





रेलवे भर्ती बोर्ड / RAILWAY RECRUITMENT BOARD सी ई एन नं. - 03/2024 / CEN No. - 03/2024



Test D	ate 22/04/2025
Test T	ime 2:30 PM - 4:30 PM
Subje	ct RRB JE Stage 2 Electrical and Allied Engineering
* Note	
Incorrect	t Answer will carry 1/3 Negative mark per Question.
1 Ontion	as shown in groop color with a tick icon are correct
2. Chose	en option on the right of the question indicates the option selected by the candidate.
Section	: General Abilities
0.1	What is the maximum number of Ministers allowed in the Council of Ministers, including
G(. 1	the Prime Minister, as per the 91 st Amendment Act?
Ans	🗙 1. 20% of Lok Sabha strength
	✓ 2. 15% of Lok Sabha strength
	X 3. 10% of Lok Sabha strength
	X 4 12% of Lok Sabha strength
Q.2	The glass panel used in greenhouses is known to retain
Ans	🗙 1. rainfall
	🗙 2. рН
	X 3. humidity
	✓ 4. heat
Q.3	The Industrial Policy Resolution of 1956 categorised industries into how many groups?
Ans	∧ 1. Seven
	✓ 2. Three
	X 3. Five
	X 4. Nine
Q.4	If you want the primary recipient to see that others have received a copy of an email,
Ans	X 1. Boc
	× 2. Subject
	× 3. To
	✓ 4. Cc
Q.5	The Millennium Development Goals (MDGs) aimed to reduce extreme poverty by which year?
Ans	X 1. 2008
	X 2. 2005
	X 3. 2014
	✓ 4. 2015





	what is the primary purpose of using a firewall of a Personal Computer?
Ans	 1. To speed up internet connectivity 2. To speed up internet connectivity
	X 2. To increase storage space
	X 3. To clean up temporary files
	✓ 4. To block unauthorised access and protect the computer
Q.7	Inertia depends on which property of an object?
Ans	X 1. Shape
	V 2. Mass
	X 3. Velocity
	X 4. Acceleration
Q.8	What is the first step to securing ones smartphone or tablet?
Ans	1. Turning off mobile data
	X 2. Using only free Wi-Fi networks
	X 3. Installing more apps
	✓ 4. Setting a password/PIN-protected lock screen
Q.9	Which official in the Gupta administration was responsible for peace and war matters?
Ans	🗙 1. Vishayapati
	🗙 2. Mahapratihara
	✔ 3. Sandhi-Vigrahika
	🗙 4. Mahadandanayaka
Q.10	According to the Tendulkar methodology, wh <mark>at was</mark> the estimated percentage of people below the poverty line in rural areas in 2011-12?
Ans	🗙 1. 15.5%
	✓ 2. 25.7%
	✗ 3. 27.5%
	X 4. 20%
Q.11	What is India's global military ranking in the 2025 Global Firepower (GFP) index?
Ans	X 1.2 nd
	X 2. 3 th
	\checkmark 3.4 th
	X 4.5 th
Q.12	Which of the following is NOT a source of release of smokestacks?
Ans	✓ 1. Rivers
	X 2. Thermal power plants
	X 3. Smelters
	X 4. Industries
Q.13	Which of the following is NOT toxic to non-target organisms in the soil?
Ans	X 1. Herbicides
	X 2. Fungicides
	✓ 3. Organic fertilisers
	🗙 4. Pesticides

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Q.14 Ans	The practice of Jhum cultivation is prevalent in the
7.110	X 2 North west
	X 3 South west
	4. North east
	•
Q.15	Which of the following cities hosted the inaugural Kho Kho World Cup in January 2025?
Ans	X 1. Mumbai
	X 3. Chennai
	4. New Delhi
Q.16	The energy that is derived from the use of radioactive isotopes is termed as
Ans	🗙 1. solar energy
	🗙 2. geothermal energy
	X 3. thermal energy
	✓ 4. nuclear energy
Q.17	Which of the following companies announced plans in February 2025 to construct the
	world's longest undersea cable, aiming to enhance internet connectivity across five continents, with landing points in India?
Ans	X 1. Microsoft
	🗙 2. Amazon
	🗙 3. Google
	✔ 4. Meta
Q.18	In an electric circuit, what is the correct way to connect an ammeter?
Ans	X 1. In parallel with the source
	2. In series with the component
	X 3. In parallel with the component
	X 4. In either series or parallel
Q.19	What is the purpose of the Collation option in the Print settings?
Ans	★ 1. To change the printer selection
	🗙 2. To adjust the page orientation
	🗙 3. To select a custom print range
	✓ 4. To print all the pages of a document as a set
Q.20	Why does a bee sting cause pain and irritation?
Ans	1. The sting injects methanoic acid.
	🗙 2. The sting injects a mild sugar solution.
	X 3. The sting contains a strong base.
	X 4. The sting releases carbon dioxide gas.
Q.21	What happens when an acid reacts with a metal oxide?
Ans	🗙 1. Only salt is formed.
	🗙 2. A salt and hydrogen gas are formed.
	✓ 3. A salt and water are formed.
	🗙 4. Only water is formed.



	Google Play
Q.30	Which of the following correctly explains why clothes dry faster on a windy day?
Ans	imes 1. Wind decreases the temperature of the water molecules.
	✓ 2. Wind removes the water vapour from the clothes' surroundings.
	\mathbf{X} 3. Wind reduces the surface area of the clothes.
	✗ 4. Wind increases the humidity around the clothes.
Q.31	Which defect of vision occurs due to the weakening of ciliary muscles with age?
Ans	X 1. Myopia
	X 2. Hypermetropia
	X 3. Astigmatism
	✓ 4. Presbyopia
Q.32	Dr. BR Ambedkar described which part of the Indian Constitution as its 'novel features', while Granville Austin referred to it as the 'Conscience of the Constitution'?
Ans	🗙 1. Fundamental Rights
	X 2. Preamble
	X 3. Fundamental Duties
	✓ 4. Directive Principles of State Policy
Q.33	Which of the following is a characteristic difference between colloids and true
Ans	X 1. True solutions exhibit Brownian motion, but colloids do not.
	\mathbf{X} 2. True solutions show the Tyndall effect, but colloids do not.
	3. True solutions have a single-phase system, whereas colloids have a two-phase system.
	X 4. True solutions have visible solute particles, whereas colloids have invisible dispersed particles.
Q.34	What does PCB stand for?
Ans	✓ 1. Printed Circuit Board
	X 2. Primary Control Board
	X 3. Peripheral Connection Bus
	X 4. Processing Circuit Board
Q.35	What happens when a computer is put into Sleep mode?
Ans	1. It keeps the session active in RAM while using minimal power.
	X 2. It shuts down completely.
	\sim 2. It stores data as the hard drive and neuron off
	\wedge 5. It stores data on the hard drive and powers on.
	 X 4. It restarts automatically after a few minutes.
Q.36	 X 3. It stores data on the hard drive and powers on. X 4. It restarts automatically after a few minutes. The fine powder that is obtained from the modified and recycled form of plastic is called
Q.36 Ans	 X 3. It stores data on the hard drive and powers on. X 4. It restarts automatically after a few minutes. The fine powder that is obtained from the modified and recycled form of plastic is called X 1. polystyrene
Q.36 Ans	 X 3. It stores data on the hard drive and powers on. X 4. It restarts automatically after a few minutes. The fine powder that is obtained from the modified and recycled form of plastic is called X 1. polystyrene X 2. polyblend
Q.36 Ans	 A states data on the hard drive and powers on. A the restarts automatically after a few minutes. The fine powder that is obtained from the modified and recycled form of plastic is called A the restarts automatically after a few minutes. The fine powder that is obtained from the modified and recycled form of plastic is called A the restarts automatically after a few minutes.
Q.36 Ans	 X 3. It stores data on the hard drive and powers on. X 4. It restarts automatically after a few minutes. The fine powder that is obtained from the modified and recycled form of plastic is called X 1. polystyrene 2. polyblend X 3. polythene X 4. polyethylene
Q.36 Ans Q.37	 ∧ 3. It stores data on the hard drive and powers on. ∧ 4. It restarts automatically after a few minutes. The fine powder that is obtained from the modified and recycled form of plastic is called ∧ 1. polystyrene √ 2. polyblend ∧ 3. polythene ∧ 4. polyethylene The phenomenon of multiple echoes due to repeated reflections is called
Q.36 Ans Q.37 Ans	 X 3. It stoles data on the hard drive and powers on. X 4. It restarts automatically after a few minutes. The fine powder that is obtained from the modified and recycled form of plastic is called X 1. polystyrene 2. polyblend X 3. polythene X 4. polyethylene The phenomenon of multiple echoes due to repeated reflections is called X 1. resonance
Q.36 Ans Q.37 Ans	 A. It restores data on the hard drive and powers on. A. It restarts automatically after a few minutes. The fine powder that is obtained from the modified and recycled form of plastic is called A. I. polystyrene 2. polyblend 3. polythene A. polyethylene The phenomenon of multiple echoes due to repeated reflections is called A. resonance 2. reverberation
Q.36 Ans Q.37 Ans	 S. It stores data on the hard drive and powers on. 4. It restarts automatically after a few minutes. The fine powder that is obtained from the modified and recycled form of plastic is called <





Ans X 1 Go to File > New > Column	
✓ 2. Go to Home > Insert > Insert Sheet Columns.	
🗙 3. Use Ctrl + Z to insert a column.	
X 4. Press Ctrl + X and then Insert.	
Q.39 Which of the following correctly represents the chemical formula of a compound formed by aluminium and sulphate ions?	i
Ans \times 1. Al(SO ₄) ₃	
\times 2. Al ₂ SO ₄	
✓ 3. Al₂(SO₄) ₃	
¥ 4. Al₃(SO₄)2	
Q.40 In which of the following regions the Himalayas has the greatest width?	
Ans 🗙 1. Arunachal Pradesh	
2. Kashmir	
X 3. Himachal Pradesh	
X 4. Sikkim	
Q.41 What is the shortcut key to start a slideshow from the beginning?	
Ans 🛷 1. F5	
X 2. Alt + Tab	
X 3. Ctrl + P	
X 4. Shift + F5	
Q.42 Which of the following CANNOT be considered as a measure to control global warming?	
Ans 💉 1. Causing deforestation	
X 2. Cutting down use of fossil fuel	
X 3. Efficiently using energy	
X 4. Reduction in emission of greenhouse gases	
Q.43 Which Article provides Ministers the right to participate in parliamentary proceed but without voting rights?	dings
Ans 🗙 1. Article 53	
X 2. Article 77	
V 3. Article 88	
X 4. Article 78	
Q.44 Identify the correct formula for the compound formed between Mg^{2+} and PO_{4}^{3-} ior	ns.
Ans X 1. MgPO ₄	
X 2. Mg₂(PO₄) ₃	
✓ 3. Mg ₃ (PO ₄) ₂	
★ 4. Mg(PO ₄) ₃	
Q.45 What was the main objective of the Extremists during the Indian National Movem	nent?
Ans v 1. Io attain complete independence (Swaraj)	
2. To bring social reforms	
 X 3. To promote British goods in India X 4. ■ 	
4. To expand the legislative councils	



Q.46	لا العلمي المعلم الم Who among the following inaugurated the 38 th National Games held in Dehradun in
A	January 2025?
Ans	
	X 2. Anurag Thakur
	X 3. Droupadi Murmu
	4. Narendra Modi
Q.47	What is the primary function of the F4 key in MS Excel when editing a cell reference in a formula?
Ans	X 1. Repeats the last action
	X 2. Opens the Find and Replace dialog
	X 3. Refreshes the worksheet
	✓ 4. Toggles between absolute and relative references
Q.48	If an object is dropped from rest, what will be its velocity after 15 seconds? (g = 9.8 m/s²)
Ans	🗙 1. 149 m/s
	✓ 2. 147 m/s
	🗙 3. 145 m/s
	🗙 4. 143 m/s
Q.49	If the absolute refractive index of a medium is less than 1, it means
Ans	X 1. the medium absorbs all light
	X 2. the medium is a perfect reflector
	✓ 3. light travels faster in that medium than in vacuum
	★ 4. light travels slower in that medium than in vacuum
Q.50	The primary agent that helps in the decomposition of biodegradable matter in domestic sewage is
Ans	✓ 1. bacterium
	X 2. nitrate
	X 3. phosphate
	X 4. chloride
ection	: Technical Abilities
Q.1	Which transmission voltage level is commonly used for bulk power transmission over medium distances?
Ans	🗙 1. Ultra-High Voltage (UHV)
	X 2. Medium Voltage (MV)
	X 3. Low Voltage (LV)
	✓ 4. High Voltage (HV)
Q.2	A 3-phase, 10 kV distribution line delivers power to a load at a 0.8 power factor lagging. If the current is 50 A, and the load resistance and reactance per km are 0.15 Ω and 0.2 Ω , respectively, for a 400 m line, what is the approximate voltage drop per phase (in V/phase)?
Ans	× 1.0 + j10
	X 2. 1 + j10
	✓ 3. 4.8 + j1.4

Q.3	Which of the following are the two major elements required for Resistance Welding?
Ans	\mathbf{X} 1. Arc and time
	✓ 2. Current and pressure
	X 3. Current and resistance
	X 4. Arc and pressure
0.4	Identify the correct statement related to the P-N junction diode
Ans	\mathbf{X} 1. The forward current of the diode is equal to reverse saturation current of the diode.
	2. The forward current of the diode is greater than reverse saturation current of the diode.
	\mathbf{X} 3. The reverse saturation current of the diode is always zero.
	X 4. The forward current of the diode is less than the reverse saturation current of the diode.
Q.5	Arrange the circuits in ascending order as per the number of diodes required to realise the circuit.
	a. Full wave bride rectifier circuit b. Half wave rectifier circuit c. Centre tapped full wave rectifier circuit
Ans	✔ 1. b-c-a
	🗙 2. a-c-b
	🗙 3. c-a-b
	🗙 4. a-b-c
Q.6	Which of the following is NOT correct when high-voltage leads are eliminated in potential transformer (PT) bushings?
Ans	★ 1. Decreases size and weight of the PT
	✓ 2. Increases the risk of short circuits
	✗ 3. Measures line-to-ground voltages in a three-phase system
	X 4. Reduces overall cost of the transformer
Q.7	Which of the following modifications increases the ratio of full load torque to maximum
Ans	Torque in an induction motor? ★ 1. Decreasing supply voltage
	X 2. Decreasing rotor resistance
	X 3. Increasing stator resistance
	✓ 4. Increasing rotor resistance
Q.8	According to Lenz's law, what does the secondary current in a transformer produce?
Ans	X 1. A magnetizing effect
	🗙 2. An EMF to oppose the primary voltage
	🗙 3. A back EMF that resists the load
	✓ 4. A demagnetizing effect
Q.9	From the right-hand rule, if we know the direction of magnetic field encircling a
Ans	X 1. direction of MMF
	X 2. direction of flux
	X 3. direction of EMF
	 4. direction of current
	•





Q.10	Energy stored in an inductor is given by: (Given L is inductance, I is current, N is number of turns of coil, A is area of cross section, μ is permeability of flux and Φ is flux)
Ans	\sim $\mu N^2 A$
	$\times 2. L \frac{di}{L}$
	dt NΦ
	\times 3. $\frac{-++}{I}$
	\checkmark 4. $\frac{1}{LI^2}$
Q.11	Increasing the resistance R in a parallel RLC circuit will
Ans	X 1. increase resonance frequency
	X 2. increase the bandwidth
	✓ 3. decrease the bandwidth
	X 4. have no effect on bandwidth
Q.12	Why do modern steam power plants use a regenerative feedwater heating system?
Ans	1. It helps improve efficiency by reusing heat, so less fuel is needed.
	X 2. It helps keep turbine blades cooler.
	X 3. It makes the combustion process more effective.
	X 4. It is mainly used to produce high-pressure steam.
Q.13	What is the primary characteristic of a Zener diode that distinguishes it from a regular diode?
Ans	✓ 1. Sharp breakdown voltage and ability to regulate voltage
	X 2. Low forward voltage drop
	🗙 3. High reverse breakdown voltage
	X 4. High forward current rating
Q.14	In a Schering Bridge, if the known capacitor C ₂ = 500 pF, known resistor R ₃ = 5 k Ω , and
Δns	\mathbf{X} 1 10 pE
	2 100 pE
	X 3.50 pF
	★ 4.1 pE
Q.15	What is a key factor in selecting street light pole structures?
Alla	2. The height material and durability to withstand environmental conditions
	 X 3 Japoring wind load calculations to reduce costs
	\mathbf{X} 4. The colour of the pole
Q.16	By which of the following is the welding current in an AC welding transformer controlled?
Ans	X 1. Increasing the primary voltage
	2. Varying the magnetic flux
	🗙 3. Using an electric motor



as)





Q.25	In a street lighting ring network, what is the primary reason for considering voltage drop?
Ans	X 1. To maximise current flow
	X 2. To decrease conductor resistance
	🗙 3. To increase power loss for efficiency
	✓ 4. To ensure all lights receive equal brightness
Q.26	If the resistance (R) in a parallel RLC circuit increases, the quality factor (Q) will
Ans	X 1. remain the same
	X 2. become zero
	X 3. decrease
	✓ 4. increase
Q.27	Which of the following methods is NOT used for low resistance measurement?
Ans	X 1. Potentiometer method
	2. Loss of Charge method
	X 3. Ammeter-Voltmeter method
	4. Kelvin Double Bridge method
Q.28	What does the 'Rate of Rise of Restriking Voltage (RRRV)' in circuit breakers refer to?
Ans	1. The rate at which the voltage across the breaker contacts rises after current interruption
	imes 2. The rate at which the fault current increases in the system
	✗ 3. The rate at which the breaker contacts close during normal operation
	★ 4. The speed at which the circuit breaker operates during a fault
Q.29	How does the spear valve inside the nozzle enhance the operational efficiency of a Pelton turbine?
Ans	1. By dynamically adjusting the jet velocity to match load demand
	X 2. By diverting the water jet away from the buckets when needed
	X 3. By storing excess kinetic energy for later use
	X 4. By creating turbulence to improve energy dissipation
Q.30	Which type of electrode is used in Carbon Arc Welding (CAW)?
Ans	1. Aluminum coated electrode
	 Z. Copper coated electrode Z. Tungeton electrode
	 ✓ 4. Graphite electrode
Q.31	Which gas is used to aid the starting process in Metal Halide Lamps?
7113	X 2 Nitrogen
	3 Argon
	× 4 Neon





Q.32	Which statements about the maximum power output of a cylindrical rotor synchronous generator are correct?
	I. Maximum power output occurs when the load angle (δ) is 90°. II. Maximum power is proportional to the square of the terminal voltage (V). III. Over-excitation increases the generator's maximum power capability. IV. Maximum power is independent of the synchronous reactance (Xs).
Ans	✓ 1. Statements I and III only are correct.
	X 2. Statements II and IV only are correct.
	X 3. Statements II and III only are correct.
	X 4. Statements I and IV only are correct.
Q.33	What is the primary function of 'Percentage Differential Protection' in an alternator?
Ans	1. To detect and protect against internal faults within the alternator windings
	ig imes 2. To detect and protect against external faults in the connected power system
	leph 3. To monitor the voltage regulation of the alternator
	X 4. To protect against overloading of the alternator
Q.34	Crawling typically causes an induction motor to operate at a speed that is:
Ans	1. a fraction (e.g. 1/3) of synchronous speed
	X 2. double the synchronous speed
	X 3. equal to synchronous speed
	X 4. slightly below synchronous speed under full load
Q.35 Ans	 The use of electronic ballasts in CFLs helps to eliminate: ✓ 1. slow starting and flickering ✓ 2. overheating ✓ 3. excessive brightness ✓ 4. high voltage consumption
Q.36 Ans	If the number of parallel paths (A) in a DC generator is increased, the generated EMF ★ 1. decrease ◆ 2. remain the same ★ 3. increase ★ 4. become zero
Q.37	Why is the simple brake test generally used for small motors only?
Ans	igma 1. The simple brake test does not work with large motors.
	🗙 2. Large motors have lower efficiency.
	3. Large motors produce excessive heat that is difficult to dissipate.
	X 4. Small motors do not require cooling.
Q.38	In an alternator, if the load power factor changes from lagging to leading, the armature reaction effect shifts from:
Ans	1. demagnetising to magnetising
	X 2. magnetising to cross-magnetising
	X 3. cross-magnetising to demagnetising
	X 4. demagnetising to cross-magnetising





Q.39	What effect does excessive heat in a transformer have on its windings?
Ans	✓ 1. It reduces insulation resistance and can cause damage.
	X 2. It increases transformer efficiency.
	X 3. It improves insulation performance.
	X 4. It has no significant effect.
Q.40	The Buchholz relay is connected between which two parts of the transformer?
Ans	🗙 1. Magnetic core and armature
	🗙 2. Primary terminal and secondary terminal
	3. Transformer oil tank and conservator tank
	🗙 4. Primary winding and secondary winding
Q.41	In a transistor amplifier, the composition of the current in any branch during operation is:
Ans	1. the sum of AC and DC
	X 2. DC only
	🗙 3. AC only
	✗ 4. the multiplication of AC and DC
0.42	
Q.42 Ans	X 1. increase
	X 3 remain unchanged
Q.43	The material commonly used as resistance wire in heating elements is:
Ans	X 1. copper
	X 2. aluminium
	✓ 3. nichrome
	X 4. silver
Q.44	The RMS value of voltage (V _{rms}) in a purely resistive AC circuit is related to peak voltage (V _m) by
Ans	$X_{1} = \sqrt{2}$
	^v ms V _m
	\times 2. V _{rms} = $\sqrt{2}$ V _m
	\checkmark 3. $V_{\rm rms} = \frac{V_{\rm m}}{C_{\rm rms}}$
	$\sqrt{2}$
	X 4. V _{rms} =V _m
Q.45	Under constant mechanical load, changing the excitation of a synchronous motor affects which of the following?
	I. Power factor II. Armature current magnitude III. Speed of the motor IV. Real power output
Ans	X 1. I and IV only
	2. I and II only
	X 3. II and III only
	🗙 4. III and IV only





Q.46	What is the angle that is formed between the incident ray and the normal line called?
Ans	X 1. Angle of deviation
	X 3 Angle of refraction
Q.47	An apartment complex consists of 15 apartments, each with a peak demand of 8 kW. The maximum system demand recorded is 60 kW. What is the diversity factor?
Ans	X 1. 0.5
	X 2.3
	🗙 3. 1.5
	✓ 4.2
Q.48	Which type of damping is commonly used in PMMC voltmeters and ammeters?
Ans	X 1. Spring-controlled damping
	✓ 2. Electromagnetic damping
	🗙 3. Air friction damping
	X 4. Fluid friction damping
0.49	A toroidal coil has a magnetic nath length of 30 cm and a magnetic field strength of 750
QT	A/m. The coil current is 250 mA. Determine the number of coil turns.
Ans	✓ 1. 900 turns
	X 2. 800 turns
	🗙 3. 750 turns
	X 4. 625 turns
Q.50	A single-phase AC circuit has a voltage of 230 V and a current of 10 A. What is the
Δns	apparent power (S)?
	× 2.23 kW
	× 2.22.VA
	× 4. 2300 VAR
Q.51	In the fabrication of a PNP transistor, what is the primary reason for using a buried layer of heavily doped P+ material beneath the N-type base region?
Ans	X 1. To increase the emitter injection efficiency
	X 2. To reduce the base-emitter voltage
	X 3. To reduce the collector-emitter saturation voltage
	✓ 4. To prevent latchup and improve transistor stability
Q.52	M.M.F in a magnetic circuit is abbreviated as:
Ans	X 1. Magnetic Force
	X 2. Magnetomotive Field
	🗙 3. Magnetic Movement Field
	✓ 4. Magnetomotive Force
Q.53	Which safety factor is most important when designing transmission lines under ice and
Δne	wind conditions /
A113	
	 X 2. Electrical safety factor
	 X 2. Electrical safety factor A Monhanizal strang factor
	 X 2. Electrical safety factor 3. Mechanical stress factor 4. Mechanical stress factor



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Q.54	If a residential area has an annual energy consumption of 28,908,000 kWh, what is its average demand?
Ans	✓ 1. 3300 kWh
	🗙 2. 2200 kWh
	🗙 3. 3000 kWh
	🗙 4. 3 kWh
Q.55	The work done on a unit N pole in moving once around any single closed path in a
	magnetic field is equal to
Ans	1. EMF in respective path
	2. number of turns in respective path
	✓ 3. Ampere turns linked with the path
	X 4. current in respective path
Q.56	Why is a radial layout with high voltage drop unsuitable for industrial loads?
Ans	X 1. It reduces voltage fluctuation.
	🗙 2. Voltage drop increases system reliability.
	🗙 3. It helps maintain constant power factor.
	✓ 4. Industrial loads require stable voltage level.
Q.57	What is the relationship between back EMF and the supply voltage in a DC motor?
Ans	X 1. Back EMF is directly proportional to the supply voltage.
	X 2. Back EMF is equal to the supply voltage.
	X 3. Back EMF is independent of the supply voltage.
	✓ 4. Back EMF opposes the supply voltage.
Q.58	In a series magnetic circuit, fl <mark>ux φ flows through each part</mark> of the circuit.
Ans	1. the same
	X 2. different
	X 3. zero
	🗙 4. infinite
Q.59	Which type of transformer is used for stepping down current for measurement
A	purposes?
Ans	
Q.60	What will be the current relationship in time domain for a capacitive circuit?
Ans	$\times 1 c^{d^2 v}$
	$\frac{dt^2}{dt^2}$
	$\checkmark 2 i(t) = C \frac{dv}{dt}$
	\times 3. $\mathbf{i}(\mathbf{t}) = C \int_{0}^{t} \mathbf{v}(\mathbf{t})$
	$\mathbf{\times} 4 \mathbf{i}(t) = C \int_{0}^{t} \mathbf{v}(t) + \mathbf{i}(0)$

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Q.61	For the full wave rectifier circuit with sinusoidal ac signal as its input, if the peak value of the output signal increases, its rms value of the ac component
Ans	1. increases
	X 2. decreases
	🗙 3. remains the same
	X 4. becomes zero
Q.62	What is a key consideration in public lighting installations?
Ans	1. Providing adequate illumination while ensuring energy efficiency and safety
	X 2. Ignoring maintenance requirements to reduce costs
	✗ 3. Focusing only on the aesthetic design of the light fixtures
	X 4. Ensuring the lighting system operates without any protective devices
Q.63	For a P-N junction diode, the built in barrier potential of the junction is proportional to the doping concentration and proportional to the intrinsic concentration.
Ans	1. inversely; directly
	X 2. inversely; inversely
	✓ 3. directly; inversely
	X 4. directly; directly
Q.64 Ans	 A it ensures that the transformers are not damaged due to reverse currents
Q.65 Ans	Which of the following is a major disadvantage of the De Sauty Bridge?
	 X 3. It cannot be used to measure very small capacitances. X 4. It requires an AC power source.
Q.66	Which application is a common use of synchronous motors?
Ans	X 1. Electric cranes
	✓ 2. Power factor correction
	X 3. Household fans
	X 4. Portable drills
Q.67 Ans	What is the primary purpose of 'Thermal Overheating Protection' in a transformer? X 1. To protect against overvoltage conditions in the power system
	$ig \chi$ 2. To detect and protect against short circuits in the transformer windings
	3. To monitor and prevent excessive temperature rise in the transformer
	X 4. To detect faults in the transformer cooling system
Q.68	Ferrites are ferromagnetic ceramics which have a fairly constant
Ans	1. relative permeability
	X 2. magnetic susceptibility
	🗙 3. hysteresis loss





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Q.75	Force on a current-carrying conductor will be when it is placed at right angles to the direction of the magnetic field.
Ans	🗙 1. minimum
	X 2. zero
	✓ 3. maximum
	X 4. infinite
0.76	Why are action that a retarn NOT used in turbs alternators?
Ans	1. Mechanical instability at high speeds
	× 2 Inefficient cooling
	X 1 Low mechanical strength
Q.77	If the frequency of an AC source connected to a pure capacitor is doubled, the
Ans	✓ 1. decrease by half
	X 2. double
	X 3. increase four times
	× 4. remain unchanged
Q.78	If the peak voltage of a full-wave rectifier is 20 V, what is the average output voltage?
Ans	$\times 1. \frac{\pi}{20}$ V
	20
	$\times 2 \frac{\pi}{V}$
	40
	\times 3. $\frac{20}{-}$ V
	π
	$\frac{40}{10}$ V
	π
Q.79	Maxwell's Inductance-Capacitance Bridge uses a standard capacitor to measure which
Ans	✓ 1. Inductance
	X 2. High resistance
	X 3. Capacitance
	X 4. Low resistance
Q.80	A sinusoidal voltage is given by v(t)=100 sin(ωt+30°). What is the corresponding phasor representation?
Ans	X 1. 100∠−30°
	X 2. 100∠0°
	X 3. 100∠90°
	✔ 4. 100∠30°





Q.81	A parallel RLC circuit has an inductance of 1 H and a capacitance of 1 μ F. What is the resonant frequency (f ₀)?
Ans	\times 1. $\frac{1}{\pi \times 10^{-3}}$ Hz
	\times 2. $\frac{1}{\pi}$ Hz
	\times 3. $\frac{1}{2\pi}$ Hz
	$\checkmark 4. \frac{1}{2\pi \times 10^{-3}} \text{Hz}$
Q.82	Which of the following factors determines the selection of voltage levels in primary and secondary transmission?
Ans	X 1. Type of power generation used
	X 2. Only the type of transformers used
	X 3. Only the number of consumers connected
	✓ 4. Distance of transmission and power demand
Q.83	Current I(s) in RL circuit is given as $I(s) = \frac{1.5}{s+4}$. Obtain i(t) for t > 0.
Ans	× 1.1.5e ^{4t}
	✓ 2.1.5e ^{-4t}
	× 3.1.5t
	X 4. 1.5e ^t
Q.84	In distribution transformers, the explosion vent is designed to:
Ans	X 1. improve the cooling system
	X 2. control oil pressure
	✓ 3. release pressure in case of excessive buildup
	X 4. monitor transformer oil quality
Q.85	In a ring distribution system, if one section of the ring experiences a fault and is disconnected, how does this affect the voltage drop at the loads connected to the remaining operational sections?
Ans	★ 1. Voltage drop fluctuates randomly due to load redistribution.
	X 2. Voltage drops decreases as the fault reduces overall system impedance.
	3. Voltage drop remains unchanged since power is still supplied from two directions.
	X 4. Voltage drops increases because the system now operates like a radial system in that section.
Q.86	What does the flux created by the load current in the primary winding, which links only with the primary winding, represent?
Ans	X 1. Induced flux
	X 2. Magnetic flux
	✓ 3. Leakage flux
	X 4. Mutual flux
Q.87	Which of the following is a characteristic of a group drive system?
Ans	🗙 1. Minimal energy loss
	2. Low capital cost
	X 3. High flexibility in operation
	X 4. High maintenance cost

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Q.88	If two AC waveforms have a phase difference of 0°, they are said to be
Ans	X 1. lagging
	X 2. out of phase
	✓ 3. in phase
	X 4. leading
Q.89	Which statements about voltage drop in an alternator are correct?
	I. The voltage drop due to armature resistance (IaRa) is in phase with the armature current (Ia).
	II. At unity power factor, the voltage drop laRa directly subtracts from the generated
	III. For a leading power factor load, laRa contributes to an increase in terminal voltage
	(V). IV. Armature resistance has no effect on voltage regulation.
Ans	X 1. Statements III and IV only are correct.
	✓ 2. Statements I and II only are correct.
	X 3. Statements II and III only are correct.
	X 4. Statements I and IV only are correct.
Q.90	How are the segments of the commutator insulated from each other?
Alls	
	 2. Using air gaps 2. Using thick layers of righter
	∧ 3. Using trick layers of rubber
	4. Using metal sheets
Q.91	Which of the following options best describes the role of a gasifier in an agro-chemical- based power plant?
Ans	X 1. It directly burns biomass to produce heat.
	2. It converts solid biomass into a combustible gas through partial oxidation.
	X 3. It stores chemical fertilisers for energy production.
	X 4. It condenses steam to generate electricity.
Q.92	If a 6-pole induction motor operates on a 60 Hz supply, its synchronous speed is
Ans	▲ 1.7200 rpm
	✓ 2. 1200 rpm
	X 3. 2400 rpm
	X 4. 3600 rpm
Q.93	A diode rectifier circuit has an AC input voltage of 230 Vrms and a load resistance of 1 kΩ. If the diode is ideal and the circuit is a half-wave rectifier, what is the Peak Inverse
	Voltage (PIV) across the diode?
Ans	X 1. 230 V
	X 2. 460 V
	✓ 3. 325 V
	X 4. 650 V
Q.94	Why does a single large generating unit lead to higher generating costs per unit?
Ans	X 1. It eliminates the need for maintenance.
	X 2. It has zero fuel consumption.
	🗙 3. It always operates at maximum efficiency.
	✓ 4. It operates inefficiently during periods of low demand.

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Q.95	What is the primary scope of the National Electric Code (NEC) 2011?
Ans	🗙 1. To focus exclusively on renewable energy systems
	ig X 2. To define standards for power generation and transmission only
	🛷 3. To provide guidelines for the design and installation of electrical systems to ensure safety and reliability
	χ 4. To regulate the manufacturing of electrical appliances and devices
Q.96	What is the reflection of light from a smooth and shiny surface like a mirror called?
Ans	X 1. Spread reflection
	X 2. Irregular reflection
	✓ 3. Specular reflection
	X 4. Diffuse reflection
Q.97	Which type of transformer is used for stepping down current for measurement purposes?
Ans	X 1. Power transformer
	X 2. Auto transformer
	✓ 3. Current transformer
	X 4. Voltage transformer
Q.98	For a P-N junction diode, with increase in the reverse bias potential, the width of the depletion region and the transition capacitance
Ans	X 1. increases; increases
	X 2. decreases; decreases
	X 3. decreases; increases
	✓ 4. increases; decreases
Q.99	Which of the following types of engines is most commonly adapted to run on liquid
Ans	X 1. Stirling engine
	X 2. Jet engine
	X 3. Fuel cell engine
	✓ 4. Internal combustion engine
ຊ.100	In a three-phase system, the sum of the three phase voltage phasors in a balanced system is
Ans	X 1. maximum at resonance
	V 2. zero
	 2. zero 3. equal to the line voltage