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# **LMRC JE EE 2020**

**Previous Year Paper**  
**(22 Jan 2020)**





**Uttar Pradesh Metro Rail Corporation Limited**

**उत्तर प्रदेश मेट्रो रेल कॉर्पोरेशन लिमिटेड**

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Participants Id	
Participant Name	
Test Center Name	iON Digital Zone iDZ Mandi Samiti Road
Test Date	22/01/2020
Test Time	9:00 AM - 11:00 AM
Subject	NE 02 Jr Engineer (Electrical)

Section : Technical

Q.1 Which of the following function is not performed by a transformer?

- Ans
- ☒ A. Transfers electric energy from one circuit to another
  - ☒ B. Transfers electric energy with a change of frequency
  - ☒ C. Transfers electric energy by electromagnetic induction
  - ☒ D.

Transfers electric energy where the two electric circuits are in mutual inductive influence of each other.

Question ID : 931207997  
Chosen Option : 2

Q.2 The ratio of rotor copper loss with rotor output is:

- Ans
- ☒ A.  $(1 - s)$
  - ☒ B.  $1/s$
  - ☒ C.  $S$
  - ☒ D.  $s/(1 - s)$

Question ID : 9312071004  
Chosen Option : 4

Q.3 Demand Factor =

Ans ☒ A. Average load / Maximum load during a given period

☒ B.

Sum of Individual Max. Demand / Max. Demand on Power Station

☒ C.

The time that an equipment is in use / The total time that it could be in use

☒ D.

Maximum demand of a system / Total connected load on the system

Question ID : 9312071009  
Chosen Option : 4

Q.4 It is a single-crystal semiconductor material with no other types of atoms within the crystal.

Ans ☒ A. extrinsic semiconductors

☒ B. intrinsic semiconductors

☒ C. insulators

☒ D. conductors

Question ID : 9312071055  
Chosen Option : 2

Q.5 The amount of electrical energy stored for every kilogram of battery mass is defined as \_\_\_\_\_.

Ans ☒ A. specific energy

☒ B. self-discharge rates

☒ C. energy density

☒ D. specific power

Question ID : 9312071029  
Chosen Option : 3

Q.6 A \_\_\_\_\_ is an npn or pnp sandwich of semiconductor materials.

Ans ☒ A. BJT

☒ B. FET

☒ C. Gate

☒ D. UJT

Question ID : 9312071037  
Chosen Option : 1

Q.7 Which of the following is NOT a part of automatic control systems?

- Ans
- ☒ A. A controller which affects the actuator
  - ☒ B. A sensor for the process variable
  - ☒ C. The fluid to be controlled
  - ☒ D. A Transformer system

Question ID : 9312071043  
Chosen Option : 4

Q.8 In which of the following motors is torque produced due to the tendency of the rotor to align itself in the minimum reluctance position when the speed of the motor is close to the synchronous speed?

- Ans
- ☒ A. Hysteresis motor
  - ☒ B. Repulsion motor
  - ☒ C. Reluctance motor
  - ☒ D. Universal motor

Question ID : 9312071006  
Chosen Option : 3

Q.9 \_\_\_\_\_ is the flux-producing ability of an electric current in a magnetic circuit.

- Ans
- ☒ A. Electromotive force
  - ☒ B. Flux density
  - ☒ C. Magnetomotive force
  - ☒ D. Magnetic field strength

Question ID : 931207987  
Chosen Option : 3

Q.10 \_\_\_\_\_ are used in control systems to attain the mechanical matching of the motor to the load.

- Ans
- ☒ A. Synchros
  - ☒ B. DC servomotors
  - ☒ C. Gear trains
  - ☒ D. Stepper motors

Question ID : 9312071049  
Chosen Option : 1

**Q.11** In simple Series RLC circuit, \_\_\_\_\_ corresponds to infinite capacitance  $C = \infty$  and zero inductance  $L = 0$ .

- Ans
- ☒ A. RLC Series Circuit
  - ☒ B. Purely inductive circuit
  - ☒ C. Purely resistive circuit
  - ☒ D. Purely capacitive Circuit

Question ID : 9312071027  
Chosen Option : 3

**Q.12** Convert  $(0.7854)_{10}$  to binary.

- Ans
- ☒ A.  $(0.1010)_2$
  - ☒ B.  $(0.1110)_2$
  - ☒ C.  $(0.1100)_2$
  - ☒ D.  $(0.1101)_2$

Question ID : 9312071069  
Chosen Option : --

**Q.13** Which law states: The sum of voltages around a closed loop circuit is equal to zero.

- Ans
- ☒ A. Voltage divider rule
  - ☒ B. Current division rule
  - ☒ C. Kirchhoffs Voltage Law
  - ☒ D. Kirchhoffs Current Law

Question ID : 931207984  
Chosen Option : 3

**Q.14** In \_\_\_\_\_, the susceptibility will decrease with increase in temperature and they have relatively small susceptibility at all temperatures.

- Ans
- ☒ A. Anti ferromagnetic materials
  - ☒ B. Ferrimagnetic materials
  - ☒ C. Superparamagnetic materials
  - ☒ D. Ferromagnetic materials

Question ID : 9312071058  
Chosen Option : 4

Q.15 \_\_\_\_\_ possess NO free-charge carriers and thus are non-conductive.

- Ans
- ☒ A. Salts
  - ☒ B. Conductors
  - ☒ C. Insulators
  - ☒ D. Semiconductors

Question ID : 9312071054  
Chosen Option : 3

Q.16 The cosine of the angle between useful power and total power is \_\_\_\_\_.

- Ans
- ☒ A. diversity factor
  - ☒ B. load factor
  - ☒ C. power factor
  - ☒ D. demand factor

Question ID : 9312071011  
Chosen Option : 3

Q.17 \_\_\_\_\_ has the property of storing potential energy.

- Ans
- ☒ A. A spring
  - ☒ B. A damper
  - ☒ C. Friction
  - ☒ D. Mass

Question ID : 9312071045  
Chosen Option : 4

Q.18 A register capable of incrementing and/or decrementing its contents.

- Ans
- ☒ A. Counter
  - ☒ B. Decoder
  - ☒ C. Multiplexer
  - ☒ D. Demultiplexer

Question ID : 9312071070  
Chosen Option : 1



**Q.19** What is the motor load factor when a motor of 20 hp drives a constant 15 hp load whenever it is on?

- Ans
- ☒ A. 75%
  - ☐ B. 65%
  - ☐ C. 85%
  - ☐ D. 95%

Question ID : 9312071010  
Chosen Option : 1

**Q.20** Following type control system uses the concept of an open loop system as its forward path but has one or more feedback loops or paths between its output and its input.

- Ans
- ☐ A. Adaptive control system
  - ☐ B. Automatic control system
  - ☒ C. Closed loop control system
  - ☐ D. Optimal control system

Question ID : 9312071041  
Chosen Option : 3

**Q.21** The difference between the tooth space and tooth width in mechanical systems which is essential for rapid working gear transmission is known as \_\_\_\_\_.

- Ans
- ☐ A. dead zone
  - ☐ B. friction
  - ☒ C. backlash
  - ☐ D. relay

Question ID : 9312071053  
Chosen Option : 3

**Q.22** A series RLC circuit with  $L = 160 \text{ mH}$ ,  $C = 100 \text{ }\mu\text{F}$  and  $R = 40.0 \text{ }\Omega$  is connected to a sinusoidal voltage  $V(t) = 40.0 \sin \omega t$ , with  $\omega = 200 \text{ rad/s}$ . What is the impedance and phase  $\phi$  of the circuit?

- Ans
- ☒ A.  $43.9 \text{ }\Omega$ ,  $-24.2^\circ$
  - ☐ B.  $33.9 \text{ }\Omega$ ,  $35.2^\circ$
  - ☐ C.  $54.0 \text{ }\Omega$ ,  $-42.2^\circ$
  - ☐ D.  $65.9 \text{ }\Omega$ ,  $-80.2^\circ$

Question ID : 9312071028  
Chosen Option : 1



**Q.23** Which of the following type of motors has the armature placed in rotor and the field winding replaced by permanent magnet poles fixed due to the stator to produce the required magnetic field?

- Ans
- ☒ A. Armature controlled DC servomotors
  - ☒ B. Electromagnetic field DC motors
  - ☒ C. Permanent magnet DC motors
  - ☒ D. Field controlled DC servomotors

Question ID : 9312071046  
Chosen Option : 3

**Q.24** Fermi energy level for n-type extrinsic semiconductors lies \_\_\_\_\_.

- Ans
- ☒ A. close to the conduction band
  - ☒ B. None of these options
  - ☒ C. in the middle of the band gap
  - ☒ D. close to the valence band

Question ID : 9312071033  
Chosen Option : 1

**Q.25** Which of the following is an advantage of an AC transmission system?

- Ans
- ☒ A. Problems of skin effects and proximity effects are found only in AC systems.
  - ☒ B. The alternating voltages can easily be stepped up and down
  - ☒ C. The reactance of the line affects the voltage regulation of the electrical power transmission system.
  - ☒ D. Construction of AC electrical power transmission network is more complicated than DC systems.

Question ID : 9312071020  
Chosen Option : 2

**Q.26** The systems which control the motion of electrical machines are known as \_\_\_\_\_.

- Ans
- ☒ A. electroforming
  - ☒ B. electric heating
  - ☒ C. electrical motors
  - ☒ D. electrical drives

Question ID : 9312071024  
Chosen Option : 4

Q.27 \_\_\_\_\_ are those whose field magnets are energized from an independent external source of DC current.

- Ans
- ☒ A. Series generator
  - ☒ B. Shunt generator
  - ☒ C. Compound generator
  - ☒ D. Separately excited generator

Question ID : 931207995  
Chosen Option : 4

Q.28 For \_\_\_\_\_, the output  $C(s)$  of the system is equal to transfer function of the system.

- Ans
- ☒ A. Impulse response
  - ☒ B. Step response
  - ☒ C. Parabolic response
  - ☒ D. Ramp response

Question ID : 9312071048  
Chosen Option : 1

Q.29 A three phase IM, six poles, 50 Hz is supplied by a three phase source. The rotor rotates at 800 rpm. Calculate the slip.

- Ans
- ☒ A. 0.2
  - ☒ B. 0.3
  - ☒ C. 0.1
  - ☒ D. 0.4

Question ID : 9312071002  
Chosen Option : 1

Q.30 \_\_\_\_\_ is defined as maximum current can flow through the breaker from time of occurring short circuit to the time of clearing the short circuit without any permanent damage in the Circuit breaker.

- Ans
- ☒ A. short time current
  - ☒ B. short circuit breaking current
  - ☒ C. short circuit making capacity
  - ☒ D. operating sequence of a circuit breaker

Question ID : 9312071016  
Chosen Option : 1

**Q.31** Radar tracking systems, missile tracking systems and machine tool position control are applications of \_\_\_\_\_.

- Ans**
- ☒ A. AC closed loop control system
  - ☒ B. DC closed loop control system
  - ☒ C. a position control system
  - ☒ D. automatic tank level control system

Question ID : 9312071044  
Chosen Option : 3

**Q.32** \_\_\_\_\_ is equal to the current passing through short circuited output terminals.

- Ans**
- ☒ A. Thevenin's voltage
  - ☒ B. Load current
  - ☒ C. Load resistance
  - ☒ D. Norton's current

Question ID : 931207989  
Chosen Option : 4

**Q.33** \_\_\_\_\_ of measurement is a measure of the change in instrument output that occurs when the quantity being measured changes by a given amount.

- Ans**
- ☒ A. Sensitivity
  - ☒ B. Linearity
  - ☒ C. Hysteresis
  - ☒ D. Resolution

Question ID : 9312071066  
Chosen Option : 1

**Q.34** In a split phase machine, the main winding has low resistance but high reactance whereas the starting winding has a \_\_\_\_\_ resistance, but \_\_\_\_\_ reactance

- Ans**
- ☒ A. Low, High
  - ☒ B. High, Low
  - ☒ C. Low, Low
  - ☒ D. High, High

Question ID : 9312071005  
Chosen Option : 2

**Q.35** Which among the following is an electromagnetic transducer commonly used to convert an angular position of shaft into electric signal and which produces an output voltage depending upon the angular position of the rotor.

- Ans
- ☒ A. synchro
  - ☐ B. gear train
  - ☐ C. stepper motor
  - ☐ D. DC servomotor

Question ID : 9312071047  
Chosen Option : 3

**Q.36** Which of the following is a measure of the flow of electric charge over time?

- Ans
- ☐ A. Power
  - ☐ B. Voltage
  - ☐ C. Energy
  - ☒ D. Current

Question ID : 931207981  
Chosen Option : 4

**Q.37** Which of the following acts as a covering and it provides protection and mechanical strength to all the inner parts of the induction motor?

- Ans
- ☒ A. Stator frame
  - ☐ B. Stator winding
  - ☐ C. Squirrel cage rotor
  - ☐ D. Stator core

Question ID : 9312071003  
Chosen Option : 1

**Q.38** A \_\_\_\_\_ is a combined unit of ampere meter, voltmeter and ohmmeter.

- Ans
- ☐ A. clip-on meter
  - ☐ B. power factor meter
  - ☐ C. tongue tester
  - ☒ D. multi-meter

Question ID : 931207993  
Chosen Option : 4

Q.39 In motor operations, if at any time \_\_\_\_\_, the motor will accelerate.

- Ans
- ☒ A.  $T_e > T_L$
  - ☐ B.  $T_e = T_L$
  - ☐ C.  $T_e = -T_L$
  - ☐ D.  $T_e < T_L$

Question ID : 931207996  
Chosen Option : 4

Q.40 \_\_\_\_\_ is performed when the diode is forward biased during the negative half-cycle of the input in Negative Diode Clipping Circuits.

- Ans
- ☐ A. No rectification
  - ☐ B. Full wave rectification
  - ☐ C. Positive half wave rectification
  - ☒ D. Negative half wave rectification

Question ID : 9312071036  
Chosen Option : 4

Q.41 Servomechanisms are \_\_\_\_\_ where the feedback signals are used to control position, speed, velocity, acceleration, etc.

- Ans
- ☐ A. adaptive control systems
  - ☐ B. open loop control systems
  - ☒ C. closed loop control systems
  - ☐ D. optimal control systems

Question ID : 9312071042  
Chosen Option : 3

Q.42 \_\_\_\_\_ is the process of plating one metal onto another by hydrolysis, most commonly for decorative purposes or to prevent corrosion of a metal.

- Ans
- ☐ A. Illumination
  - ☐ B. Electric welding
  - ☐ C. Electric heating
  - ☒ D. Electroplating

Question ID : 9312071023  
Chosen Option : 4



**Q.43** The amount of electrical energy consumed by a circuit over a period of time is \_\_\_\_\_.

- Ans
- ☐ A. angular frequency
  - ☐ B. decibel
  - ☐ C. time constant
  - ☒ D. watt-hour

Question ID : 931207983  
Chosen Option : 4

**Q.44** The function of this element is to manipulate the signal presented to it preserving the original nature of the signal.

- Ans
- ☐ A. Data presentation element
  - ☐ B. Variable conversion element
  - ☐ C. Primary sensing element
  - ☒ D. Variable manipulation element

Question ID : 9312071061  
Chosen Option : --

**Q.45** \_\_\_\_\_ consists of a high-performance permanent magnet motor, often with an integral tachogenerator, and a chopper-type power amplifier module in D.C. motor.

- Ans
- ☐ A. Thyristor DC drives
  - ☐ B. Chopper-fed DC motor drives
  - ☐ C. Digitally controlled drives
  - ☒ D. DC servo drives

Question ID : 9312071025  
Chosen Option : --

**Q.46** Which of the following is the most common protection device that can make or break the circuit either manually or through remote control under normal operating conditions?

- Ans
- ☐ A. Protective relay
  - ☐ B. Fuse
  - ☒ C. Circuit breaker
  - ☐ D. Lightning arrestor

Question ID : 9312071014  
Chosen Option : 3

**Q.47** \_\_\_\_\_ are usually difficult to treat mathematically and there are no general methods available for solving a wide class of these systems.

- Ans**
- ☒ A. Non-linear control systems
  - ☐ B. Time-invariant control systems
  - ☐ C. Time-varying control systems
  - ☐ D. Linear control systems

Question ID : 9312071052  
Chosen Option : 3

**Q.48** It is defined as the degree of the measurement system. It indicates changes in the measure and without any dynamic error.

- Ans**
- ☐ A. Respond time
  - ☐ B. Dynamic error
  - ☐ C. Measuring lag
  - ☒ D. Fidelity

Question ID : 9312071067  
Chosen Option : 4

**Q.49** Which of the following is a unit of voltage?

- Ans**
- ☒ A. Joule / Coulomb
  - ☐ B. Joule / second
  - ☐ C. Joule
  - ☐ D. Coulomb / second

Question ID : 931207982  
Chosen Option : 1

**Q.50** Which of the following provides leading current which neutralize (totally or approximately) the lagging inductive component of load current (i.e. leading component neutralize or eliminate the lagging component of load current) thus power factor of the load circuit is improved?

- Ans**
- ☐ A. Multipliers
  - ☒ B. Static Capacitors
  - ☐ C. Phase Advancers
  - ☐ D. Synchronous Condensers

Question ID : 9312071012  
Chosen Option : 4



Q.51 \_\_\_\_\_ is an instrument used for measuring electrical potential difference between two points in an electric circuit.

- Ans
- ☒ A. Voltmeter
  - ☐ B. Potentiometer
  - ☐ C. Ammeter
  - ☐ D. Galvanometer

Question ID : 931207990  
Chosen Option : 1

Q.52 In intrinsic semiconductors, the number of electrons is \_\_\_\_\_ the number of holes.

- Ans
- ☐ A. less than
  - ☐ B. greater than
  - ☒ C. equal to
  - ☐ D. Can not define

Question ID : 9312071032  
Chosen Option : 3

Q.53 \_\_\_\_\_ can be defined as an abnormal connection of very low impedance between two points of different potential, whether made intentionally or accidentally.

- Ans
- ☐ A. Symmetrical faults
  - ☒ B. Short circuit faults
  - ☐ C. Open circuit faults
  - ☐ D. Unsymmetrical faults

Question ID : 9312071013  
Chosen Option : 2

Q.54 Mixed Node is defined as:

- Ans
- ☐ A. A node which has neither incoming nor outgoing branches
  - ☐ B. A node which has only outgoing branches
  - ☒ C. A node which has both incoming and outgoing branches
  - ☐ D. A node which has only incoming branches

Question ID : 9312071051  
Chosen Option : 3

**Q.55** The function of the \_\_\_\_\_ is to facilitate collection of current from the armature conductors.

- Ans
- ☒ A. Yoke
  - ☒ B. Commutator
  - ☒ C. Pole
  - ☒ D. Brush

Question ID : 9312071000  
Chosen Option : 4

**Q.56** In a capacitor filter rectifier circuit, \_\_\_\_\_ the capacitance value, higher will be the power factor.

- Ans
- ☒ A. Lower
  - ☒ B. Higher
  - ☒ C. Unaffected
  - ☒ D. Equal

Question ID : 9312071035  
Chosen Option : 2

**Q.57** \_\_\_\_\_ employs mesh analysis to find the different mesh currents by finding the IR products in each mesh.

- Ans
- ☒ A. KCL
  - ☒ B. Current divider rule
  - ☒ C. KVL
  - ☒ D. Voltage divider rule

Question ID : 931207985  
Chosen Option : 3

**Q.58** In which of the following, vibration galvanometer, tuneable amplifier and headphones are used ?

- Ans
- ☒ A. Triangular wave bridges
  - ☒ B. D C bridges
  - ☒ C. Trapezoidal wave bridges
  - ☒ D. A C bridges

Question ID : 9312071063  
Chosen Option : 4

Q.59 \_\_\_\_\_ is also known as Inverter.

- Ans
- ☒ A. NOT Gate
  - ☐ B. OR Gate
  - ☐ C. NAND Gate
  - ☐ D. AND Gate

Question ID : 9312071068  
Chosen Option : 1

Q.60 In industries, \_\_\_\_\_ is required for the melting of metals, moulding of glass, enamelling of copper, baking of insulator and welding etc.

- Ans
- ☐ A. electroplating
  - ☐ B. illumination
  - ☒ C. electric heating
  - ☐ D. electric welding

Question ID : 9312071021  
Chosen Option : 3

Q.61 High resistances are provided with a guard terminal. This guard terminal used to:

- Ans
- ☐ A. To eliminate the effect of leads
  - ☐ B. Guard the resistance against stray electrostatic fields
  - ☒ C. Bypass the leakage current
  - ☐ D. Guard the resistance against overloads

Question ID : 9312071062  
Chosen Option : 1

Q.62 \_\_\_\_\_ of the consumers may be either connected to the distributors or sub-distributors depending upon the position and agreement of consumers.

- Ans
- ☐ A. Distribution sub-station
  - ☒ B. Service mains
  - ☐ C. Primary distribution feeder
  - ☐ D. Distribution transformer

Question ID : 9312071019  
Chosen Option : 2

**Q.63** The pole faces shaped to fit the curvature of the armature are known as the \_\_\_\_\_.

- Ans
- ☒ A. armature winding
  - ☒ B. pole core
  - ☒ C. pole shoe
  - ☒ D. field winding

Question ID : 931207999  
Chosen Option : 3

**Q.64** Control system in which the output has no influence or effect on the control action of the input signal is called

- Ans
- ☒ A. closed loop control system
  - ☒ B. open loop control system
  - ☒ C. automatic control system
  - ☒ D. optimal control system

Question ID : 9312071040  
Chosen Option : 2

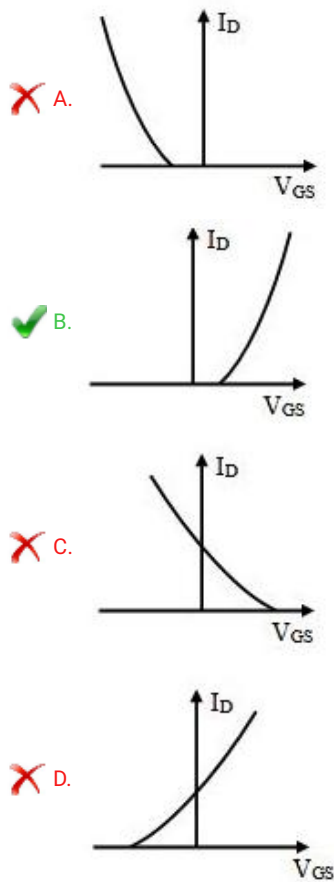
**Q.65** Some metals lose all resistivity abruptly and completely at some low temperatures, above 0 K. This phenomenon is called

- Ans
- ☒ A. Semiconductivity
  - ☒ B. Superconductivity
  - ☒ C. Ferro-electricity
  - ☒ D. Piezo-electricity

Question ID : 9312071034  
Chosen Option : 2

Q.66 Drain current vs gate-source voltage characteristics of n-channel enhancement type MOSFET is

Ans



Question ID : 9312071039  
Chosen Option : 4

Q.67 The most conventional method of generating electric power with reasonably high efficiency:

Ans

- ☒ A. Thermal power
- ☒ B. Solar energy
- ☒ C. Hydro-electric power
- ☒ D. Nuclear power

Question ID : 9312071008  
Chosen Option : 3

Q.68 The ratio of electrical energy supplied by a battery to the amount of electrical energy required to return it to the state before discharge is defined as \_\_\_\_\_.

Ans

- ☒ A. energy efficiency
- ☒ B. energy density
- ☒ C. self-discharge rates
- ☒ D. Ahr (or charge) efficiency

Question ID : 9312071030  
Chosen Option : 4

**Q.69** Which of the following is NOT an example of a secondary instrument?

- Ans**
- ☒ A. Ammeter
  - ☒ B. Tangent galvanometer
  - ☒ C. Voltmeter
  - ☒ D. Wattmeter

Question ID : 9312071065

Chosen Option : 2

**Q.70** The instruments which use a permanent magnet for creating a stationary magnetic field between which the coil moves is known as a \_\_\_\_\_.

- Ans**
- ☒ A. PMMC instrument
  - ☒ B. transformer
  - ☒ C. generator
  - ☒ D. galvanometer

Question ID : 931207991

Chosen Option : 3

**Q.71** Which of the following welding processes uses a continuously fed electrode through a welding gun and the operator needs to pull a trigger in order to feed the consumable electrode through?

- Ans**
- ☒ A. Flux-cored arc welding
  - ☒ B. Gas tungsten arc welding
  - ☒ C. Gas metal arc welding
  - ☒ D. Stick-shielded metal arc welding

Question ID : 9312071022

Chosen Option : --

**Q.72** Which part of the induction motor among the following carries a 3-phase winding and is fed from a 3-phase supply?

- Ans**
- ☒ A. Commutator
  - ☒ B. Stator
  - ☒ C. Air Gap
  - ☒ D. Rotor

Question ID : 9312071001

Chosen Option : 2



**Q.73** Conduction of current in both directions in an element (example: Resistance; Inductance; Capacitance) with the same magnitude is termed as \_\_\_\_\_.

- Ans**
- ☒ A. bilateral element
  - ☐ B. passive element
  - ☐ C. active element
  - ☐ D. unilateral element

Question ID : 9312071026  
Chosen Option : 1

**Q.74** Which of the below is not a merit of static relay ?

- Ans**
- ☐ A. Fast response
  - ☐ B. Compact size
  - ☐ C. Sensitive to voltage transients
  - ☒ D. Long life

Question ID : 9312071015  
Chosen Option : --

**Q.75** \_\_\_\_\_ finds the voltage potentials at different nodes that provide a common connection for two or more circuit components in a circuit.

- Ans**
- ☐ A. Norton's theorem
  - ☐ B. Mesh current analysis
  - ☒ C. Nodal voltage analysis
  - ☐ D. Thevenin's theorem

Question ID : 931207986  
Chosen Option : 3

**Q.76** The \_\_\_\_\_ determines the ability of the transformer to provide the constant voltage for variable loads.

- Ans**
- ☐ A. transformation ratio
  - ☒ B. voltage regulation of a transformer
  - ☐ C. transformer losses
  - ☐ D. efficiency of a transformer

Question ID : 931207998  
Chosen Option : 2



Q.77 \_\_\_\_\_ is a machine that converts mechanical energy into electrical energy.

- Ans
- ☐ A. transformer
  - ☐ B. wattmeter
  - ☒ C. generator
  - ☐ D. motor

Question ID : 931207994  
Chosen Option : 3

Q.78 \_\_\_\_\_ is an analytical method used to change a complex circuit into a simple equivalent circuit consisting of a single resistance in series with a source voltage.

- Ans
- ☐ A. Superposition theorem
  - ☒ B. Thevenin's theorem
  - ☐ C. Maximum power transfer theorem
  - ☐ D. Norton's theorem

Question ID : 931207988  
Chosen Option : 2

Q.79 A voltmeter has resistance of  $2000\ \Omega$ , when it is connected across a DC circuit its power consumption is 2mW. Suppose this voltmeter is replaced by a voltmeter of  $4000\ \Omega$  resistance, the power consumption will be:

- Ans
- ☐ A. 2mW
  - ☐ B. 4mW
  - ☐ C. 3mW
  - ☒ D. 1mW

Question ID : 9312071064  
Chosen Option : 4

Q.80 In \_\_\_\_\_ materials each atom has a relatively large dipole moment, caused primarily by uncompensated electron spin moment.

- Ans
- ☐ A. ferrimagnetic
  - ☐ B. superparamagnetic
  - ☒ C. ferromagnetic
  - ☐ D. anti-ferromagnetic

Question ID : 9312071059  
Chosen Option : --

**Q.81** Due to its smooth rotor, the following motor operates quietly and does not suffer from magnetic pulsations caused by slots/salient poles that are present in the rotors of other motors.

- Ans
- ☒ A. hysteresis motor
  - ☐ B. stepper motor
  - ☐ C. universal motor
  - ☐ D. reluctance motor

Question ID : 9312071007  
Chosen Option : 1

**Q.82** Faraday's Law of Induction is represented as \_\_\_\_\_.

- Ans
- ☐ A.  $\phi_B = \int \vec{B} \cdot d\vec{A}$
  - ☐ B.  $\vec{F} = I\vec{L} \times \vec{B}$
  - ☐ C.  $\vec{F} = q\vec{v} \times \vec{B}$
  - ☒ D.  $\epsilon = -\frac{d\phi_B}{dt}$

Question ID : 9312071031  
Chosen Option : 4

**Q.83** For percentage differential protection or normal differential protection, the \_\_\_\_\_ in the primary and secondary winding should be same.

- Ans
- ☐ A. magnetising inrush current
  - ☐ B. transformer phase shift
  - ☐ C. length of the pilot wire
  - ☒ D. current transformer ratio

Question ID : 9312071017  
Chosen Option : 4

**Q.84** The following have a high electrical resistance and essential in order that the current drawn by them is small and consequently the power absorbed is small.

- Ans
- ☐ A. Ammeters
  - ☒ B. Voltmeters
  - ☐ C. Transformers
  - ☐ D. Ohmmeters

Question ID : 931207992  
Chosen Option : 2

Q.85 Calculate  $I_E$  for a transistor that has  $\alpha_{dc} = 0.98$  and  $I_B = 100\mu A$ .

- Ans ☒ A. 5mA  
☒ B. 20 mA  
☒ C. 10 mA  
☒ D. 15 mA

Question ID : 9312071038  
Chosen Option : 1

Q.86 A \_\_\_\_\_ of a system is a pictorial representation of the functions performed by each component and of the flow of signals.

- Ans ☒ A. signal flow graph  
☒ B. block diagram  
☒ C. test signal  
☒ D. transfer function

Question ID : 9312071050  
Chosen Option : 1

Q.87 In which material, a magnetic field induces a magnetic moment that opposes the very magnetic field that actually causes it.

- Ans ☒ A. Ferromagnetic  
☒ B. Ferrimagnetic  
☒ C. Diamagnetic  
☒ D. Anti ferromagnetic

Question ID : 9312071060  
Chosen Option : 4

Q.88 A good insulating material should not posses

- Ans ☒ A. Non-uniform viscosity  
☒ B. High dielectric strength  
☒ C. Least thermal expansion  
☒ D. Large insulating resistance

Question ID : 9312071057  
Chosen Option : 1

**Q.89** A \_\_\_\_\_ is a device used in electrical power systems and telecommunication systems to protect the insulation and conductors of the system from the damaging effects of lightning.

- Ans**
- ☒ A. lightning arrester
  - ☐ B. bus bar
  - ☐ C. buchholz relay
  - ☐ D. feeder

Question ID : 9312071018  
Chosen Option : 1

**Q.90** Which of the following class of insulating materials include cotton, silk , paper, cellulose, wood, etc.

- Ans**
- ☐ A. Class E
  - ☐ B. Class A
  - ☐ C. Class B
  - ☒ D. Class Y

Question ID : 9312071056  
Chosen Option : --

Section : Quantitative Aptitude & Logical Ability

**Q.1** 10 men do a work in 15 days. 7 men and 3 women do the same work in 20 days. The number of days taken by a woman to do the work is

- Ans**
- ☐ A. 300
  - ☐ B. 600
  - ☒ C. 900
  - ☐ D. 150

Question ID : 9312071074  
Chosen Option : --

**Q.2** Select an option that most suitably relates to 'Court' in the same manner as 'Skating' is related to 'Rink'.

- Ans**
- ☐ A. Hockey
  - ☒ B. Tennis
  - ☐ C. Justice
  - ☐ D. Judge

Question ID : 9312071086  
Chosen Option : 2

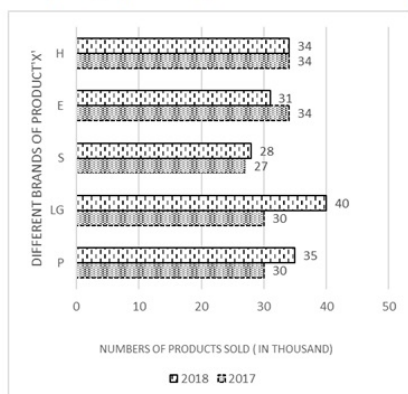
**Q.3** A lion prowled 900 m north from its den. It took a right turn and prowled 800 m. It, then took a right turn and prowled 700 m. It, again, took a right turn and prowled 600 m. Which direction is the lion facing now?

- Ans**
- ☒ A. North
  - ☒ B. West
  - ☒ C. East
  - ☒ D. South

Question ID : 9312071088  
Chosen Option : 2

**Q.4** The bar graph given below shows the total number of productions of a certain product X by different brands; P, LG, S, E and H (in thousand numbers) sold by a supplier in 2017 and 2018.

Study the graph carefully and answer the following question.



Total number of product X sold in 2017 and 2018 together was equal in case of which of the following pairs of brand of product X?

- Ans**
- ☒ A. P & E
  - ☒ B. H & LG
  - ☒ C. E & H
  - ☒ D. S & H

Question ID : 9312071083  
Chosen Option : 1

**Q.5** Select an option that is different from the rest in a certain way.

- Ans**
- ☒ A. Paper : Oil
  - ☒ B. Sack : Jute
  - ☒ C. Rubber : Latex
  - ☒ D. Metal : Ore

Question ID : 9312071090  
Chosen Option : 1

**Q.6** Two circles having centers at A and B have radii 4 and 5. If  $AB = 9$ , the number of common tangents to them is

- Ans**
- ☒ A. 1
  - ☒ B. 4
  - ☒ C. 2
  - ☒ D. 3

Question ID : 9312071078  
Chosen Option : 4

**Q.7** From the top of a tower of height 100 meter, the angles of depression of two houses A and B on two opposite sides of the tower are 30 and 60 degree respectively. The distance between A and B is approximately

- Ans**
- ☒ A. 210 meter
  - ☒ B. 230 meter
  - ☒ C. 220 meter
  - ☒ D. 200 meter

Question ID : 9312071079  
Chosen Option : 2

**Q.8** If '+' means 'divided by', '-' means 'add', '×' means 'minus' and '÷' means 'multiplied by', what will be the value of the following expression?

$$[(5 \div 1) \div 2] + (1 - 1) \div 1$$

- Ans**
- ☒ A. 8
  - ☒ B. 2
  - ☒ C. 6
  - ☒ D. 4

Question ID : 9312071085  
Chosen Option : 4

**Q.9** Ram, Shyam, and Mohan start a business with investments of Rs. 50000, 100000, and 150000 respectively. After the end of one year, Shyam withdraws Rs. 50000, and after the end of two year, Mohan withdraws Rs. 100000. At the end of three years, the profit is 350000. The share of Mohan will be

- Ans**
- ☒ A. Rs.175000
  - ☒ B. Rs.150000
  - ☒ C. Rs.180000
  - ☒ D. Rs. 125000

Question ID : 9312071073  
Chosen Option : --



Q.10 The value of  $-20 \div (36 \div 3^2 \times 6 \div 6) \times 5 - 3$  is

- Ans
- ☒ A. -2
  - ☒ B. -28
  - ☒ C. -4
  - ☒ D. -22

Question ID : 9312071071  
Chosen Option : 2

Q.11 If in a certain code, 'VIXEN' is written as 'ERCVM', how will 'MAGIC' be written using the same code?

- Ans
- ☒ A. NYSRY
  - ☒ B. NZTRX
  - ☒ C. LYTRU
  - ☒ D. NXRSY

Question ID : 9312071087  
Chosen Option : 2

Q.12 There are five students- A, B, C, D and E having different heights in Class. A's height is more than only one student. B's height is more than D and A but not more than C. D's height is more than A. C is not the smallest. Who has the maximum height in the class?

- Ans
- ☒ A. D
  - ☒ B. B
  - ☒ C. C
  - ☒ D. E

Question ID : 9312071081  
Chosen Option : 3

Q.13 In the expansion of  $(a + b)^8$ , the coefficient of  $a^5b^3$  is

- Ans
- ☒ A. 64
  - ☒ B. 56
  - ☒ C. 40
  - ☒ D. 72

Question ID : 9312071077  
Chosen Option : 1

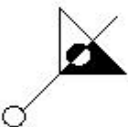
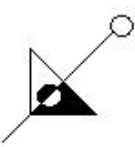
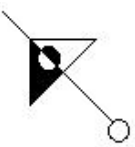
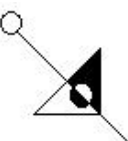


**Q.14** Two pipes A and B are such that the pipe B alone can fill a tank in 12 hours more time than the time taken to fill it by the pipe A alone. If A and B together fill the tank in 8 hours, then the time taken by A to fill the tank is

- Ans
- ☒ A. 10 hours
  - ☒ B. 16 hours
  - ☒ C. 12 hours
  - ☒ D. 15 hours

Question ID : 9312071075  
Chosen Option : --

**Q.15** Select the option that is different from the rest in a certain manner.

- Ans
- ☒ A. 
  - ☒ B. 
  - ☒ C. 
  - ☒ D. 

Question ID : 9312071084  
Chosen Option : 1

**Q.16** A car covers certain distance in certain time at the speed of 40 km/hr. At the speed of 56 km/hr, it can cover 80 km more in the same time. The original distance travelled by the car is

- Ans
- ☒ A. 200 km
  - ☒ B. 240 km
  - ☒ C. 245 km
  - ☒ D. 225 km

Question ID : 9312071076  
Chosen Option : 1

**Q.17** Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

**Statement:**

The government has made an appeal to all the citizens to honestly pay income tax and contribute in the developmental process of the country.

**Assumptions:**

I. The appeal will cause people to realise their responsibilities as the citizens of the country.

II. A larger number of citizens will start paying income tax.

- Ans**
- ☒ A. Only assumptions II implicit
  - ☒ B. Neither assumption I nor II implicit.
  - ☒ C. Both assumptions I and II implicit
  - ☒ D. Only assumptions I implicit

Question ID : 9312071089

Chosen Option : 1

**Q.18** Understand the pattern of the following series then find the next number from the following options.

1, 3, 7, 13, 21, ?

- Ans**
- ☒ A. 31
  - ☒ B. 25
  - ☒ C. 37
  - ☒ D. 28

Question ID : 9312071082

Chosen Option : 1

**Q.19** After 10 years from now, the age of a person will be square of his age at 10 years back. His present age is

- Ans**
- ☒ A. 15
  - ☒ B. 12
  - ☒ C. 18
  - ☒ D. 16

Question ID : 9312071072

Chosen Option : 1

**Q.20** AB is a chord of a circle of radius 10 meters. If  $AB = 10$  meters, then the length of the arc AB of the circle is approximately

- Ans**
- ☒ A. 10.4 meter
  - ☒ B. 10.5 meter
  - ☒ C. 10.2 meter
  - ☒ D. 10.3 meter

Question ID : 9312071080

Chosen Option : --

Section : General English

Q.1 Parts of the following sentence are given as options. Identify the part that has an error.

I would have helped you if I had know.

- Ans
- ☒ A. helped you
  - ☒ B. had know
  - ☒ C. if I
  - ☒ D. I would have

Question ID : 9312071091  
Chosen Option : 2

Q.2 Select the most appropriate ANTONYM of the given word.

DEPART

- Ans
- ☒ A. emerge
  - ☒ B. arrive
  - ☒ C. leave
  - ☒ D. receive

Question ID : 9312071096  
Chosen Option : 3

Q.3 Select the most appropriate synonym of the given word.

ACQUIRE

- Ans
- ☒ A. give
  - ☒ B. get
  - ☒ C. lend
  - ☒ D. destroy

Question ID : 9312071095  
Chosen Option : 2

Q.4 Select the option that can be used as a one-word substitute for the given phrase.

A person who sells glasses and contact lenses

- Ans
- ☒ A. eye doctor
  - ☒ B. ophthalmologist
  - ☒ C. optical dispenser
  - ☒ D. optician

Question ID : 9312071100  
Chosen Option : 4

**Q.5** Parts of a sentence are given below in jumbled order. Arrange the parts in the right order to form a meaningful sentence.

Use/ snake/ hand/ your/ enemy's/ to catch/ a

- Ans**
- ☒ A. Use your enemy's hand to catch a snake.
  - ☐ B. Use hand your to catch an enemy's snake.
  - ☐ C. Use your snake enemy's to catch a hand.
  - ☐ D. Use a snake catch to your enemy's hand.

Question ID : 9312071099  
Chosen Option : 1

**Q.6** Select the option that expresses the given sentence in indirect speech.

Sam told me, "You can take the weekend off."

- Ans**
- ☐ A. Sam told me that he could take the weekend off.
  - ☒ B. Sam told me that I could take the weekend off.
  - ☐ C. Sam told me that I can take the weekend off.
  - ☐ D. Sam told me that I could take off the weekend.

Question ID : 9312071093  
Chosen Option : 2

**Q.7** Select the most appropriate meaning of the underlined idiom in the given sentence.

Shyam had extensive surgery, but he is not yet out of the woods.

- Ans**
- ☐ A. lost among the trees
  - ☐ B. out of luck
  - ☐ C. on the mend
  - ☒ D. out of danger

Question ID : 9312071098  
Chosen Option : 4

**Q.8** Select the correctly spelt word.

- Ans**
- ☐ A. seperate
  - ☐ B. sepperate
  - ☒ C. separate
  - ☐ D. seperrate

Question ID : 9312071097  
Chosen Option : 3

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

I want to get some apples and pears, \_\_\_\_\_ the usual bananas.

- Ans ☒ A. besides  
☐ B. beside  
☐ C. but  
☐ D. be side

Question ID : 9312071094  
Chosen Option : 1

Q.10 Select the option that expresses the given sentence in passive voice.

The committee will send out invitation letters next week.

- Ans ☒ A.  
Invitation letters will be sent out next week by the committee.  
☐ B.  
Invitation letters will be sending out next week by the committee.  
☐ C.  
Invitation letters will be send out next week by the committee.  
☐ D.  
Invitation letters will sent out next week by the committee.

Question ID : 9312071092  
Chosen Option : 1

Section : General Awareness

Q.1 Which of the following countries is known for Marsupial Animals?

- Ans ☒ A. Australia  
☐ B. Brazil  
☐ C. South Africa  
☐ D. Russia

Question ID : 9312071113  
Chosen Option : --



**Q.2** The "Taka" is an official national currency and used in which of the following countries?

- Ans**
- ☐ A. Indonesia
  - ☐ B. Sri Lanka
  - ☐ C. Malaysia
  - ☒ D. Bangladesh

Question ID : 9312071104

Chosen Option : 4

**Q.3** "Bahai Temple" situated in Delhi is also commonly known as \_\_\_\_\_.

- Ans**
- ☐ A. Yogmaya Temple
  - ☐ B. Akshardham Temple
  - ☒ C. Lotus Temple
  - ☐ D. Shree Sidh Shakti Peeth Shani Dham

Question ID : 9312071102

Chosen Option : 3

**Q.4** Besides PAN card as per the budget 2019 now Income Tax return can be filed by using which of the following identification?

- Ans**
- ☐ A. Driving License Number
  - ☐ B. Ration Card Number
  - ☐ C. Credit Card Number
  - ☒ D. Aadhaar Number

Question ID : 9312071108

Chosen Option : 4

**Q.5** As per the Ministry of Home Affairs, which of the following countries shares the shortest border with India?

- Ans**
- ☐ A. Myanmar
  - ☒ B. Afghanistan
  - ☐ C. Bhutan
  - ☐ D. Nepal

Question ID : 9312071103

Chosen Option : 2

Q.6 Dengue fever is a \_\_\_\_\_ disease.

- Ans ☒ A. Mosquito-borne  
☒ B. Air-borne  
☒ C. Parasite-borne  
☒ D. Food-borne

Question ID : 9312071115  
Chosen Option : 1

Q.7 In which of the following months the Indian government approved the higher minimum support prices for Kharif crop 2019-20?

- Ans ☒ A. Jun 2019  
☒ B. August 2019  
☒ C. July 2019  
☒ D. May 2019

Question ID : 9312071110  
Chosen Option : 4

Q.8 The world ocean day is observed on which of the following dates of the year?

- Ans ☒ A. 9 June  
☒ B. 11 June  
☒ C. 8 June  
☒ D. 10 June

Question ID : 9312071120  
Chosen Option : --

Q.9 The festival 'Bali Yatra' that is considered as one of Asia's largest open trade fair is organized in which of the following states of India?

- Ans ☒ A. Bihar  
☒ B. Odisha  
☒ C. Chhattisgarh  
☒ D. Karnataka

Question ID : 9312071101  
Chosen Option : 2



**Q.10** Which of the following books was the winner of the Booker Prize 2019 (together with The Testaments)?

- Ans ☒ A. Girl, Woman, Other  
☐ B. Midnight's Children  
☐ C. The Blind Assassin  
☐ D. Milkman

Question ID : 9312071112  
Chosen Option : 4

**Q.11** Who was the last viceroy of British India until 15 August 1947?

- Ans ☒ A. Lord Mountbatten  
☐ B. Lord Willingdon  
☐ C. Lord Wavell  
☐ D. Lord Linlithgow

Question ID : 9312071106  
Chosen Option : 1

**Q.12** Under which of the following schemes, income support of ₹.6000/- per year is provided to all farmers families across the country in three equal installments of ₹ 2000/- each every four months?

- Ans ☐ A. Pradhan Mantri Kisan Suvidha Nidhi  
☒ B. Pradhan Mantri Kisan Samman Nidhi  
☐ C. Pradhan Mantri Kisan Social Nidhi  
☐ D. Pradhan Mantri Kisan Surksha Nidhi

Question ID : 9312071118  
Chosen Option : 2

**Q.13** The total market value of the final goods and services produced by a nation's economy during a specific period of time (usually a year) is known as \_\_\_\_\_.

- Ans ☐ A. Net National Income (NNI)  
☐ B. Balance of Payment (BOP)  
☒ C. Gross Domestic Product (GDP)  
☐ D. Current Account Deficit (CAD)

Question ID : 9312071107  
Chosen Option : 3

**Q.14** In which of the following cities, for the first time in six decades, Filmfare will host its annual gala Filmfare awards ceremony outside Mumbai in February 2020?

- Ans
- ☒ A. Agra
  - ☒ B. Guwahati
  - ☒ C. Indore
  - ☒ D. Jaipur

Question ID : 9312071109  
Chosen Option : --

**Q.15** The 25th United Nations Climate Change Conference was held in which of the following cities in December 2019?

- Ans
- ☒ A. Chicago
  - ☒ B. New Delhi
  - ☒ C. Madrid
  - ☒ D. Hanoi

Question ID : 9312071114  
Chosen Option : --

**Q.16** Recently, against which of the following countries India won test match by an innings and 46 runs that was also a record 12th successive series win at home?

- Ans
- ☒ A. Sri Lanka
  - ☒ B. Australia
  - ☒ C. South Africa
  - ☒ D. Bangladesh

Question ID : 9312071119  
Chosen Option : 4

**Q.17** Who among them was the former President of India who proclaimed national emergency across India in 1975?

- Ans
- ☒ A. Fakhruddin Ali Ahmed
  - ☒ B. Kocheril Raman Narayanan
  - ☒ C. Mohammad Hidayatullah
  - ☒ D. Zakir Husain

Question ID : 9312071111  
Chosen Option : 1

**Q.18** Famous "Indian Institute of Science" is located in which of the following cities of India?

- Ans
- ☒ A. Bangalore
  - ☐ B. New Delhi
  - ☐ C. Mumbai
  - ☐ D. Bhubaneshwar

Question ID : 9312071105  
Chosen Option : 1

**Q.19** "Polio", or "Poliomyelitis", is a crippling and potentially deadly infectious disease is caused by \_\_\_\_\_.

- Ans
- ☒ A. Virus
  - ☐ B. Insects
  - ☐ C. Protozoa
  - ☐ D. Bacteria

Question ID : 9312071117  
Chosen Option : 1

**Q.20** Ingestion of excess "Fluoride" through drinking-water, can cause "Fluorosis" which mainly affects \_\_\_\_\_.

- Ans
- ☐ A. Heart
  - ☒ B. Teeth and bones
  - ☐ C. Eyes
  - ☐ D. Liver

Question ID : 9312071116  
Chosen Option : 2