

DFCCIL
Executive Electrical

Previous Year Paper
30 Sept 2021
Official Paper



Dedicated Freight Corridor Corporation of India Ltd.
A Government of India (Ministry of Railways) Enterprise

Participant ID	
Participant Name	
Test Center Name	Ion Digital Zone IDZ1 Mundka
Test Date	30/09/2021
Test Time	4:30 PM - 6:30 PM
Subject	Executive (Electrical)

Section : General Knowledge

Q.1 Who has been appointed as the global brand ambassador of Levi's? Ans ☒ 1. Anushka Sharma ☒ 2. Priyanka Chopra ☒ 3. Deepika Padukone ☒ 4. Aishwarya Rai	Question ID : 54062622446 Status : Answered Chosen Option : 2
Q.2 The IndiGen Genome Project is an initiative of the ____. Ans ☒ 1. National Institute of Plant Genome Research ☒ 2. Indian Space Research Organisation ☒ 3. National Institute of Virology ☒ 4. Council of Scientific and Industrial Research	Question ID : 54062622444 Status : Not Answered Chosen Option : --
Q.3 What is at the back of a Rs. 500 note of Mahatma Gandhi (new) series? Ans ☒ 1. Sanchi Stupa ☒ 2. Red fort ☒ 3. Ajanta Caves ☒ 4. Raniki Vav	Question ID : 54062622440 Status : Answered Chosen Option : 2

Q.4 Which space company has been selected by NASA to deliver cargo, experiments and other supplies to the agency's Gateway in lunar orbit?

- Ans
- ☒ 1. Dragon-XL
 - ☒ 2. Blue origin
 - ☒ 3. Astra space
 - ☒ 4. Space X

Question ID : 54062622448
Status : Answered
Chosen Option : 4

Q.5 Which of the following reports is NOT released by the World Bank?

- Ans
- ☒ 1. Ease of Doing Business
 - ☒ 2. World Development Report
 - ☒ 3. World Economic Outlook
 - ☒ 4. Universal Health Coverage Index

Question ID : 54062622445
Status : Answered
Chosen Option : 1

Q.6 Who discovered the electrons?

- Ans
- ☒ 1. E. Goldstein
 - ☒ 2. J. Chadwick
 - ☒ 3. J.J. Thomson
 - ☒ 4. Neils Bohr

Question ID : 54062622441
Status : Answered
Chosen Option : 3

Q.7 In _____, the East India Company acquired a charter from the ruler of England, Queen Elizabeth I, granting it the sole right to trade with the East.

- Ans
- ☒ 1. 1600
 - ☒ 2. 1592
 - ☒ 3. 1594
 - ☒ 4. 1598

Question ID : 54062622443
Status : Answered
Chosen Option : 2

Q.8 Igas festival is related to which state?

- Ans
- ☒ 1. Manipur
 - ☐ 2. Uttrakhand
 - ☒ 3. Karnataka
 - ☒ 4. Kerala

Question ID : 54062622439
Status : Not Answered
Chosen Option : --

Q.9 Which city will host 2022 Asian Games?

- Ans
- ☒ 1. Guangzhou
 - ☐ 2. Hangzhou
 - ☒ 3. Beijing
 - ☒ 4. Shenzhen

Question ID : 54062622450
Status : Not Answered
Chosen Option : --

Q.10 Which rivers forms the eastern most boundary of the Himalayas?

- Ans
- ☒ 1. Ganga
 - ☐ 2. Brahamputra
 - ☒ 3. Teesta
 - ☒ 4. Kali

Question ID : 54062622442
Status : Answered
Chosen Option : 2

Q.11 The fourth schedule of Indian Constitution is related with which of the following?

- Ans
- ☒ 1. Validation of certain Acts and Regulations
 - ☐ 2. Allocation of seats in the Council of States
 - ☒ 3. Powers, authority and responsibilities of Municipalities, etc
 - ☒ 4. Powers, authority and responsibilities of Panchayats

Question ID : 54062622449
Status : Answered
Chosen Option : 2

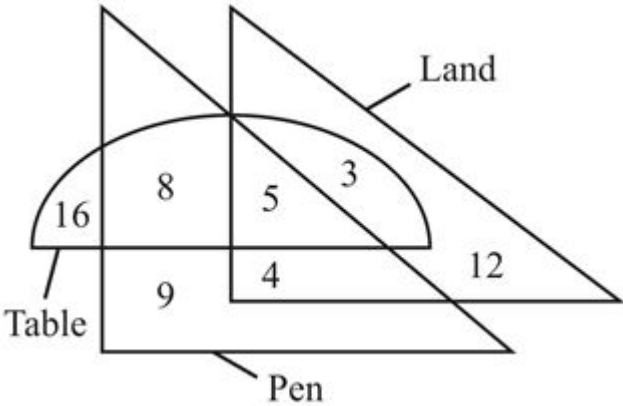
Q.12 In the Forbes 2020 list of ‘The World’s 100 most Powerful Woman’, Christine Lagarde has acquired rank _____.

- Ans ☒ 1. 2
- ☒ 2. 3
- ☒ 3. 5
- ☒ 4. 1

Question ID : 54062622447
Status : Not Answered
Chosen Option : --

Section : General Aptitude or Reasoning

Q.1 How many pen are neither table nor land?



- Ans ☒ 1. 4
- ☒ 2. 5
- ☒ 3. 8
- ☒ 4. 9

Question ID : 54062622460
Status : Answered
Chosen Option : 4

Q.2 Eight boys P, Q, R, S, T, U, V and W sit around a circular table facing towards the centre (not necessarily in the same order). T sits second to the right of Q. One boy sits between P and V. Q sits third to the left of V. U is not a neighbour of S or Q. S sits second to the right of W. R sits second to the left of U.

Which of the following statement(s) is/are correct?
I. T sits second to the left of R.
II. U is a neighbour of P.
III. Q sits to the immediate right of S.
IV. R sits to the immediate right of V.

- Ans ☒ 1. I and IV
- ☒ 2. I and II
- ☒ 3. I, II and III
- ☒ 4. I, II and IV

Question ID : 54062622456
Status : Answered
Chosen Option : 4

Q.3 Which answer figure will complete the pattern in the question figure?



Ans

- ✗ 1.
- ✗ 2.
- ✗ 3.
- ✓ 4.

Question ID : 54062622462
Status : Answered
Chosen Option : 4

Q.4 In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:
I. All K are B.
II. Some G are B.

Conclusions:
I. No K is G.
II. Some B are G.
III. Some G are K.

- ✗ 1. Both conclusion I and II follows
- ✓ 2. Only conclusion II follow
- ✗ 3. Both conclusion I and III follows
- ✗ 4. Neither conclusion follows

Question ID : 54062622457
Status : Answered
Chosen Option : 2

Q.5 After interchanging the given two signs, what will be the value of the given equation?

– and +

$15 \times 60 - 57 \div 19 + 11$

- Ans ☒ 1. 892
- ☐ 2. 882
- ☐ 3. 883
- ☐ 4. 894

Question ID : 54062622459
Status : Answered
Chosen Option : 1

Q.6 In the following question, select the related words from the given alternatives.
Curd : Milk :: Shoes : ?

- Ans ☐ 1. Socks
- ☐ 2. Needle
- ☒ 3. Leather
- ☐ 4. Black

Question ID : 54062622453
Status : Answered
Chosen Option : 3

Q.7 In the following question, select the odd letter/letters from the given alternatives.

- Ans ☐ 1. QTX
- ☐ 2. ADH
- ☐ 3. RUY
- ☒ 4. GJM

Question ID : 54062622452
Status : Answered
Chosen Option : 4

Q.8 In a certain code language, 'Land is beautiful grey' is written as 'pr lm ag gt', 'grey are hard to' is written as 'ag tr pv la', 'Hard is white' is written as 'lm la pq'. What is the code for 'white is beautiful land' in that code language?

- Ans ☐ 1. pq lm pr ag
- ☒ 2. lm pr pq gt
- ☐ 3. la lm pr gt
- ☐ 4. lm pr gt tr

Question ID : 54062622455
Status : Answered
Chosen Option : 2

Q.9 If 15 P 3 A 9 B 9 = 18 and 39 A 57 B 19 P 14 = 131, then 16 B 48 A 42 P 12?

- Ans  1. 24
-  2. 26
-  3. 28
-  4. 32

Question ID : 54062622458
Status : Answered
Chosen Option : 2

Q.10 Arrange the given words in the sequence in which they occur in the dictionary.

- 1. Checkpoint
- 2. Chessboard
- 3. Cheesecake
- 4. Chemisorbs
- 5. Chemisette

- Ans  1. 13542
-  2. 15342
-  3. 13524
-  4. 15324

Question ID : 54062622451
Status : Answered
Chosen Option : 1

Q.11 In a certain code language, ‘GROPSB’ is written as ‘YWMSOK’. What is the code for ‘PANTER’ in that code language?

- Ans  1. OQIRXT
-  2. OIQRXT
-  3. QIORXT
-  4. OIQSXT

Question ID : 54062622454
Status : Not Answered
Chosen Option : --

Q.12 Which figure is similar to the given figures?



Ans



Question ID : 54062622461
Status : Answered
Chosen Option : 3

Section : Domain Knowledge

Q.1 In how many regions can the biased transistor work?

- Ans
- ✗ 1. Four
 - ✗ 2. Two
 - ✓ 3. Three
 - ✗ 4. Five

Question ID : 54062622513
Status : Answered
Chosen Option : 3

Q.2 A 6-pole, 3-phase Induction motor operates from a supply whose frequency is 60 Hz. Calculate the speed of the rotor, when the slip is 0.03.

- Ans
- ✓ 1. 1164 rpm
 - ✗ 2. 976 rpm
 - ✗ 3. 816 rpm
 - ✗ 4. 900 rpm

Question ID : 54062622489
Status : Answered
Chosen Option : 1

Q.3 The SI unit of circuit element inductance is:

- Ans
- ☐ 1. Ohm
 - ☐ 2. Volt
 - ☐ 3. Faraday
 - ☒ 4. Henry

Question ID : 54062622463
Status : Answered
Chosen Option : 4

Q.4 Which of the following statements is true about the semiconductor material?

- Ans
- ☐ 1. A material that offers a very high level of conductivity.
 - ☒ 2. A material that has conductivity level somewhere between the extremes of an insulator and a conductor.
 - ☐ 3. A material that offers a very low level of conductivity.
 - ☐ 4. A material that offers a zero conductivity.

Question ID : 54062622509
Status : Answered
Chosen Option : 2

Q.5 _____ is used for measuring and comparing the EMFs of different cells and for calibrating and standardising voltmeters, ammeters, etc.

- Ans
- ☒ 1. DC potentiometer
 - ☐ 2. Electrodynamic power factor meter
 - ☐ 3. Moving iron power factor meter
 - ☐ 4. Electromagnetic power factor meter

Question ID : 54062622533
Status : Answered
Chosen Option : 1

Q.6 A 25 kVA transformer has 400 turns on the primary and 50 turns in the secondary winding. The primary is connected to 2000 V, 50 Hz supply. Find the secondary EMF.

- Ans
- ☐ 1. 100 V
 - ☐ 2. 150 V
 - ☒ 3. 250 V
 - ☐ 4. 200 V

Question ID : 54062622487
Status : Answered
Chosen Option : 3

Q.7 If the reverse saturation current is 20 μA , then calculate the forward current for the voltage of 0.2 V (for a silicon Diode $n = 2$, $V_T = 26 \text{ mV}$). (Value of $e^{3.85} = 47$).

- Ans**
- ☒ 1. 510 μA
 - ☒ 2. 710 μA
 - ☒ 3. 920 μA
 - ☒ 4. 810 μA

Question ID : 54062622512
Status : Answered
Chosen Option : 3

Q.8 A hydraulic turbine turning at 100 r/min is coupled to a synchronous generator. If the induced voltage has a frequency of 50 Hz, then how many poles does the rotor have?

- Ans**
- ☒ 1. 60
 - ☒ 2. 80
 - ☒ 3. 50
 - ☒ 4. 70

Question ID : 54062622483
Status : Answered
Chosen Option : 1

Q.9 Working principle of Weston type frequency meter is based on which of the following principles?

- Ans**
- ☒ 1. Deflection
 - ☒ 2. Speed
 - ☒ 3. Light
 - ☒ 4. Reflection

Question ID : 54062622531
Status : Answered
Chosen Option : 1

Q.10 A conductor material has a free-electron density of 10^{25} electrons per m^3 . When a voltage is applied, a constant drift velocity of $1.4 \times 10^{-3} \text{ m/s}$ is attained by the electrons. If the cross-sectional area of the material is 1 cm^2 , calculate the magnitude of the current. Electronic charge is $1.6 \times 10^{-19} \text{ coulomb}$.

- Ans**
- ☒ 1. 0.25 A
 - ☒ 2. 0.224 A
 - ☒ 3. 0.1 A
 - ☒ 4. 0.2 A

Question ID : 54062622475
Status : Not Answered
Chosen Option : --

Q.11 Induction type wattmeter provides accurate readings only when:

- Ans
- ☒ 1. both frequency and supply voltage are varying
 - ☒ 2. supply voltage is constant and frequency is varying
 - ☒ 3. frequency is constant and supply voltage is varying
 - ☒ 4. both frequency and supply voltage are constant

Question ID : 54062622527

Status : Answered

Chosen Option : 4

Q.12 Which of the following can be used to extend the range of ammeter?

- Ans
- ☒ 1. Only shunt
 - ☒ 2. Either shunt or multiplier
 - ☒ 3. Only multiplier
 - ☒ 4. Shunt and multiplier both

Question ID : 54062622529

Status : Answered

Chosen Option : 1

Q.13 Which of the following is NOT a method of turning ON SCR?

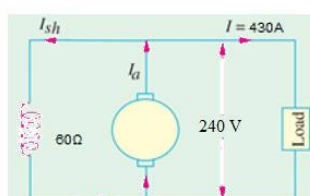
- Ans
- ☒ 1. Emitter triggering
 - ☒ 2. Thermal triggering
 - ☒ 3. Radiation triggering
 - ☒ 4. Voltage triggering

Question ID : 54062622518

Status : Answered

Chosen Option : 1

Q.14 A given shunt generator delivers 430 A at 240 V and the resistance of the shunt field and armature are $60\ \Omega$ and $0.02\ \Omega$, respectively. Calculate the armature voltage drop.



- Ans**
- ☒ 1. 12.68 V
 - ☒ 2. 15 V
 - ☒ 3. 10 V
 - ☒ 4. 8.68 V

Question ID : 54062622492
Status : Answered
Chosen Option : 4

Q.15 Which of the following theorems can be used to find solution to networks with two or more sources that are NOT in series and parallel?

- Ans**
- ☒ 1. Millman's theorem
 - ☒ 2. Thevenin's theorem
 - ☒ 3. Norton's theorem
 - ☒ 4. Superposition theorem

Question ID : 54062622477
Status : Answered
Chosen Option : 4

Q.16 Cathode Ray Oscilloscope CANNOT be used for the measurement of which of the following quantities?

- Ans**
- ☒ 1. Phase angle
 - ☒ 2. Frequency
 - ☒ 3. Voltage
 - ☒ 4. Temperature

Question ID : 54062622525
Status : Answered
Chosen Option : 4

Q.17 Which of the following is the correct option for the given symbol?



- Ans
- ☐ 1. Varactor diode
 - ☒ 2. LED
 - ☐ 3. Zener diode
 - ☐ 4. P-N junction diode

Question ID : 54062622520

Status : Answered

Chosen Option : 2

Q.18 The maximum flux density in the core of a 300/3000 v, 50 Hz single phase transformer. If the EMF per turn is 10 v, determine primary and secondary turns, respectively.

- Ans
- ☒ 1. 30, 300
 - ☐ 2. 3, 30
 - ☐ 3. 300, 300
 - ☐ 4. 15, 30

Question ID : 54062622490

Status : Answered

Chosen Option : 1

Q.19 What is the use of potential transformer?

- Ans
- ☐ 1. Measurement of high alternating currents.
 - ☐ 2. Measurement of low alternating currents.
 - ☒ 3. Measurement of high alternating voltages.
 - ☐ 4. Measurement of high DC voltages.

Question ID : 54062622534

Status : Answered

Chosen Option : 3

Q.20 Gate power loss in SCR is defined as:

Ans ☒ 1.

the minimum value of the gate current which can trigger SCR

☒ 2.

the mean power loss due to gate current between the base and the main terminal

☒ 3.

the mean power loss due to gate current between the collector and the main terminals

☒ 4.

the mean power loss due to gate current between the gate and the main terminals

Question ID : 54062622517

Status : Answered

Chosen Option : 4

Q.21 Voltage Triangle for a series RLC circuit is given as:

Ans

☒ 1. $V_S^2 = V_R^2 + (V_L - V_C)^2$

☒ 2. $V_S = V_R^2 + (V_L - V_C)^2$

☒ 3. $V_S^2 = V_R^2 + (V_L - V_C)^{1/2}$

☒ 4. $V_S = V_R^2 + (V_L - V_C)$

Question ID : 54062622482

Status : Answered

Chosen Option : 1

Q.22 Eddy current loss of armature can be minimised _____.

Ans

☒ 1. by lamination

☒ 2. by distortion

☒ 3. by induced current

☒ 4. by folding

Question ID : 54062622499

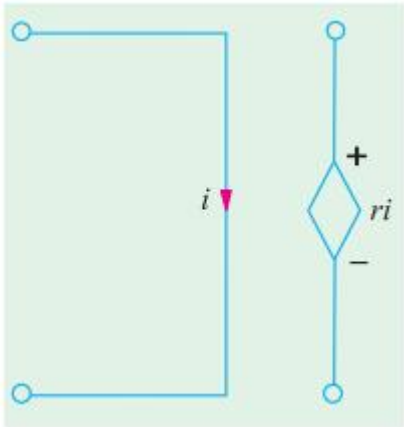
Status : Answered

Chosen Option : 1

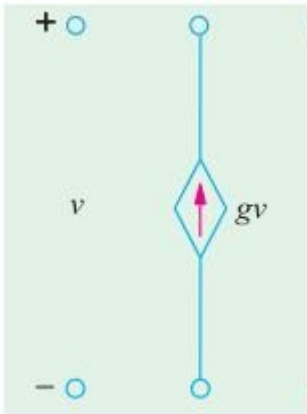
Q.23 Which of the following figures is correct in representing the voltage-dependent current source?

Ans

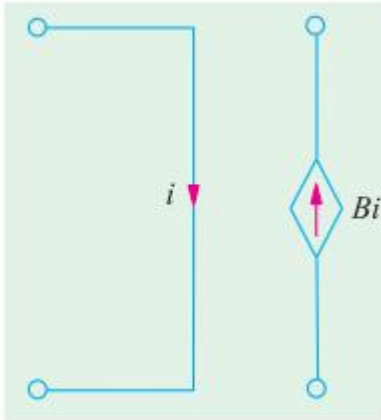
✗ 1.



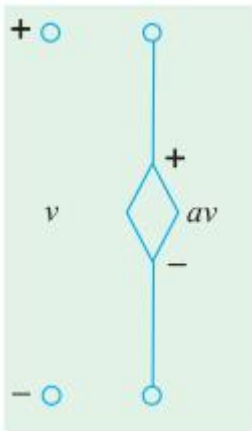
✓ 2.



✗ 3.



✗ 4.



Q.24 A 4-pole DC generator has 800 armature conductors and a flux per pole of 10 mWb running at 600 rpm. Calculate the EMF generated when the armature is connected as a simplex lap winding.

- Ans
- ☒ 1. 75 V
 - ☒ 2. 85 V
 - ☒ 3. 80 V
 - ☒ 4. 70 V

Question ID : **54062622547**
Status : **Answered**
Chosen Option : **3**

Q.25 In a certain transistor, the emitter current is 1.5 times larger as the collector current. If the emitter current is 15 mA, find the base current.

- Ans
- ☒ 1. 15 mA
 - ☒ 2. 5 mA
 - ☒ 3. 4 mA
 - ☒ 4. 6 mA

Question ID : **54062622514**
Status : **Answered**
Chosen Option : **4**

Q.26 A 2500/230 V transformer draws a no load primary current of 0.5 A and absorbs 500 w. Find the magnetizing and iron loss current, respectively.

- Ans
- ☒ 1. 0.458 A, 0.2 A
 - ☒ 2. 45 A, 20 A
 - ☒ 3. 0.045 A, 0.02 A
 - ☒ 4. 4.58 A, 2 A

Question ID : **54062622491**
Status : **Answered**
Chosen Option : **1**

Q.27 Form factor value of full wave rectifier is _____.

- Ans
- ☒ 1. 1.11
 - ☒ 2. 1.29
 - ☒ 3. 1.58
 - ☒ 4. 1.41

Question ID : **54062622508**
Status : **Answered**
Chosen Option : **1**

Q.28 A pure inductor of 20.0 mH is connected to a source of 220 V. Find the RMS value of current in the circuit, if the frequency of the source is 50 Hz.

- Ans
- ☐ 1. 8.8 A
 - ☒ 2. 35.03 A
 - ☐ 3. 3.5 A
 - ☐ 4. 88 A

Question ID : 54062622554
Status : Answered
Chosen Option : 2

Q.29 The amount of EMF induced in a coil cutting the magnetic lines of force is determined by the following given factors. Select the odd one.

- Ans
- ☐ 1. Length – the length of the coil or conductor passing through the magnetic field.
 - ☐ 2. Strength – the strength of the magnetic field.
 - ☒ 3. Temperature – the temperature of magnetic field.
 - ☐ 4. Speed – the speed at which the coil rotates inside the magnetic field.

Question ID : 54062622481
Status : Answered
Chosen Option : 4

Q.30 Energy band gap value for germanium (Ge) is:

- Ans
- ☐ 1. 2.6 eV
 - ☒ 2. 0.67 eV
 - ☐ 3. 1.1 eV
 - ☐ 4. 1.6 eV

Question ID : 54062622519
Status : Answered
Chosen Option : 2

Q.31 The stator of a 3-phase induction motor has 2 slots per pole per phase. If supply frequency is 50 Hz, then calculate the number of stator poles and total number of slots on the stator.

- Ans
- ☐ 1. 6 poles, 36 slots
 - ☒ 2. 4 poles, 24 slots
 - ☐ 3. 8 poles, 92 slots
 - ☐ 4. 6 poles, 54 slots

Question ID : 54062622484
Status : Answered
Chosen Option : 1

Q.32 _____ essentially consists of two conducting surfaces separated by a layer of an insulating medium called dielectric.

- Ans**
- ☒ 1. A semiconductor
 - ☒ 2. A resistor
 - ☒ 3. An inductor
 - ☒ 4. A capacitor

Question ID : **54062622480**

Status : **Answered**

Chosen Option : **4**

Q.33 Given are the classifications of unsymmetrical faults that occur in transmission and distribution lines. Select the odd one from the following.

- Ans**
- ☒ 1. Double line fault (LL fault)
 - ☒ 2. Double line to ground fault (LLG fault)
 - ☒ 3. Triple line to ground fault (LLLG fault)
 - ☒ 4. Single line to ground fault (LG fault)

Question ID : **54062622543**

Status : **Answered**

Chosen Option : **3**

Q.34 A 4-pole generator has a wave wound armature with 730 conductors and it delivers 110 A on full load. If the brush lead is 10 degrees mechanical, calculate the cross-magnetising ampere turn per pole.

- Ans**
- ☒ 1. 2000.33
 - ☒ 2. 5801.45
 - ☒ 3. 1200.12
 - ☒ 4. 3903.47

Question ID : **54062622497**

Status : **Not Answered**

Chosen Option : **--**

Q.35 Which of the following is NOT one of the main characteristics of a series circuit?

- Ans**
- ☒ 1. Same current flows through all parts of the circuit.
 - ☒ 2. Powers are additive.
 - ☒ 3. Different resistors have their individual current.
 - ☒ 4. Voltage drops are additive.

Question ID : **54062622473**

Status : **Answered**

Chosen Option : **3**

Q.36 HVDC transmission is economically used for underground cables of length more than:

- Ans**
- ☒ 1. 25 km
 - ☒ 2. 10 km
 - ☒ 3. 50 km
 - ☒ 4. 30 km

Question ID : **54062622541**

Status : **Answered**

Chosen Option : **3**

Q.37 A 3-phase induction motor is wound for 6 poles and is supplied from a 60 Hz supply. Calculate the synchronous speed, if speed of rotor is 950 rpm.

- Ans**
- ☒ 1. 1200 rpm
 - ☒ 2. 1000 rpm
 - ☒ 3. 900 rpm
 - ☒ 4. 1100 rpm

Question ID : **54062622557**

Status : **Answered**

Chosen Option : **1**

Q.38 Which of the following systems provides bounded output even after the variation in the parameters of the system?

- Ans**
- ☒ 1. Marginally stable system
 - ☒ 2. Conditionally stable system
 - ☒ 3. Absolutely stable system
 - ☒ 4. Critically stable system

Question ID : **54062622538**

Status : **Answered**

Chosen Option : **3**

Q.39 Which of the following defines an N-Type semiconductor?

- Ans**
- ☒ 1. A semiconductor with excess of black hole is called N-type.
 - ☒ 2. A semiconductor with excess of electrons is called N-type.
 - ☒ 3. A semiconductor with excess of holes is called N-type.
 - ☒ 4. A semiconductor with excess of both electrons and holes is called N-type.

Question ID : **54062622515**

Status : **Answered**

Chosen Option : **3**

Q.40 A shunt generator delivers 150 A at terminal p.d. of 200 V. The armature resistance and shunt field resistance are $0.03\ \Omega$ and $40\ \Omega$, respectively. Find the generated EMF.

- Ans**
- ☒ 1. 204.65 V
 - ☐ 2. 150 V
 - ☐ 3. 240 V
 - ☐ 4. 190 V

Question ID : **54062622495**
Status : **Answered**
Chosen Option : **1**

Q.41 Photoelectric emission of electrons from metals is done _____.

- Ans**
- ☐ 1. by heating the metal
 - ☒ 2. by projecting light of sufficiently small wavelength on the metal
 - ☐ 3. by melting the metal
 - ☐ 4. by applying an intense electric field to the metal

Question ID : **54062622546**
Status : **Answered**
Chosen Option : **2**

Q.42 A 230-V DC shunt motor has an armature resistance of $0.25\ \Omega$ and runs at 1100 rpm, taking an armature current 40 A. It is desired to reduce the speed to 750 rpm. If the armature current remains the same, find the additional resistance to be connected in series with the armature circuit.

- Ans**
- ☐ 1. $1\ \Omega$
 - ☐ 2. $1.5\ \Omega$
 - ☐ 3. $1.25\ \Omega$
 - ☒ 4. $1.75\ \Omega$

Question ID : **54062622535**
Status : **Answered**
Chosen Option : **4**

Q.43 Which of the following materials is used extensively for making the electrodes of thermionic valves and sparking plugs?

- Ans**
- ☐ 1. Tin
 - ☐ 2. Graphite
 - ☐ 3. Lead
 - ☒ 4. Nickel

Question ID : **54062622549**
Status : **Answered**
Chosen Option : **1**

Q.44 _____ is also known as electrical characteristics of motor.

- Ans
- ✓ 1. Torque and armature current characteristic
 - ✗ 2. Speed and armature current characteristic
 - ✗ 3. Speed and armature voltage characteristic
 - ✗ 4. Speed and torque characteristic

Question ID : 54062622503
Status : Answered
Chosen Option : 4

Q.45 Which of the following are generally used in low frequency applications including in areas where a very high input impedance is needed?

- Ans
- ✗ 1. Collector amplifiers
 - ✗ 2. Current amplifiers
 - ✗ 3. Current mirrors
 - ✓ 4. Darlington pairs

Question ID : 54062622511
Status : Answered
Chosen Option : 1

Q.46 A dynamometer type wattmeter with its voltage coil connected across the load side of the instrument reads 200 W. If the load voltage be 240 V, then what power is being taken by the load? The voltage coil branch has a resistance of 1,500 Ω .

- Ans
- ✗ 1. 361.6 W
 - ✓ 2. 161.6 W
 - ✗ 3. 261.6 W
 - ✗ 4. 61.6 W

Question ID : 54062622536
Status : Answered
Chosen Option : 2

Q.47 Electrolytic type of energy meter can work in which of the following circuits?

- Ans
- ✓ 1. DC only
 - ✗ 2. DC and AC both
 - ✗ 3. Magnetic circuit
 - ✗ 4. AC only

Question ID : 54062622524
Status : Answered
Chosen Option : 2

Q.48 Which of the following is NOT one of the effects of rise in temperature on resistance?

Ans ☒ 1. Decrease in the resistance of pure metals

☐ 2. Increase in the resistance of pure metals

☐ 3. Increase in the resistance of alloys

☐ 4. Decrease in the resistance of electrolytes, insulators, etc.

Question ID : 54062622471

Status : Answered

Chosen Option : 4

Q.49 Which of the following physical quantities has a no units and no dimensions?

Ans ☐ 1. Velocity

☐ 2. Temperature gradient

☐ 3. Wavelength

☒ 4. Strain

Question ID : 54062622539

Status : Answered

Chosen Option : 4

Q.50 In simple rectilinear motion a 5 kg mass is given at constant acceleration of 3.0 m/s^2 . Find the acting force F.

Ans ☐ 1. 5 N

☒ 2. 15 N

☐ 3. 10 N

☐ 4. 20 N

Question ID : 54062622464

Status : Answered

Chosen Option : 2

Q.51 Charge velocity is defined as the:

Ans ☐ 1. holes moving at the Fermi speed

☐ 2. electrons moving at the Fermi speed

☐ 3.

speed with which the effect of EMF is experienced at all parts of the conductor resulting in the flow of current

☒ 4. speed with which charge drifts in a conductor

Question ID : 54062622467

Status : Answered

Chosen Option : 3

Q.52 Which of the following is NOT a circuit analysis method?

- Ans**
- ☒ 1. Branch current method
 - ☒ 2. Branch voltage method
 - ☒ 3. Mesh current method
 - ☒ 4. Node voltage method

Question ID : **54062622466**
Status : **Answered**
Chosen Option : **4**

Q.53 The force acting on electrons causing it to move directionally in an electrical circuit is called:

- Ans**
- ☒ 1. electromotive force
 - ☒ 2. fundamental force
 - ☒ 3. electromagnetic force
 - ☒ 4. gravitational force

Question ID : **54062622468**
Status : **Answered**
Chosen Option : **1**

Q.54 A 4-pole DC generator runs at 650 rpm and generates an EMF of 200 V. The armature is wave wound and has 750 conductors. If the total flux from each pole is 0.015 Wb, then what is the leakage coefficient?

- Ans**
- ☒ 1. 4.2
 - ☒ 2. 3.2
 - ☒ 3. 2.2
 - ☒ 4. 1.2

Question ID : **54062622493**
Status : **Answered**
Chosen Option : **4**

Q.55 A 4-pole generator having wave wound armature winding has 50 slots, each slots containing 20 conductors. What will be the voltage generated machine when driven at 1000 rpm assuming the flux per pole to be 6.0 mWb?

- Ans**
- ☒ 1. 100 V
 - ☒ 2. 250 V
 - ☒ 3. 200 V
 - ☒ 4. 150 V

Question ID : **54062622494**
Status : **Answered**
Chosen Option : **3**

Q.56 _____ uses a non-inverting amplifier and hence does NOT provide any shift during amplifier stage.

Ans  1. FET phase shift oscillator

 2. Wien bridge oscillator

 3. RC feedback oscillator

 4. Phase shift oscillator

Question ID : **54062622522**

Status : **Answered**

Chosen Option : **2**

Q.57 What is the expression of carrier mobility of a semiconductor material? (Where e is electric field, n is carrier density and σ is conductivity.)

Ans  1. $\mu = \frac{\sigma}{ne}$

 2. $\mu = \frac{ne}{\sigma}$

 3. $\mu = \frac{1}{\sigma}$

 4. $\mu = \frac{1}{ne}$

Question ID : **54062622545**

Status : **Answered**

Chosen Option : **2**

Q.58 What is the function of equalizer ring?

Ans  1.

To achieve unequal distribution of current at the brushes thereby helping to get sparkless commutation.

 2.

To avoid equal distribution of current at the brushes thereby helping to get sparkless commutation.

 3.

To avoid unequal distribution of current at the brushes thereby helping to get sparkless commutation.

 4.

To achieve equal distribution of voltage at the poles thereby helping to get sparkless commutation.

Question ID : **54062622498**

Status : **Answered**

Chosen Option : **2**

Q.59 A 15-ohm resistance has a voltage $v = 105 \sin 377t$ (V). What is the expression for instantaneous power?

- Ans
- ☒ 1. $1.5 \sin^2 377t$ (W)
 - ☒ 2. $15 \sin^2 377t$ (W)
 - ☒ 3. $835 \sin^2 377t$ (W)
 - ☒ 4. $735 \sin^2 377t$ (W)

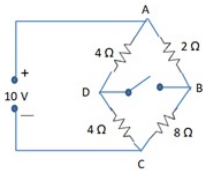
Question ID : 54062622470
Status : Answered
Chosen Option : 4

Q.60 Which of the following statements is INCORRECT?

- Ans
- ☒ 1. MOSFETs are faster than FET.
 - ☒ 2. MOSFETs are basically acts as a switch.
 - ☒ 3. MOSFETs are slower than JFET.
 - ☒ 4. MOSFETs are less noisy than FET.

Question ID : 54062622510
Status : Answered
Chosen Option : 3

Q.61 In the unbalanced bridge circuit of the given figure, find the potential difference that exists across the open switch.



- Ans
- ☒ 1. 2 V
 - ☒ 2. 3 V
 - ☒ 3. 2.5 V
 - ☒ 4. 3.5 V

Question ID : 54062622476
Status : Answered
Chosen Option : 2

Q.62 Which of the following wiring systems has the highest cost as compared to others?

- Ans**
- ✓ 1. Conduit wiring
 - ✗ 2. Casing capping wiring
 - ✗ 3. Cleat wiring
 - ✗ 4. Batten wiring

Question ID : **54062622555**
Status : **Answered**
Chosen Option : **1**

Q.63 A 25 kVA transformer has 600 turns on the primary and 60 turns in the secondary winding. The primary is connected to 2500 V, 50 Hz supply. Find the full load primary and secondary currents, respectively.

- Ans**
- ✗ 1. 11 A, 10 A
 - ✗ 2. 120 A, 120 A
 - ✓ 3. 10 A, 100 A
 - ✗ 4. 10 A, 10 A

Question ID : **54062622486**
Status : **Answered**
Chosen Option : **3**

Q.64 Calculate the percentage slip of an induction motor having 6 poles fed with 50 cycles supply rotating with an actual speed of 980 rpm.

- Ans**
- ✗ 1. 3%
 - ✗ 2. 4%
 - ✗ 3. 1%
 - ✓ 4. 2%

Question ID : **54062622558**
Status : **Answered**
Chosen Option : **4**

Q.65 The impedance of an electric circuit may be defined as:

- Ans**
- ✓ 1. the opposition of circuit to flow of alternating current
 - ✗ 2. a phenomenon in which applied voltage and resulting current are not in-phase
 - ✗ 3. the frequency at which resonance occurs
 - ✗ 4. a phenomenon in which applied voltage and resulting current are in-phase

Question ID : **54062622474**
Status : **Answered**
Chosen Option : **1**

Q.66 SCR stands for:

- Ans
- ☐ 1. Saturation Controlled Rectifier
 - ☐ 2. Silicon Carbon Rectifier
 - ☒ 3. Silicon Controlled Rectifier
 - ☐ 4. Saturation Controller Reactance

Question ID : 54062622516
Status : Answered
Chosen Option : 3

Q.67 A commutator in a DC generator is used to:

- Ans
- ☒ 1. convert the induced AC into DC
 - ☐ 2. provide desired output
 - ☐ 3. convert the induced DC into AC
 - ☐ 4. increase resultant output voltage

Question ID : 54062622496
Status : Answered
Chosen Option : 1

Q.68 A 440-V shunt motor has armature resistance of $0.9\ \Omega$ and field resistance of $180\ \Omega$. Determine the back EMF when given an output of 9 kW at 90% efficiency.

- Ans
- ☒ 1. 421.7 V
 - ☐ 2. 323.7 V
 - ☐ 3. 531.7 V
 - ☐ 4. 237.66 V

Question ID : 54062622500
Status : Answered
Chosen Option : 1

Q.69 Maximum flux density in the core of 225 V/3000 V, 50 Hz single-phase transformer is $1.3\ \text{Wb/m}^2$. If the EMF per turn is 15 v, then determine the primary and the secondary turns, respectively.

- Ans
- ☐ 1. 15, 300
 - ☐ 2. 10, 100
 - ☒ 3. 15, 200
 - ☐ 4. 10, 200

Question ID : 54062622551
Status : Answered
Chosen Option : 3

Q.70 For transmission of bulk power over long distances, which of the following is preferred?

Ans

- ✓ 1. High voltage direct current
- ✗ 2. High voltage high current
- ✗ 3. High voltage low current
- ✗ 4. Low voltage alternating current

Question ID : 54062622540

Status : Answered

Chosen Option : 1

Q.71 Which of the following states that 'In any electrical network, the algebraic sum of the currents meeting at a point (or junction) is equal to zero'?

Ans

- ✗ 1. Thevenin's theorem
- ✗ 2. Maxwell's Law
- ✗ 3. Millman's theorem
- ✓ 4. Kirchhoff's Law

Question ID : 54062622478

Status : Answered

Chosen Option : 4

Q.72 Which of the following is NOT an advantage of gravity control when compared to spring control?

Ans

- ✗ 1. It is cheap.
- ✓ 2. It gives cramped scale.
- ✗ 3. It is unaffected by temperature.
- ✗ 4. It is not subjected to fatigue or deterioration with time.

Question ID : 54062622528

Status : Answered

Chosen Option : 4

Q.73 Ferromagnetism does NOT occur in:

Ans

- ✗ 1. Ni
- ✗ 2. Co
- ✗ 3. Fe
- ✓ 4. Cu

Question ID : 54062622544

Status : Answered

Chosen Option : 4

Q.74 Which of the following is NOT a minority carrier semiconductor device?

- Ans
- ✓ 1. JFET
 - ✗ 2. IGBT
 - ✗ 3. Thyristor
 - ✗ 4. BJT

Question ID : 54062622505
Status : Answered
Chosen Option : 4

Q.75 When a transformer is used to decrease the voltage on the secondary winding with respect to the primary, it is called a:

- Ans
- ✗ 1. impedance transformer
 - ✓ 2. step down transformer
 - ✗ 3. current transformer
 - ✗ 4. step up transformer

Question ID : 54062622488
Status : Answered
Chosen Option : 2

Q.76 Which of the following is NOT a type of ammeter?

- Ans
- ✗ 1. Moving-iron type
 - ✗ 2. Moving-coil type
 - ✗ 3. Hot-wire type
 - ✓ 4. Motor meter

Question ID : 54062622523
Status : Answered
Chosen Option : 4

Q.77 In an alternating current varying sinusoidally, RMS current or effective current is defined by:

- Ans
- ✓ 1. $0.707 i_m$
 - ✗ 2. $0.14 V i_m$
 - ✗ 3. $0.707 V^2 R$
 - ✗ 4. $0.14 V^2 R$

Question ID : 54062622552
Status : Answered
Chosen Option : 1

Q.78 A light bulb is rated for 60 W, 240 V. Find the resistance of the bulb.

- Ans
- ✓ 1. 960 Ω
 - ✗ 2. 1000 Ω
 - ✗ 3. 860 Ω
 - ✗ 4. 4 Ω

Question ID : 54062622553
Status : Answered
Chosen Option : 1

Q.79 Which of the following statements is INCORRECT?

- Ans
- ✗ 1.
The physical basis of a transformer is mutual induction between two circuits.
 - ✗ 2. A transformer consists of 2 inductive coils.
 - ✓ 3. A transformer cannot raise or lower the voltage.
 - ✗ 4.
A transformer is a device that transfers electric power from one circuit to another.

Question ID : 54062622485
Status : Answered
Chosen Option : 3

Q.80 Which of the following metals is particularly suitable for operations in very high ambient temperatures?

- Ans
- ✓ 1. Aluminium
 - ✗ 2. Copper
 - ✗ 3. Gold
 - ✗ 4. Silver

Question ID : 54062622548
Status : Answered
Chosen Option : 2

Q.81 The power factor of an AC circuit is defined as the ratio of:

- Ans
- ✗ 1. A/VW
 - ✗ 2. V/WA
 - ✓ 3. W/VA
 - ✗ 4. VA/W

Question ID : 54062622526
Status : Answered
Chosen Option : 4

Q.82 Which of the following materials is widely used for small, moulded parts such as lamp holder, terminal blocks and small panels?

- Ans**
- ☐ 1. Asbestos
 - ☒ 2. Bakelite
 - ☐ 3. Cotton and silk
 - ☐ 4. Polyvinyl chloride

Question ID : **54062622550**
Status : **Answered**
Chosen Option : **2**

Q.83 LED works on which of the following principles?

- Ans**
- ☒ 1. It works on the principle of electro luminance.
 - ☐ 2.

LED is designed to experience breakdown at a specified reverse bias voltage.

- ☐ 3.
- LED is basically like an ordinary PN-junction diode but normally operated in reverse biased condition.

- ☐ 4.
- When a photon of ample energy strikes the diode, it makes a couple of electron-holes.

Question ID : **54062622506**
Status : **Answered**
Chosen Option : **4**

Q.84 What is the maximum efficiency possible in a full wave rectifier circuit?

- Ans**
- ☐ 1. 51.6%
 - ☐ 2. 72%
 - ☒ 3. 81.1%
 - ☐ 4. 41.1%

Question ID : **54062622521**
Status : **Answered**
Chosen Option : **3**

Q.85 Which of the following instruments has a property of quick response time?

- Ans**
- ☐ 1. Analogue instrument
 - ☐ 2. Electrical instrument
 - ☒ 3. Electronic instrument
 - ☐ 4. Mechanical instrument

Question ID : **54062622532**
Status : **Answered**
Chosen Option : **3**

Q.86 Which of the following are NOT passive elements?

- Ans**
- ☒ 1. Inductors
 - ☒ 2. Transistors
 - ☒ 3. Resistors
 - ☒ 4. Capacitors

Question ID : **54062622465**
Status : **Answered**
Chosen Option : **2**

Q.87 A 50-Hz, 6-pole turbo generators rated 100 MVA, 14 KV has inertia constant of 15 MJ/MVA. Find stored energy in the rotor at synchronous speed.

- Ans**
- ☒ 1. 1500 MJ
 - ☒ 2. 1000 MJ
 - ☒ 3. 100 MJ
 - ☒ 4. 150 MJ

Question ID : **54062622537**
Status : **Answered**
Chosen Option : **1**

Q.88 A DC motor takes an armature current of 130 A at 460 V. The armature circuit resistance is $0.4\ \Omega$. The machine has 6 poles and armature is lap-connected with 864 conductors, the flux per pole is 0.07 wb. Calculate the gross torque developed by the armature.

- Ans**
- ☒ 1. 1250 N-m
 - ☒ 2. 1450 N-m
 - ☒ 3. 1350 N-m
 - ☒ 4. 1500 N-m

Question ID : **54062622502**
Status : **Not Answered**
Chosen Option : **--**

Q.89 Which of the following is the correct measuring instrument type for given figure?



- Ans
- ☒ 1. Electrodynamic quotient instrument
 - ☒ 2. Device with built-in measuring rectifier
 - ☒ 3. Moving coil instrument
 - ☒ 4. Moving coil instrument with rectifier

Question ID : 54062622530
Status : Answered
Chosen Option : 4

Q.90 A DC motor takes an armature current of 100 A at 440 V. The armature circuit resistance is $0.3\ \Omega$. The machine has 6 poles and armature is lap-connected with 822 conductors, the flux per pole is 0.05 wb. Calculate the speed.

- Ans
- ☒ 1. 598.5 rpm
 - ☒ 2. 610 rpm
 - ☒ 3. 698 rpm
 - ☒ 4. 710 rpm

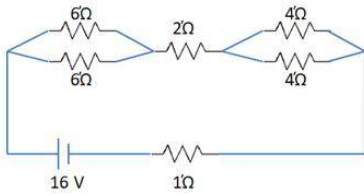
Question ID : 54062622501
Status : Answered
Chosen Option : 1

Q.91 Which of the following buses is also known as P-Q bus?

- Ans
- ☒ 1. Swing bus
 - ☒ 2. Slack bus
 - ☒ 3. Generation bus or voltage control bus
 - ☒ 4. Load bus

Question ID : 54062622542
Status : Answered
Chosen Option : 4

Q.92 A network of resistors is connected to a 16 V battery with an internal resistance of $1\ \Omega$, as shown in the figure. Compute the equivalent resistance of the network.



- Ans
- ☒ 1. $12\ \Omega$
 - ☒ 2. $8\ \Omega$
 - ☒ 3. $7\ \Omega$
 - ☒ 4. $13\ \Omega$

Question ID : **54062622472**

Status : **Answered**

Chosen Option : **3**

Q.93 Which of the following statements about domestic wiring is correct?

- Ans
- ☒ 1. The earth wire is much thicker in size and is made of copper.
 - ☒ 2. The electric power line enters our house through four wires.
 - ☒ 3. The live wire has a zero potential whereas the neutral wire has 220 volts potential.
 - ☒ 4. The red wire is the neutral wire and the black wire is the earth wire.

Question ID : **54062622556**

Status : **Answered**

Chosen Option : **1**

Q.94 Which of the following is NOT an application of shunt motor?

- Ans
- ☒ 1. Electric locomotive
 - ☒ 2. Centrifugal pumps
 - ☒ 3. For driving constant speed line shafting lathes
 - ☒ 4. Machine tools

Question ID : **54062622504**

Status : **Answered**

Chosen Option : **1**

Q.95 LASER stands for:

- Ans**
-  1. Light Amplification by Saturation Emission of Radiation
 -  2. Light Amplified by Saturated Emission of Radiation
 -  3. Light Amplified by Stimulated Emission of Radiation
 -  4. Light Amplification by Stimulated Emission of Radiation

Question ID : **54062622507**

Status : **Answered**

Chosen Option : **4**

Q.96 Which of the following statements is true for Norton's Theorem?

- Ans**
-  1.
It is used to represent a linear network by an equivalent circuit having a current source and impedance in series with it.
 -  2.
It is used to represent a linear network by an equivalent circuit having a voltage source and impedance in series with it.
 -  3.
It is used to represent a linear network by an equivalent circuit having a voltage source and impedance in parallel with it.
 -  4.
It is used to represent a linear network by an equivalent circuit having a current source and impedance in parallel with it.

Question ID : **54062622469**

Status : **Answered**

Chosen Option : **4**