  
Option\_d: Presence of feedback

correct\_option: - Noise is proportional to bandwidth

Question 344: START

The use of feedback element in the feedback loop is:

Question 344: END

Option\_a: It converts the output variable ‘c’ to another suitable feedback variable ‘b’ to compare with the input command signal.  
Option\_b: It is the actuating element  
Option\_c: To increase the stability  
Option\_d: None of the mentioned

correct\_option: It converts the output variable ‘c’ to another suitable feedback variable ‘b’ to compare with the input command signal

Question 345: START

 Stability of a system implies that:

Question 345: END

Option\_a: Small changes in the system input does not result in large change in system output  
Option\_b: Small changes in the system parameters does not result in large change in system output  
Option\_c: Small changes in the initial conditions does not result in large change in system output  
Option\_d: All of the above mentioned

correct\_option: All of the above mentioned

Question 346: START

The necessary condition of stability are:

Question 346: END

Option\_a: Coefficient of characteristic equation must be real and have the same sign  
Option\_b: Coefficient of characteristic equation must be non-zero  
Option\_c: Both of the mentioned  
Option\_d: Coefficient of characteristic equation must be zero

correct\_option: Both of the mentioned

Question 347: START

The Positiveness of the coefficients of characteristic equation is necessary as well as sufficient condition for

Question 347: END

Option\_a: First order system  
Option\_b: Second order system  
Option\_c: Third order system  
Option\_d: None of the mentioned

correct\_option: Third order system

Question 348: START

The slope of the V-I curve is 78°. Calculate the value of resistance. Assume the relationship between voltage and current is a straight line.

Question 348: END

Option\_a: 4.732 Ω  
Option\_b: 4.608 Ω  
Option\_c: 4.543 Ω  
Option\_d: 4.648 Ω

correct\_option: 4.732 Ω

Question 349: START

  In a DC shunt motor, speed is related to armature current as

Question 349: END

Option\_a: Directly proportional to the armature current  
Option\_b: Proportional to the square of the current  
Option\_c: Independent of armature current  
Option\_d: Inversely proportional to the armature current

correct\_option: Inversely proportional to the armature current

Question 350: START

  What will be the effect of opening of field of a DC shunt motor while motor is running?

Question 350: END

Option\_a: The speed of motor will be reduced  
Option\_b: The armature current will reduce  
Option\_c: The motor will attain dangerously high speed  
Option\_d: The motor will continue to constant speed

correct\_option: The motor will attain dangerously high speed

Question 351: START

 What will be the effect of reducing load on DC shunt motor?

Question 351: END

Option\_a: Speed will increase abruptly  
Option\_b: Speed will increase in proportion to reduction in load  
Option\_c: Speed will remain almost constant  
Option\_d: Speed will reduce

correct\_option: - Speed will remain almost constant

Question 352: START

. Practical reason behind speed of DC shunt motor is proportional to back emf only is Question 352: END

Option\_a: Back emf is equal to armature drop  
Option\_b: Flux is proportional to field current  
Option\_c: Flux is proportional to armature current  
Option\_d: Flux is practically constant in DC shunt motors

correct\_option: Flux is practically constant in DC shunt motors

Question 353: START

 The armature torque of the DC shunt motor is proportional to

Question 353: END

Option\_a: Field flux only  
Option\_b: Armature current only  
Option\_c: Field flux and armature current  
Option\_d: Field current

correct\_option: Armature current only

Question 354: START

If a DC shunt motor is working at full load and if shunt field circuit suddenly opens

Question 354: END

Option\_a: Will make armature to take heavy current, possibly burning it  
Option\_b: Will result in excessive speed, possibly destroying armature due to excessive centrifugal stresses  
Option\_c: Nothing will happen to motor  
Option\_d: Motor will come to stop

correct\_option: Will make armature to take heavy current, possibly burning it

Question 355: START

  Speed torque characteristic of DC shunt motor is

Question 355: END

Option\_a: Starting from origin  
Option\_b: Starting from speed axis and increasing  
Option\_c: Starting from speed axis and decreasing  
Option\_d: Starting from speed axis and constant

correct\_option: Starting from speed axis and decreasing

Question 356: START

In A.C. circuits, power consumed is

Question 356: END

Option\_a: product of voltage and current  
Option\_b: it depends on the p.f. of the circuit in addition to voltage and current  
Option\_c: it depends on the supply voltage  
Option\_d: it depends on the magnitude of the circuit current

correct\_option: it depends on the p.f. of the circuit in addition to voltage and current

Question 357: START

In a Dynamometer type wattmeter, the fixed coil is split into

Question 357: END

Option\_a: 4  
Option\_b: 3  
Option\_c: 2  
Option\_d: 1

correct\_option: 2

Question 358: START

When a current carrying coil is placed in the magnetic field?

Question 358: END

Option\_a: no force is exerted  
Option\_b: voltage is produced  
Option\_c: power is generated  
Option\_d: a force is exerted

correct\_option: a force is exerted

Question 359: START

  When the moving coil in a Dynamometer type wattmeter deflects

Question 359: END

Option\_a: pointer moves  
Option\_b: pointer doesn’t move  
Option\_c: current flows  
Option\_d: voltage is generated

correct\_option: pointer moves

Question 360: START

Which type of battery is commonly used in modern electric vehicles due to its high energy density and efficiency?

Question 360: END

Option\_a: Nickel-Cadmium (NiCd)  
Option\_b: Lead-Acid  
Option\_c: Lithium-Ion (Li-ion)  
Option\_d: Alkaline

correct\_option: Lithium-Ion (Li-ion)

Question 361: START

Which type of electric vehicle has both an electric motor and an internal combustion engine?

Question 361: END

Option\_a: Battery Electric Vehicle (BEV)  
Option\_b: Hybrid Electric Vehicle (HEV)  
Option\_c: Plug-in Hybrid Electric Vehicle (PHEV)  
Option\_d: Fuel Cell Electric Vehicle (FCEV)

correct\_option: - Plug-in Hybrid Electric Vehicle (PHEV)

Question 362: START

What is the term used for the energy efficiency of an electric vehicle, measured in miles (or kilometers) driven per unit of energy consumed (e.g., miles per kilowatt-hour)?

Question 362: END

Option\_a: Energy density  
Option\_b: Energy efficiency  
Option\_c: Range anxiety  
Option\_d: Electric vehicle efficiency

correct\_option: √ Electric vehicle efficiency

Question 363: START

 The aluminous if you CNC office sodium vapour lamp is ........lumens per watt

Question 363: END

Option\_a: 40 to 50

Option\_b: 50 to 100

Option\_c: 10 to 12

Option\_d: 100 to 150

correct\_option: 40 to 50

Question 364: START

In filament lamps coiled coil filaments are used in

Question 364: END

Option\_a:. Coloured lamps

Option\_b: Low wattage lamps

Option\_c: Gas field lamps

Option\_d: Higher wattage lamps

correct\_option: Gas field lamps

Question 365: START

   Filament lamps normally operate at a power factor of

Question 365: END

Option\_a: Unity

Option\_b: 0.8 lagging

Option\_c: 0.5 lagging

Option\_d: 0.9 lagging

correct\_option: Unity

Question 366: START

In a series RLC circuit, the phase difference between the current in the capacitor and the current in the resistor is?

Question 366: END

Option\_a: 00  
Option\_b: 900  
Option\_c: 1800  
Option\_d: 3600

correct\_option: 00

Question 367: START

 In a series RLC circuit, the phase difference between the current in the circuit and the voltage across the capacitor is?

Question 367: END

Option\_a: 00  
Option\_b: 900  
Option\_c: 1800  
Option\_d: 3600

correct\_option: 900

Question 368: START

 \_\_\_\_\_\_\_\_\_ the resonant frequency, the current in the capacitor leads the voltage in a series RLC circuit.

Question 368: END

Option\_a: Above  
Option\_b: Below  
Option\_c: Equal to  
Option\_d: Depends on the circuit

correct\_option: Below

Question 369: START

 A current of 2A flows in a wire offering a resistance of 10ohm. Calculate the energy dissipated by the wire in 0.5 hours.

Question 369: END

Option\_a: 72Wh  
Option\_b: 72kJ  
Option\_c: 7200J  
Option\_d: 72kJh

correct\_option: 72kJ

Question 370: START

The current in the inductor \_\_\_\_\_\_\_\_\_\_\_ the voltage in a series RLC circuit above the resonant frequency.

Question 370: END

Option\_a: Leads

Option\_b: Lags

Option\_c: Equal to

Option\_d: Depends on the circuit

correct\_option: Lags

Question371: START

Ramp signal is primarily used to test:

Question371: END

Option\_a: Steady-state response

Option\_b: Stability

Option\_c: Transient response

Option\_d: All of the above

correct\_option: Steady-state response

Question372: START

High pass filters are commonly used in:

Question372: END

Option\_a: Tweeters to allow high frequencies

Option\_b: Subwoofers to boost bass

Option\_c: Band-reject filters

Option\_d: Time-domain analysis

correct\_option: Tweeters to allow high frequencies

Question373: START

A high pass filter is used in audio systems to:

Question373: END

Option\_a: Suppress low-frequency interference

Option\_b: Enhance bass frequencies

Option\_c: Eliminate high frequencies

Option\_d: Pass all signals  
correct\_option: Suppress low-frequency interference

Question374: START

Low pass filters are typically applied in:

Question374: END

Option\_a: Audio bass enhancement

Option\_b: High-frequency signal analysis

Option\_c: Frequency band isolation

Option\_d: Noise suppression

correct\_option: Noise suppression

Question375: START

A low pass filter is used in anti-aliasing to:

Question375: END

Option\_a: Allow low frequencies while blocking high frequencies

Option\_b: Block low frequencies while passing high frequencies

Option\_c: Pass all frequencies

Option\_d: Mirror frequencies

correct\_option: Allow low frequencies while blocking high frequencies

Question376: START

Impulse Invariant Transformation is less suitable for:

Question376: END

Option\_a: High-pass filters

Option\_b: Low-pass filters

Option\_c: Band-pass filters

Option\_d: Systems with high-frequency content  
correct\_option: Systems with high-frequency content

Question377: START

In Impulse Invariant Transformation, high sampling frequency is necessary to:  
Question377: END

Option\_a: Avoid aliasing

Option\_b: Preserve impulse response

Option\_c: Simplify computation

Option\_d: Reduce filter order  
correct\_option: Avoid aliasing

Question378: START

Which of the following characteristics is preserved in Impulse Invariant Transformation?

Question378: END

Option\_a: Frequency response

Option\_b: Impulse response timing

Option\_c: Phase response

Option\_d: Stability of the system  
correct\_option: Impulse response timing

Question379: START

Pre-warping is applied in Bilinear Transformation to:

Question379: END

Option\_a: Avoid aliasing

Option\_b: Improve time-domain response

Option\_c: Match analog and digital frequencies

Option\_d: Reduce computational complexity  
correct\_option: Match analog and digital frequencies

Question380: START

A major drawback of Bilinear Transformation is:  
Question380: END

Option\_a: Aliasing

Option\_b: Time-domain mismatch

Option\_c: Frequency warping

Option\_d: Non-causal response  
correct\_option: Frequency warping

Question381: START

Frequency warping in the Bilinear Transformation affects:

Question381: END

Option\_a: Low frequencies

Option\_b: High frequencies

Option\_c: Entire frequency range equally

Option\_d: Does not affect frequency response  
correct\_option: High frequencies

Question382: START

The primary purpose of the Bilinear Transformation in filter design is:

Question382: END

Option\_a: Frequency response preservation

Option\_b: Mapping analog frequencies to digital frequencies without aliasing

Option\_c: Simplification of filter order

Option\_d: Exact time-domain matching  
correct\_option: Mapping analog frequencies to digital frequencies without aliasing

Question383: START

The butterfly operation in DIF-FFT differs from DIT-FFT in:

Question383: END

Option\_a: Order of applying the twiddle factors

Option\_b: Number of twiddle factors used

Option\_c: Memory complexity

Option\_d: Type of arithmetic operations

correct\_option: Order of applying the twiddle factors

Question384: START

DIF-FFT is preferred over DIT-FFT when:  
Question384: END

Option\_a: Input sequence is in natural order

Option\_b: Higher memory usage is acceptable

Option\_c: Hardware implementation is required

Option\_d: Output needs to be in bit-reversed order

correct\_option: Input sequence is in natural order

Question385: START

What distinguishes the DIF-FFT from the DIT-FFT?

Question385: END

Option\_a: Decimation of the input in DIF-FFT

Option\_b: Bit-reversal at output in DIF-FFT

Option\_c: Twiddle factor application after butterfly computation in DIF-FFT

Option\_d: Use of complex arithmetic in DIF-FFT  
correct\_option: Bit-reversal at output in DIF-FFT

Question386: START

In the DIF-FFT algorithm, the primary operation at each stage is:

Question386: END

Option\_a: Bit-reversal of the input

Option\_b: Decimation in the output sequence

Option\_c: Multiplication with the Fourier coefficients

Option\_d: Addition of twiddle factors

correct\_option: Decimation in the output sequence

Question387: START

DIT-FFT is typically used when:

Question387: END

Option\_a: Input sequence is in bit-reversed order

Option\_b: Output sequence is in natural order

Option\_c: Complex arithmetic is minimal

Option\_d: Twiddle factors are precomputed

correct\_option: Input sequence is in bit-reversed order

Question388: START

What operation is central to each stage of the DIT-FFT?

Question388: END

Option\_a: Addition of twiddle factors

Option\_b: Multiplication of twiddle factors

Option\_c: Butterfly computations

Option\_d: Sorting of coefficients

correct\_option: Butterfly computations

Question389: START

Op In the DIT-FFT algorithm, how is the input sequence processed?  
Question389: END

Option\_a: Decimation in the output sequence

Option\_b: Decimation in the input sequence

Option\_c: Both input and output decimated

Option\_d: None of the above  
correct\_option: Decimation in the input sequence

Question390: START

The integral of the unit impulse signal δ(t) over all time is:  
 Question390: END

Option\_a: 0

Option\_b: 1

Option\_c: Infinity

Option\_d: Undefined

correct\_option: 1

Question391: START

A band reject filter is also known as a:  
Question391: END

Option\_a: Low pass filter

Option\_b: High pass filter

Option\_c: Band stop filter

Option\_d: Band pass filter

correct\_option: Band stop filter

Question392: START

Band reject filters are primarily used to:

Question392: END

Option\_a: Pass all frequencies within a specific range

Option\_b: Block frequencies outside a specific range

Option\_c: Eliminate a specific narrow frequency range

Option\_d: Enhance a specific narrow frequency range  
correct\_option: Eliminate a specific narrow frequency range

Question393: START

A typical application of a band reject filter is:  
Question393: END

Option\_a: Suppressing 60 Hz power line interference

Option\_b: Enhancing bass in audio systems

Option\_c: Filtering all low frequencies in a signal

Option\_d: Amplifying high-frequency signals  
correct\_option: Suppressing 60 Hz power line interference

Question394: START

The key characteristic of a notch filter is:  
Question394: END

Option\_a: Passing all frequencies uniformly

Option\_b: Allowing frequencies outside the stop band

Option\_c: Attenuating a very narrow frequency range

Option\_d: Amplifying signals within the stop band  
correct\_option: Attenuating a very narrow frequency range

Question395: START

In wireless communication, a band reject filter is useful for:  
Question395: END

Option\_a: Isolating specific communication channels

Option\_b: Eliminating interference from neighboring frequency bands

Option\_c: Enhancing data transmission rates

Option\_d: Amplifying high-frequency noise  
correct\_option: Eliminating interference from neighboring frequency bands

Question396: START  
A band pass filter is designed to:  
Question396: END

Option\_a: Pass frequencies within a specified range and attenuate others

Option\_b: Block all frequencies below a certain value

Option\_c: Pass low frequencies while blocking high frequencies

Option\_d: Block low frequencies while passing high frequencies  
correct\_option: Pass frequencies within a specified range and attenuate others

Question397: START

Band pass filters are commonly used in:  
Question397: END

Option\_a: Eliminating specific frequency bands

Option\_b: Amplifying high-frequency signals

Option\_c: Audio systems to isolate vocal ranges

Option\_d: Noise reduction in power supplies  
correct\_option: Audio systems to isolate vocal ranges

Question398: START

The bandwidth of a band pass filter is determined by:  
Question398: END

Option\_a: The sum of the cutoff frequencies

Option\_b: The difference between the cutoff frequencies

Option\_c: The ratio of the cutoff frequencies

Option\_d: The product of the cutoff frequencies  
correct\_option: The difference between the cutoff frequencies

Question399: START

Band pass filters are most effective for:  
Question399: END

Option\_a: Allowing all frequency components

Option\_b: Enhancing signals within a specific range

Option\_c: Blocking high-frequency noise

Option\_d: General signal amplification  
correct\_option: Enhancing signals within a specific range

Question400: START

In a band pass filter, the roll-off rate at the cutoff frequencies is determined by:  
Question400: END

Option\_a: The gain of the filter

Option\_b: The order of the filter

Option\_c: The bandwidth of the filter

Option\_d: The input signal strength  
correct\_option: The order of the filter