LMRC
JE EE 2018
Previous Year Paper
(13 May 2018)

LUCKNOW METRO RAIL CORPORATION

Participant ID:	
Participant Name:	
Test Center Name:	iON Digital Zone iDZ Keshaw Puram
Test Date:	13/05/2018
Test Time:	3:00 PM - 5:00 PM
Subject:	NE04 Jr Engineer (Electrical)
Marks Obtained:	

Section : **Technical**

Q.1 For a single phase transformer, wattmeter readings for OC and SC test result are as given below.

Wattmeter reading in OC test - 2.5 KW
Wattmeter reading in SC test - 5 KW
Find maximum efficiency of 5 KVA transformer for unity power factor.

Question ID : **7246223134**
Chosen Option : **4**

Ans
✗ 1. 70 %
✗ 2. 66.67 %
✗ 3. 33.34 %
✓ 4. 41.38 %

Q.2 Which of the following is a type of arc welding?

Question ID : **7246223184**
Chosen Option : **2**

Ans
✓ 1. TIG (Tungsten Inert Gas) welding
✗ 2. Friction welding
✗ 3. Acetylene welding
✗ 4. Ultrasonic welding

Q.3 Hunting occurs in _____.

Question ID : **7246223142**
Chosen Option : **3**

Ans
✓ 1. Both Synchronous motor and Synchronous generator
✗ 2. Synchronous motor
✗ 3. Transformer
✗ 4. Synchronous generator

Q.4 Which relay is also known as Gas actuated Relay?

Question ID : **7246223178**
Chosen Option : **2**

Ans
✗ 1. Thermal Relay
✓ 2. Buchholz Relay
✗ 3. Induction Relay
✗ 4. Solenoid Type Relay

Q.5 The unit of luminous flux is:

Question ID : **7246223180**
Chosen Option : **2**

Ans
✗ 1. Candela
✓ 2. Lumen
✗ 3. Weber
✗ 4. Lux

Q.6 What is the best suitable combination while performing OC and SC test in transformer?

Question ID : **7246223133**
Chosen Option : **4**

Ans
✓ 1. OC test- HV side open, SC test-LV side shorted
✗ 2. OC test- LV side open, SC test-LV side shorted
✗ 3.

OC test- HV side open, SC test-HV side shorted

✗ 4. OC test- LV side open, SC test-HV side shorted

Q.7 What damping is used in PMMC instrument?

Question ID : **7246223117**
Chosen Option : **1**

Ans
✓ 1. Eddy current
✗ 2. Electromagnetic
✗ 3. Fluid friction
✗ 4. Air friction

Q.8 In synchronous generator, coil span factor is defined as _____.

Question ID : **7246223136**
Chosen Option : **4**

Ans
✗ 1. Ratio of the actual voltage obtained to the possible voltage if all the coils of a polar group were concentrated in a single slot.
✗ 2. Ratio of phasor sum of coil voltages per phase to arithmetic sum of coil voltages per phase.
✗ 3. Ratio of the voltage generated in full coil to the voltage generated in short-pitch coil.
✓ 4. Ratio of the voltage generated in short-pitch coil to the voltage generated in full pitch coil.

Q.9 Which part of steam power plant utilizes flue gases to raise the temperature of feed water?

Question ID : **7246223160**
Chosen Option : **2**

Ans
✗ 1. Condenser
✓ 2. Economizer
✗ 3. Boiler
✗ 4. Air pre heater

Q.10 Which of the following motor is best suited for an application where high speed and high torque is required?

Question ID : **7246223156**
Chosen Option : **4**

Ans
✓ 1. Universal Motor.
✗ 2. Shaded pole motor
✗ 3. Capacitor start motor
✗ 4. Capacitor start capacitor run motor

Q.11 1 kWh is equivalent to:

Question ID : **7246223188**
Chosen Option : **2**

Ans
✗ 1. $4.18 * 10^6$ joules
✓ 2. $3.6 * 10^6$ joules
✗ 3. $41.8 * 10^6$ joules
✗ 4. $8.64 * 10^6$ joules

Q.12 When light passes through a transparent material, light's direction changes through a small angle. This phenomenon is known as:

Question ID : **7246223186**
Chosen Option : **3**

Ans
✗ 1. Diffraction
✗ 2. Dispersion
✓ 3. Refraction
✗ 4. Reflection

Q.13 Which of the following properties is true for good heating element?

Question ID : **7246223189**
Chosen Option : **1**

Ans
✗ 1. High temperature coefficient of resistance
✗ 2. Low oxidizing temperature
✓ 3. Low temperature coefficient of resistance
✗ 4. Low melting temperature

Q.14 TOD related to tariff stands for:

Question ID : **7246223165**
Chosen Option : **2**

Ans
✗ 1. Tariff of Distribution
✗ 2. Tariff of Day

✔ 3. Time of Day

✘ 4. Time of Distribution

Q.15 Out of the following, which loss is also a category of magnetic losses?

Question ID : **7246223126**
Chosen Option : **2**

Ans

✘ 1. Windage loss

✔ 2. Eddy current loss

✘ 3. Copper loss

✘ 4. Friction loss

Q.16 The power drawn from the main supply while performing the Hopkinson test on DC machine is mainly consumed as:

Question ID : **7246223131**
Chosen Option : **3**

Ans

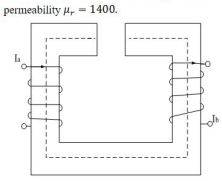
✘ 1. The losses in motor only

✘ 2. The input to motor and not to generator.

✘ 3. The input to both generator and motor

✔ 4. The losses in both machines

Q.17 In the following figure, a rectangular iron core is shown where a 3 mm of air-gap is cut in the core. The mean length of the magnetic path is 150 cm with cross-section of (3 cm × 3 cm). Two coils are present with number of turns as $N_a = 600$ and $N_b = 500$, and carry 2 A and 1 A respectively. What is the flux in the air gap? Assume the relative permeability $\mu_r = 1400$.



Question ID : **7246223113**
Chosen Option : **--**

Ans

✘ 1. 100 μWb

✘ 2. 0 μWb

✔ 3. 175.84 μWb

✘ 4. 200 μWb

Q.18 The rotor resistance and standstill reactance per phase of a 3-phase slip-ring induction motor are 0.5 Ω and 1 Ω respectively. What should be the value of external resistance per phase to be inserted in the rotor circuit to give maximum torque at starting?

Question ID : **7246223151**
Chosen Option : **2**

Ans

✘ 1. 1 Ω

✔ 2. 0.5 Ω

✘ 3. 0.05 Ω

✘ 4. 2 Ω

Q.19 The dimensions of energy are:

Question ID : **7246223115**
Chosen Option : **4**

Ans

✘ 1. $[M^1L^{-1}T^{-1}]$

✘ 2. $[M^2L^2T^2]$

✘ 3. $[M^1L^{-2}T^{-1}]$

✔ 4. $[M^1L^2T^{-2}]$

Q.20 All day efficiency is calculated for _____.

Question ID : **7246223146**
Chosen Option : **4**

Ans

✘ 1. Current transformer

✘ 2. Potential transformer

✘ 3. Power transformer

✔ 4. Distribution transformer

Q.21 What is the main drawback of paper as an insulating material?

Question ID : **7246223176**
Chosen Option : **--**

Ans

✘ 1. Has poor dielectric strength

✘ 2. Has low insulation resistivity

✘ 3. Has high capacitance

✔ 4. It is hygroscopic

Q.22 A galvanometer has an internal resistance of 100 ohm and a shunt resistance of 20 ohm. Find the multiplying factor.

Question ID : **7246223118**

Ans

Chosen Option : **2**

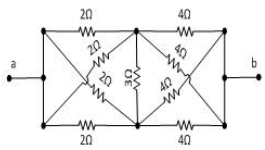
✗ 1. 5
✓ 2. 6
✗ 3. 0.2
✗ 4. 0.3

Q.23 As per Stefan's law of radiation, heat radiated by a body surface is:

Question ID : **7246223190**
Chosen Option : **3**

Ans
✗ 1. Directly proportional to the square of its absolute temperature
✗ 2. Inversely proportional to the fourth power of its absolute temperature
✓ 3. Directly proportional to the fourth power of its absolute temperature
✗ 4. Inversely proportional to the square of its absolute temperature

Q.24 Determine the value of equivalent resistance across nodes a and b.



Question ID : **7246223110**
Chosen Option : **--**

Ans
✓ 1. 1.5 Ω
✗ 2. 2.5 Ω
✗ 3. 3 Ω
✗ 4. 4.5 Ω

Q.25 Let there be a series circuit consisting of a pure resistance and a pure inductance where the current and the voltage are expressed as :
$i(t) = 4\sin(314t + (2\pi)/3)$ and $v(t) = 8\sin(314t + (5\pi)/6)$.
Calculate the average power drawn by the circuit

Question ID : **7246223106**
Chosen Option : **1**

Ans
✓ 1. 13.84 W
✗ 2. 15.12 W
✗ 3. 12.67 W
✗ 4. 10.42 W

Q.26 Which of the statements is/are correct regarding rotating magnetic field production in a 3-phase induction machine?

1) Direction of rotation of resultant flux in the air gap depends upon phase sequence.
2) Resultant flux of constant magnitude is produced in the air gap of motor.
3) Frequency of rotating magnetic field is not same as that of the supply frequency.

Question ID : **7246223150**
Chosen Option : **3**

Ans
✗ 1. 1, 2 & 3
✗ 2. 1
✓ 3. 1 & 2
✗ 4. 2

Q.27 In which of the following applications, reluctance motor would be the best choice?

Question ID : **7246223154**
Chosen Option : **4**

Ans
✗ 1. Hoists and lifts
✓ 2. Signaling and timing device
✗ 3. Refrigerators
✗ 4. Electric shavers

Q.28 Which of the following is called as fluorescent material?

Question ID : **7246223181**
Chosen Option : **1**

Ans
✓ 1. Phosphorus
✗ 2. Helium
✗ 3. Uranium
✗ 4. Potassium

Q.29 In synchronous generator, nature of armature of armature reaction is _____ when it supplies a load at unity power.

Question ID : **7246223139**
Chosen Option : **2**

Ans
✗ 1. Demagnetizing.
✓ 2. Cross-magnetizing.
✗ 3.

Partly demagnetizing and partly cross-magnetizing

✗ 4. Partly magnetizing and partly cross-magnetizing

Q.30 For DC Series motor, type of starter used for protection from high inrush current is:

Question ID : **7246223127**
Chosen Option : **1**

Ans
✓ 1. 2 point starter
✗ 2. 4 point starter
✗ 3. No starter is used
✗ 4. 3 point starter

Q.31 HRC fuse stands for:

Question ID : **7246223166**
Chosen Option : **--**

Ans
✓ 1. High Rupturing Capacity
✗ 2. High Resistive Capacity
✗ 3. High Rated Current
✗ 4. High Resonant Capacity

Q.32 The synchronizing power is _____ when two alternators are running in synchronism.

Question ID : **7246223143**
Chosen Option : **--**

Ans
✗ 1. Negative
✗ 2. Positive
✓ 3. Zero
✗ 4. Cannot be determined

Q.33 In V/F control of a 3-phase induction motor, if voltage is increased by 10%, in order to keep air gap flux constant, what is the % increment or decrement in frequency?

Question ID : **7246223153**
Chosen Option : **3**

Ans
✗ 1. Frequency is decreased by 10%
✗ 2. Frequency is decreased by 20%
✓ 3. Frequency is increased by 10%
✗ 4. Frequency is increased by 20%

Q.34 In synchronous generator, nature of armature of armature reaction is _____ when it supplies a load at lagging power.

Question ID : **7246223138**
Chosen Option : **2**

Ans
✗ 1. Demagnetizing.
✓ 2. Partly demagnetizing and partly cross-magnetizing
✗ 3. Magnetizing.
✗ 4. Cross-magnetizing.

Q.35 Solid angle is expressed in:

Question ID : **7246223187**
Chosen Option : **3**

Ans
✗ 1. Lumens
✗ 2. Radians
✓ 3. Steradian
✗ 4. Dimensionless

Q.36 Main consideration in designing of feeder is:

Question ID : **7246223177**
Chosen Option : **4**

Ans
✗ 1. Reactive power limit
✗ 2. Both atmospheric condition and current carrying capacity
✗ 3. Atmospheric condition
✓ 4. Current carrying capacity

Q.37 Which of the following is NOT true about the resonance curve at the half power points?

Question ID : **7246223103**
Chosen Option : **2**

Ans
✗ 1. $Q = 1$
✗ 2. Bandwidth, $B_{hp} = \frac{R}{2\pi \times L}$
✓ 3. Circuit phase angle is $\theta \neq 45°$

✗ 4. Impedance is $\sqrt{2} \times R$

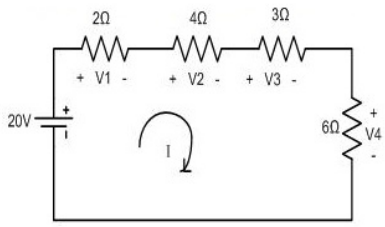
Q.38 A flux of 0.25 mWb is produced by a coil of 1000 turns wound on a ring with a current of 2 A in it. Calculate the e.m.f. induced in the coil when acurrent of 10 A is switched off, assuming the current will fall to zero in 1 millisecond.

Question ID : **7246223108**
Chosen Option : **--**

Ans
✗ 1. 2500 V
✗ 2. 25 V
✓ 3. 1250 V
✗ 4. 12.5 V

Q.39 Find the voltages across each resistor as shown in figure.

Question ID : **7246223105**
Chosen Option : **3**



Ans
✗ 1. 2 V, 4 V, 3 V, 6 V
✗ 2. 4 V, 8 V, 2.67 V, 5.32 V
✓ 3. 2.67 V, 5.32 V, 4 V, 8 V
✗ 4. 10 V, 5 V, 6.67 V, 3.33 V

Q.40 Which of the following statements is FALSE for a complex alternating wave which is periodic and have equal positive and negative cycles?

Question ID : **7246223101**
Chosen Option : **--**

Ans
✗ 1. The harmonic with the lowest frequency is called fundamental harmonic.
✓ 2. The two halves of the complex wave are identical when only even harmonics (2nd, 4th, 6th etc.) are present.
✗ 3. The two halves of the complex wave are identical in shape when only odd harmonic (3rd, 5th, 7th, 9th etc.) are present.
✗ 4. Frequency of the complex wave is the same as that of the first harmonic of that wave.

Q.41 Which of the following power plants has minimum running cost?

Question ID : **7246223167**
Chosen Option : **1**

Ans
✓ 1. Hydro power plant
✗ 2. Thermal power plant
✗ 3. Nuclear power plant
✗ 4. Diesel power plant

Q.42 Which of the following electronic devices is used for stator voltage control in fan regulators?

Question ID : **7246223152**
Chosen Option : **1**

Ans
✓ 1. Triac
✗ 2. BJT
✗ 3. Mosfet
✗ 4. Diode

Q.43 A 3-phase system is called balanced, when it consists of:

Question ID : **7246223172**
Chosen Option : **2**

Ans
✗ 1. Zero and Negative sequence current only
✗ 2. Negative and positive sequence current only
✓ 3. Positive sequence current only
✗ 4. Zero sequence current only

Q.44 Let R_a, R_m, X_a, X_m be resistance of auxiliary winding, resistance of main winding, inductive reactance of auxiliary winding, and inductive reactance of main winding. Which of the following best represents relation between R_a, R_m, X_a, X_m for a split-phase induction motor?

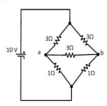
Question ID : **7246223148**
Chosen Option : **--**

Ans
✗ 1. $\frac{R_a}{X_a} < \frac{R_m}{X_m}$
✗ 2. $\frac{R_a}{X_a} = \frac{R_m}{X_m}$

✔ 3. $\frac{R_a}{X_a} > \frac{R_m}{X_m}$

✘ 4. $\frac{R_a}{X_a} = \frac{R_m}{X_m} = 1$

Q.45 For the given electrical circuit, determine the maximum power absorbed by 3 Ω resistor connected across terminal a and b.



Question ID : **7246223111**
Chosen Option : **1**

Ans
✔ 1. 0 W
✘ 2. 15 W
✘ 3. −15 W
✘ 4. 6 W

Q.46 Investigate the value of form factor of a voltage $v = 250\sin(2\pi \times 50t)$

Question ID : **7246223112**
Chosen Option : **4**

Ans
✘ 1. 2.22
✘ 2. infinite
✘ 3. 0.45
✔ 4. 1.11

Q.47 A separately excited, 200 V, DC motor runs with a speed of 1500 rpm at no load current of 5 A. When operated at full load current is found to be 50 A. Assuming constant flux operation with armature resistance of 0.2 Ω, calculate full load speed.

Question ID : **7246223125**
Chosen Option : **3**

Ans
✘ 1. 1400 rpm
✘ 2. 1578 rpm
✔ 3. 1432 rpm
✘ 4. 1500 rpm

Q.48 Nature of resultant flux produced as a result of interaction of fluxes due to two windings placed 90° apart in space will be :

Question ID : **7246223147**
Chosen Option : **1**

Ans
✔ 1. Rotating flux of constant magnitude.
✘ 2. Rotating flux of varying magnitude
✘ 3. Zero resultant flux.
✘ 4. Such configuration is not possible.

Q.49 Projection welding is employed in:

Question ID : **7246223183**
Chosen Option : **--**

Ans
✔ 1. Stamped welds
✘ 2. Butt welds
✘ 3. Lap welds
✘ 4. End to end welds

Q.50 A shunt generator running at 1000 rpm has generated emf as 200 V. If the speed increases to 1200 rpm, the generated emf will be nearly

Question ID : **7246223122**
Chosen Option : **2**

Ans
✘ 1. 150 V
✔ 2. 240 V
✘ 3. 175 V
✘ 4. 290 V

Q.51 Lightning arrester is also known as:

Question ID : **7246223163**
Chosen Option : **3**

Ans
✘ 1. Surge integrator
✘ 2. Surge creator
✔ 3. Surge diverter
✘ 4. Surge absorber

Q.52 Choose the INCORRECT statement regarding rotor construction in a 3-phase induction motor:

Question ID : **7246223149**
Chosen Option : **4**

Ans
✘ 1. Better speed control in wound type rotor.
✘ 2.
Cage rotor requires lesser maintenance than wound type rotor.

✗ 3.
Efficiency and power factor of cage motor is higher than wound type rotor.

✓ 4. Low starting torque in wound type rotor.

Q.53 What will be the voltage regulation of alternator, when it supplies leading pf load?

Question ID : **7246223144**
Chosen Option : **4**

Ans
✗ 1. It may be positive, negative or zero.
✗ 2. Positive
✗ 3. Zero
✓ 4. Negative

Q.54 In synchronous generator, pitch factor is _____.

Question ID : **7246223137**
Chosen Option : **3**

Ans
✗ 1. 2
✗ 2. >1
✓ 3. <1
✗ 4. =1

Q.55 The emf induced in the armature of a shunt generator is 600V. The armature resistance is 0.1 ohm. If the armature current is 200A, the terminal voltage will be:

Question ID : **7246223128**
Chosen Option : **4**

Ans
✗ 1. 620 V
✗ 2. 640 V
✗ 3. 600 V
✓ 4. 580 V

Q.56 Parallax error is:

Question ID : **7246223119**
Chosen Option : **3**

Ans
✗ 1. Systematic error
✗ 2. Environmental error
✓ 3. Observational error
✗ 4. Random error

Q.57 Which one of these methods is used for measurement of low resistance?

Question ID : **7246223120**
Chosen Option : **2**

Ans
✗ 1. Loss of charge method
✓ 2. Kelvin's Double bridge circuit
✗ 3. Wheatstone bridge
✗ 4. Direct deflection method

Q.58 Synchroscope is used to check _____.

Question ID : **7246223145**
Chosen Option : **1**

Ans
✓ 1. Frequency difference
✗ 2. Phase angle difference.
✗ 3. Phase sequence
✗ 4. RMS voltage

Q.59 What will be the maximum sag if working tension is 4000 kg, resultant force per meter length of conductor is 2 and span length is 320 meter?

Question ID : **7246223159**
Chosen Option : **--**

Ans
✗ 1. 10.2
✓ 2. 6.4
✗ 3. 3.2
✗ 4. 9.6

Q.60 The ratio of average load to maximum demand of a power station is known as:

Question ID : **7246223179**
Chosen Option : **3**

Ans
✗ 1. Demand Factor
✗ 2. Plant Capacity factor
✓ 3. Load Factor
✗ 4. Diversity factor

Q.61 In a hydroelectric power plant, water hammer phenomenon can be avoided by providing:

Question ID : **7246223157**
Chosen Option : **--**

Ans
✓ 1. surgetank

✗ 2. conduit

✗ 3. forbey

✗ 4. spillway

Q.62 Torque produced in shaded pole structure induction type relay is:

Question ID : **7246223175**
Chosen Option : **1**

Ans

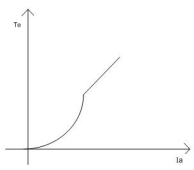
✓ 1. Proportional to square of the current

✗ 2. Inversely proportional to square of the current

✗ 3. Inversely proportional to current

✗ 4. Proportional to current

Q.63 The electromagnetic torque (Te) Vs Armature current (Ia) characteristics of _____ machine is shown in below figure.



Question ID : **7246223129**
Chosen Option : **3**

Ans

✗ 1. DC Differential Compound motor

✗ 2. DC Cumulatively Compound motor

✓ 3. DC Series motor

✗ 4. DC Shunt generator

Q.64 What would be the magnitude and direction of average voltage induced across the field coils of a 6-pole DC generator each having 500 turns if there is a magnetic flux of 0.03 Wb/pole when the field is excited and residual magnetism of 0.003 Wb/pole after the field circuit is opened in 0.02 second? Consider the field coils to be connected in series.

Question ID : **7246223102**
Chosen Option : **--**

Ans

✗ 1. 24300 V and its direction is opposite to the initial direction of exciting current.

✗ 2. 486 V and its direction is opposite to the initial direction of exciting current.

✗ 3. 486 V and its direction is same as the initial direction of exciting current.

✓ 4. 24300 V and its direction is same as the initial direction of exciting current.

Q.65 Which type of instrument is unaffected by frequency variations?

Question ID : **7246223121**
Chosen Option : **1**

Ans

✓ 1. Electrostatic Instruments

✗ 2. EMMC

✗ 3. PMMC

✗ 4. Moving Iron

Q.66 Frequency of induced voltages in 1-phase transformer is constant because _____.

Question ID : **7246223132**
Chosen Option : **4**

Ans

✗ 1. Leakage flux is less.

✗ 2. Depends upon number of poles.

✗ 3. Relative motion between coils is present.

✓ 4. There is no relative motion between coils.

Q.67 A CANDU (Canadian deuterium uranium) type reactor uses _____ as a moderator.

Question ID : **7246223158**
Chosen Option : **1**

Ans

✓ 1. heavy water

✗ 2. graphite

✗ 3. ordinary water

✗ 4. pressurized water

Q.68 The voltage applied to the electrodes for electroplating is in the range of:

Question ID : **7246223185**
Chosen Option : **--**

Ans

✗ 1. 24 V – 48 V AC

✗ 2. 24 V – 48 V DC

✓ 3. 1 V – 6 V DC

✗ 4. 1 V – 6 V AC

Q.69 What is the difference in the induced voltages of a 220 V separately excited DC machine having armature resistance of 1 Ω and full load current of 20 A, when the machine is running as a generator and as a motor?

Question ID : **7246223130**
Chosen Option : **2**

Ans
✗ 1. 50 V
✓ 2. 40 V
✗ 3. 20 V
✗ 4. 0 V

Q.70 A Thermal station has following data:

Boiler efficiency = 75% Electrical Efficiency =50%
Turbine efficiency = 80%
Calculate overall efficiency of the plant.

Question ID : **7246223169**
Chosen Option : **2**

Ans
✗ 1. 31%
✓ 2. 30%
✗ 3. 29%
✗ 4. 35%

Q.71 What is the overall efficiency of steam power plant?

Question ID : **7246223168**
Chosen Option : **2**

Ans
✗ 1. 59%
✓ 2. 29%
✗ 3. 69%
✗ 4. 44%

Q.72 Consider a coil of 150 turns carrying a current of 10 A. If an induced electromotive force of 300 V is produced when this current is reversed in 0.01 second, then calculate the flux linked with the coil

Question ID : **7246223109**
Chosen Option : **--**

Ans
✗ 1. 0.1 Wb
✗ 2. 0.05 Wb
✓ 3. 0.01 Wb
✗ 4. 0.5 Wb

Q.73 Which of the following methods of electrical heating utilizes transformer principle?

Question ID : **7246223182**
Chosen Option : **4**

Ans
✗ 1. Arc furnace
✗ 2. Microwave heating
✗ 3. Dielectric heating
✓ 4. Induction furnace

Q.74 Synchronous condenser used for power factor improvement is synchronous motor which operates at:

Question ID : **7246223162**
Chosen Option : **1**

Ans
✓ 1. no load with leading current
✗ 2. full load with lagging current
✗ 3. no load with lagging current
✗ 4. full load with leading current

Q.75 The phenomenon of current chopping mainly occurs in which type of circuit breaker?

Question ID : **7246223174**
Chosen Option : **1**

Ans
✗ 1. Vacuum circuit breaker
✗ 2. Oil circuit breaker
✓ 3. Air blast circuit breaker
✗ 4. SF6 circuit breaker

Q.76 Line Current of A 500 V DC shunt motor is 52 A shunt field and armature resistance are 250 Ω and 0.5 Ω respectively. Determine the back e.m.f.

Question ID : **7246223123**
Chosen Option : **1**

Ans
✓ 1. 475 V
✗ 2. 450 V
✗ 3. 500 V
✗ 4. 448 V

Q.77

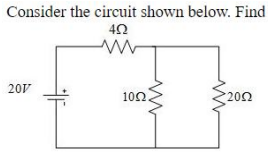
Question ID : **7246223164**
Chosen Option : **--**

For the protection of transformer using differential protection scheme, which of the following pair is true?

	Power Transformer	Current Transformer
Pair 1	Star-Delta	Star-Delta
Pair 2	Delta-Star	Delta-Star
Pair 3	Star-Delta	Delta-Star
Pair 4	Star-Star	Star-Star

Ans
✗ 1. Pair 1
✗ 2. Pair 4
✓ 3. Pair 3
✗ 4. Pair 2

Q.78 Consider the circuit shown below. Find the current flowing through 20 Ω resistor:



Question ID : **7246223104**
Chosen Option : **1**

Ans
✓ 1. 0.625
✗ 2. 0
✗ 3. 0.99
✗ 4. 0.66

Q.79 Voltage range for resistance grounding is:

Question ID : **7246223171**
Chosen Option : **--**

Ans
✗ 1. 33 kV to 66 kV
✗ 2. 66 kV to 220 kV
✓ 3. 3.3 kV to 11 kV
✗ 4. Above 220 kV

Q.80 The direction of rotation in a shaded pole induction motor is:

Question ID : **7246223155**
Chosen Option : **2**

Ans
✗ 1. depends upon voltage
✓ 2. from main pole to shaded pole
✗ 3. from shaded pole to main pole
✗ 4. depends on power factor

Q.81 Which of the following power factor gives positive voltage regulation in transformer?

Question ID : **7246223135**
Chosen Option : **1**

Ans
✗ 1. Lagging.
✗ 2. Unity.
✗ 3. Leading.
✓ 4. Unity and lagging.

Q.82 In synchronous motor, nature of armature of armature reaction is _____ when it draws a lagging power factor current.

Question ID : **7246223140**
Chosen Option : **3**

Ans
✗ 1. Demagnetizing.
✗ 2. Cross-magnetizing.
✗ 3. Partly demagnetizing and partly cross-magnetizing
✓ 4. Partly magnetizing and partly cross-magnetizing

Q.83 In synchronous motor, nature of armature of armature reaction is _____ when it draws a leading power factor current.

Question ID : **7246223141**
Chosen Option : **3**

Ans
✓ 1. Partly demagnetizing and partly cross-magnetizing.
✗ 2. Cross-magnetizing.
✗ 3. Partly magnetizing and partly cross-magnetizing.
✗ 4. Demagnetizing.

Q.84 What is the RMS value of a sinusoidally alternating voltage if its maximum value is equal to 10 V?

Question ID : **7246223107**
Chosen Option : **3**

Ans
✗ 1. 14.14 V

✗ 2. 1.414 V
✓ 3. 7.07 V
✗ 4. 0.707 V

Q.85 Consider a 500 volt d.c shunt motor, when on load, running at 750 rpm with armature current of 100 A where armature resistance is 0.5 Ω. If the flux is reduced by 50% without changing the load torque then the new speed of motor is

Question ID : **7246223124**
Chosen Option : **1**

Ans
✗ 1. 666.6 rpm
✗ 2. 333.3 rpm
✗ 3. 2666.6 rpm
✓ 4. 1333.3 rpm

Q.86 A voltage-controlled capacitance semiconductor device is usually operated in:

Question ID : **7246223114**
Chosen Option : **3**

Ans
✗ 1. unbiased mode
✗ 2. forward biased mode
✓ 3. reverse biased mode
✗ 4. in the breakdown region

Q.87 Which of the following factors is always greater than unity?

Question ID : **7246223161**
Chosen Option : **2**

Ans
✗ 1. Load factor
✓ 2. Diversity factor
✗ 3. Demand factor
✗ 4. Coincidence factor

Q.88 A generating station has maximum demand of 25 MW and average load on generating station is 15 MW. What will be the load factor?

Question ID : **7246223170**
Chosen Option : **3**

Ans
✗ 1. 0.2
✗ 2. 1.66
✓ 3. 0.6
✗ 4. 0.8

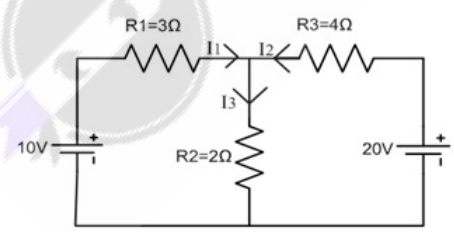
Q.89 From the following options, which is the primary function of fuse?

Question ID : **7246223173**
Chosen Option : **3**

Ans
✗ 1. Prevent flow of current through earth
✗ 2. Prevent low currents to flow through the circuit
✓ 3. Prevent excessive currents from flowing through the circuit
✗ 4. Short the circuit

Q.90 Find the current I_3 .

Question ID : **7246223116**
Chosen Option : **3**



Ans
✗ 1. 2.5 A
✗ 2. 1.5 A
✓ 3. 3.8 A
✗ 4. 1 A

Section : **General English**

Q.1 Select the option which means the same as the given word/ group of words.
go about cautiously looking for a chance to get food (as wild animals do)

Question ID : **7246223195**
Chosen Option : **--**

Ans
✗ 1. slide
✓ 2. prowl

✗ 3. growl

✗ 4. wade

Q.2 Select the most appropriate option to fill in the blank.

Where did you have your early education? _____ the Delhi Public School.

Question ID : **7246223193**
Chosen Option : **1**

Ans
✗ 1. From
✗ 2. On
✗ 3. In
✓ 4. At

Q.3 Arrange the fragments given below to form a meaningful sentence.

A. have for the most part
B. people of Ethiopia
C. lost touch with the peasantry
D. who are trying to modernize their country

Question ID : **7246223200**
Chosen Option : **2**

Ans
✗ 1. BCAD
✗ 2. BADC
✓ 3. BDAC
✗ 4. BACD

Q.4 Select the most appropriate option to fill in the blank.

It was late, but since _____ moon was shining in the sky we could find our way in _____ forest.

Question ID : **7246223191**
Chosen Option : **4**

Ans
✗ 1. a ; the
✗ 2. no word needed ; the
✗ 3. the ; a
✓ 4. the ; the

Q.5 Select the most appropriate option to fill in the blank.

For the last two months, they _____ to decipher the writing on the walls of the ancient temples.

Question ID : **7246223192**
Chosen Option : **1**

Ans
✗ 1. tried
✓ 2. have been trying
✗ 3. try
✗ 4. had tried

Q.6 In the following sentences four words or phrases have been underlined. One of them is incorrect. Choose the incorrect word or phrase from the given options.

Although he is nearly forty, he cannot be called, by any means, a maturing person.

Question ID : **7246223198**
Chosen Option : **1**

Ans
✓ 1. a maturing person .
✗ 2. Although
✗ 3. by any means,
✗ 4. is nearly forty,

Q.7 Select the antonym of the given word.

REGULAR

Question ID : **7246223196**
Chosen Option : **3**

Ans
✗ 1. disregular
✗ 2. imregular
✓ 3. irregular
✗ 4. unregular

Q.8 Select the correct passive form of the given sentence.

People have been ignoring the role of women in national development for ages.

Question ID : **7246223199**
Chosen Option : **4**

Ans
✗ 1.
The national development in the role of women has been ignored for ages.

✗ 2.
The role of women in national development is being ignored for ages.

✗ 3.

The role of women in national development will be ignored for all ages to come.

✔ 4. The role of women in national development has been ignored for ages.

Q.9 Select the most appropriate option to fill in the blank.

The guard found a key lying on the road of the colony. Shikha said it was _____.

Question ID : **7246223194**
Chosen Option : **2**

Ans
✔ 1. hers
✘ 2. her
✘ 3. us
✘ 4. our

Q.10 Select the correctly spelt word.

Question ID : **7246223197**
Chosen Option : **2**

Ans
✘ 1. rememberance
✔ 2. remembrance
✘ 3. remambrance
✘ 4. remembrence

Section : **Quantitative Aptitude**

Q.1 A, B and C are three partners in a business. B started the business and A joined him after 2 months with an investment which is 20% more than that of B. C joined them later. The investment of B is $\frac{3}{4}$ of the investment of C. If in the annual profit, share in profit of C is $\frac{1}{3}$ of the sum of shares of A and B, then for how long was C's investment in the business?

Question ID : **7246223212**
Chosen Option : **--**

Ans
✘ 1. 4 months
✘ 2. $4\frac{1}{2}$ months
✔ 3. 6 months
✘ 4. 5 months

Q.2 In an examination, 75% students passed from school A. The number of students appeared from school B is 20% more than that of A and the total number of students who passed the examination is 40% more than the number of students passed from A. What is the percentage of students passed to those who appeared from B?

Question ID : **7246223202**
Chosen Option : **--**

Ans
✘ 1. 70
✔ 2. 87.5
✘ 3. 62.5
✘ 4. 65

Q.3 If $5x^2 + y^2 + z^2 + 5 = 2x(y + 2) + 4z$, then the value of $(4x + 2y - z)$ is:

Question ID : **7246223210**
Chosen Option : **--**

Ans
✘ 1. $\frac{1}{2}$
✘ 2. $\frac{-1}{2}$
✔ 3. 1
✘ 4. 0

Q.4 4 litre of a solution having 10% acid was mixed with 5 litre of a solution having 16% acid. Six litre of pure acid was then added to the resulting solution. The concentration of acid in the final solution is:

Question ID : **7246223211**
Chosen Option : **--**

Ans
✘ 1. 50%
✘ 2. 54%
✔ 3. 48%
✘ 4. 60%

Q.5 A, B and C can do a work in 36, 72 and 54 days respectively. They started the work together but A left 8 days before the completion of the work and C left 12 days before the completion of the work. In how many days was the work completed?

Question ID : **7246223209**
Chosen Option : **--**

Ans
✘ 1. 20
✘ 2. 21
✔ 3. 24
✘ 4. 25

Q.6 The percentage profit earned by selling an article for ₹ 2076 is equal to the percentage loss incurred by selling the same article for ₹ 1524. At what price should the article be sold to earn a profit of $33\frac{1}{3}\%$?

Question ID : **7246223203**
Chosen Option : **--**

Ans
✘ 1. ₹ 2700
✘ 2. ₹ 2500

✔ 3. ₹ 2400

✘ 4. ₹ 2860

Q.7 Two trains x and y start at the same time, x from A to B and the other from B to A. After passing each other x and y take $8\frac{2}{5}$ hours and $4\frac{2}{7}$ hours respectively to reach their destinations. If the speed of y is 35 km/h, then what is the speed (in km/h) of x ?

Question ID : **7246223208**
Chosen Option : **1**

Ans
✔ 1. 25

✘ 2. 28

✘ 3. 24

✘ 4. 30

Q.8 A, B and C enter into partnership by investing capitals in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$. After 4 months, A withdraws 50% of his capital and after another 8 months, profit of ₹ 20240 is distributed between them. What is the difference between the shares of A and C in the profit?

Question ID : **7246223207**
Chosen Option : **--**

Ans
✘ 1. ₹ 1920

✔ 2. ₹ 1840

✘ 3. ₹ 1980

✘ 4. ₹ 1860

Q.9 If $x^2 - 3x + 1 = 0$, then the value of $x^{10} + \frac{1}{x^{10}}$ is:

Question ID : **7246223215**
Chosen Option : **--**

Ans
✘ 1. 14408

✘ 2. 14642

✘ 3. 14638

✔ 4. 15127

Q.10 If Satya travels at 30 km/h, she is late by 20 minutes to her office, whereas if she travels at 45 km/h, she is early by 10 minutes. Then at what speed should she travel such that she is neither late nor early?

Question ID : **7246223213**
Chosen Option : **1**

Ans
✔ 1. $38\frac{4}{7}$ km/h

✘ 2. $38\frac{2}{7}$ km/h

✘ 3. 36 km/h

✘ 4. 40 km/h

Q.11 The ratio of the number of boys in schools A and B is 5 : 7 and the ratio of the total number of students in A and B is 3 : 4. If the number of girls in B is equal to $66\frac{2}{3}\%$ of the total students in B, then what is the ratio of the number of girls in A and B?

Question ID : **7246223206**
Chosen Option : **--**

Ans
✘ 1. 43 : 46

✘ 2. 8 : 11

✔ 3. 43 : 56

✘ 4. 33 : 56

Q.12 A certain sum amounts to ₹ 6352.50 in $2\frac{1}{2}$ years at 10% p.a. compound interest, interest compounded yearly. What will be the simple interest on the same sum for double the time at the same rate of interest?

Question ID : **7246223204**
Chosen Option : **--**

Ans
✔ 1. ₹ 2500

✘ 2. ₹ 2400

✘ 3. ₹ 2560

✘ 4. ₹ 2480

Q.13 A and B can complete a work in 20 days whereas A and C can complete the same work in 30 days. C alone can complete the work in 40 days. A, B and C work together for 8 days. C alone will complete the remaining work in:

Question ID : **7246223214**
Chosen Option : **--**

Ans
✔ 1. 16 days

✘ 2. 10 days

✘ 3. 12 days

✘ 4. 24 days

Q.14 The value of $\frac{3\sqrt{2}}{\sqrt{6}-\sqrt{3}} - \frac{4\sqrt{3}}{\sqrt{8-\sqrt{12}}} + \frac{3}{2(3-\sqrt{8})}$ is closet to:

Question ID : **7246223205**
Chosen Option : **--**

Ans
✘ 1. 9

✘ 2. 8.8

✔ 3. 8

✘ 4. 7.8

Q.15 The sum of three consecutive odd numbers and three consecutive even numbers together is 471. Also, the largest even number is 15 more than the largest odd number. What is the sum of the smallest odd number and the smallest even number?

Question ID : **7246223201**
Chosen Option : **--**

Ans
✔ 1. 153
✘ 2. 155
✘ 3. 157
✘ 4. 151

Section : **Logical Ability**

Q.1 If table is called oven, oven is called knife, knife is called toaster and toaster is called fridge, which of these will be used to bake cakes?

Question ID : **7246223223**
Chosen Option : **3**

Ans
✘ 1. table
✘ 2. toaster
✔ 3. knife
✘ 4. fridge

Q.2 Shama is Sunita's only sister. Sunita's husband's mother-in-law has a son, Shyam, whose daughter is Bhumika. How is Sunita's son Abhijeet related to Bhumika?

Question ID : **7246223225**
Chosen Option : **1**

Ans
✔ 1. Cousin
✘ 2. Nephew
✘ 3. Brother
✘ 4. Brother-in-law

Q.3 What will appear in place of the blank in the following series?

4, 8, 16, 28, __, 64

Question ID : **7246223221**
Chosen Option : **4**

Ans
✘ 1. 56
✘ 2. 40
✘ 3. 46
✔ 4. 44

Q.4 If '$' means 'addition', '@' means 'subtraction', '#' means 'multiplication' and '©' means 'division', then 56 © 8 # 3 $ 5 @ 1 = ?

Question ID : **7246223219**
Chosen Option : **2**

Ans
✘ 1. 21
✔ 2. 25
✘ 3. 34
✘ 4. 26

Q.5 Select the option that is related to the third term in the same way as the second term is related to the first term.

Bunch : Keys : : Herd : ?

Question ID : **7246223216**
Chosen Option : **3**

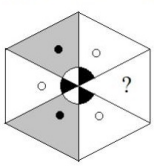
Ans
✘ 1. Lions
✘ 2. Birds
✔ 3. Cattle
✘ 4. Fish

Q.6 Find the odd word out.

Question ID : **7246223218**
Chosen Option : **4**

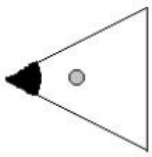
Ans
✘ 1. Stone
✔ 2. Brick
✘ 3. Rock
✘ 4. Pebble

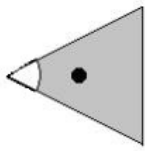
Q.7 Select the figure that correctly replaces the question mark '?' and completes the following image:

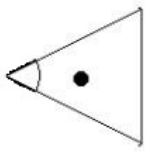


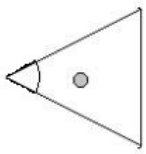
Question ID : **7246223220**
Chosen Option : **2**

Ans

1. 

2. 

3. 

4. 

Q.8 Jawed scored 23 marks in a class test. Shakeel scored 1 mark more than Jawed, but 1 mark less than Azhar. Siraj scored 4 marks more than Aftab, and 2 marks less than Shakeel. Who scored the highest marks in the given test?

Question ID : **7246223222**
Chosen Option : **2**

Ans
1. Shakeel
2. Azhar
3. Jawed
4. Siraj

Q.9 Select the analogous pair of words from the given options.

Loyal : Devoted

Question ID : **7246223217**
Chosen Option : **--**

Ans
1. Useful : Futile
2. Careful : Reckless
3. Diligent : Industrious
4. Idle : Rustic

Q.10 An address is given below which has been reproduced against the four alternatives. Of them, three have some mistakes or the other, while one is exactly the same. Select the option that is exactly the same as the given address.

Prof. Sanjay Mirigal,
Reader's Line,
Rose Avenue,
NIET, Farrukhabad,
Uttar Pradesh

Question ID : **7246223224**
Chosen Option : **1**

Ans
1. Prof. Sanjay Mirigal,
Reader's Line,
Rose Avenue,
NIET, Farrukhabad,
Uttar Pradesh
2. Prof. Sanjay Mirigal,
Reader's Line,
Roze Avennue,
NETT, Farrukhabad,
Uttar Pradesh
3. Prof. Sanjay Mirigal,
Readers Lane,
Rose Avenue,
NIET, Farrukhabad,
Uttar Pardesh
4. Prof. Sanjay Mrigal,
Reader's Line,
Rose Avenue,
NIET, Farukhabad,
Uttar Pradesh

Section : **General Awareness**

Q.1 Select the plants which do not have roots, stems, and leaves.

Question ID : **7246223236**
Chosen Option : **1**

Ans
✗ 1. Algae
✗ 2. Conifers
✓ 3. Mosses
✗ 4. Ferns

Q.2 A Portuguese explorer, Vasco da Gama, discovered sea route to India in:

Question ID : **7246223226**
Chosen Option : **1**

Ans
✗ 1. 1600
✓ 2. 1498
✗ 3. 1731
✗ 4. 1444

Q.3 Which among the following stated that British India would remain under the administration of the company in trust for the Crown until Parliament should decide otherwise?

Question ID : **7246223227**
Chosen Option : **--**

Ans
✗ 1. Government of India Act 1833
✗ 2. English Education Act 1835
✓ 3. Government of India Act 1853
✗ 4. Government of India Act 1821

Q.4 In which of the following we find Myocytes cells?

Question ID : **7246223237**
Chosen Option : **--**

Ans
✗ 1. eye
✗ 2. liver
✗ 3. spleen
✓ 4. heart

Q.5 Who has been credited deservedly as Father of the Computer, who is also the world-renowned inventor of Differential Engine and Analytical Engine?

Question ID : **7246223238**
Chosen Option : **--**

Ans
✗ 1. John W. Backus
✗ 2. Harold Abelson
✗ 3. Vinton Cerf
✓ 4. Charles Babbage

Q.6 Chairman of the first planning commission of India was:

Question ID : **7246223235**
Chosen Option : **3**

Ans
✗ 1. Subhash Chandra Bose
✗ 2. Narendra Sarkar
✓ 3. Jawaharlal Nehru
✗ 4. Mahatma Gandhi

Q.7 Which among the following is a Rabi crop?

Question ID : **7246223228**
Chosen Option : **--**

Ans
✗ 1. Bajra
✗ 2. Jowar
✗ 3. Tur
✓ 4. Wheat

Q.8 1/6 of the total number of members of the Legislative Council of a State is:

Question ID : **7246223232**
Chosen Option : **3**

Ans
✓ 1. nominated by the Governor
✗ 2. nominated by the Chairman of the Legislative Council
✗ 3. elected by the members of the Legislative Assembly
✗ 4. elected by the advocates of the State

Q.9 Which of the following countries is the largest producer as well as consumer of pulses?

Question ID : **7246223233**
Chosen Option : **--**

Ans
✗ 1. China
✗ 2. Pakistan

✔ 3. India

✘ 4. Sri Lanka

Q.10 Which deity is worshipped in Ramanathaswamy temple, Rameshwaram in Tamil Nadu?

Question ID : **7246223240**
Chosen Option : **--**

Ans

✘ 1. Lord Krishna

✔ 2. Lord Shiva

✘ 3. Lord Rama

✘ 4. Lord Ganesha

Q.11 _____ of the members of the Rajya Sabha retire on the expiration of every second year.

Question ID : **7246223230**
Chosen Option : **2**

Ans

✘ 1. $1/4^{th}$

✔ 2. $1/3^{rd}$

✘ 3. $1/5^{th}$

✘ 4. $1/6^{th}$

Q.12 Who is the author of the famous book 'Urvashi'?

Question ID : **7246223239**
Chosen Option : **--**

Ans

✔ 1. Ramdhari Singh Dinkar

✘ 2. Suryakant Tripathi Nirala

✘ 3. Mahadevi Varma

✘ 4. Yashpal

Q.13 Which of the following is correct?

Question ID : **7246223231**
Chosen Option : **--**

Ans

✘ 1.
The President presides over a joint sitting of the two Houses of Parliament.

✘ 2.
The Prime Minister presides over a joint sitting of the two Houses of Parliament.

✘ 3.
The Chairman of the Rajya Sabha presides over a joint sitting of the two Houses of Parliament.

✔ 4.
The Speaker of the Lok Sabha presides over a joint sitting of the two Houses of Parliament.

Q.14 Why was second green revolution launched by the government?

Question ID : **7246223234**
Chosen Option : **--**

Ans

✔ 1.
To boost agricultural production with sustainable approach

✘ 2. To boost exports of the economy

✘ 3. To boost tertiary sector contribution

✘ 4.
To boost industrial production with sustainable approach

Q.15 ISRO launched the first Indian satellite, Aryabhata, on 19th April _____.

Question ID : **7246223229**
Chosen Option : **--**

Ans

✘ 1. 1978

✘ 2. 1981

✔ 3. 1975

✘ 4. 1972