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# **TSPSC AE & JTO**

**Previous Year Paper  
(EEE)**

**20 Oct, 2023 Shift 2**



## TCSiON CAE

**Notations :**

1. Options shown in **green** color and with  icon are correct.
2. Options shown in **red** color and with  icon are incorrect.

**Question Paper Name :**

 PC22165 ELECTRICAL AND ELECTRONICS  
ENGINEERING AE2216 20th Oct 23 S2

**Subject Name :**

 PC22165 ELECTRICAL AND ELECTRONICS  
ENGINEERING AE2216

**Actual Answer Key :**

Yes

**Calculator :**

None

**Magnifying Glass Required? :**

No

**Ruler Required? :**

No

**Eraser Required? :**

No

**Scratch Pad Required? :**

No

**Rough Sketch/Notepad Required? :**

No

**Protractor Required? :**

No

**Show Watermark on Console? :**

Yes

**Highlighter :**

No

**Auto Save on Console?**

Yes

**Change Font Color :**

No

**Change Background Color :**

No

**Change Theme :**

No

**Help Button :**

No

**Show Reports :**

No

**Show Progress Bar :**

No

**Is this Group for Examiner? :**

No

**Examiner permission :**

Cant View

**Show Progress Bar? :**

No

### ELECTRICAL AND ELECTRONICS ENGINEERING

**Section type :**

Online

**Section Negative Marks :**

0

**Enable Mark as Answered Mark for Review and Clear Response :**

Yes

**Maximum Instruction Time :**

0

**Is Section Default? :**

null

**Question Number : 1 Question Id : 630680412116 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**
**Consider the following statements:**

A. Resistance is directly proportional to the cross-sectional area of the conductor.

B. Resistance of an insulating material increases with increase in temperature.

**Choose the correct answer:**
**Options :**

 1.  A only

2. ✘ B only

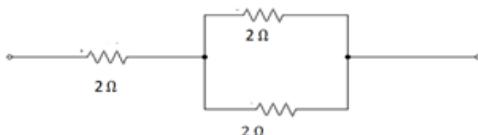
3. ✘ Both A and B

4. ✓ Neither A nor B

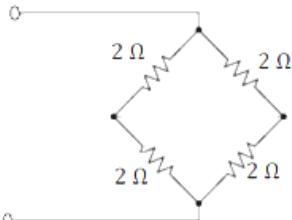
**Question Number : 2 Question Id : 630680412117 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

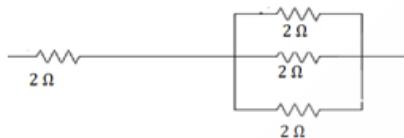
Arrange the effective resistance of the following circuits in increasing order.



A.



B.



C.

**Options :**

1. ✘ A, B, C

2. ✓ B, C, A

3. ✘ C, A, B

4. ✘ C, B, A

**Question Number : 3 Question Id : 630680412118 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements:

- A. Nickel-iron cell is a primary cell.
- B. Leclanche cell is a secondary cell.

Choose the correct answer.

Options :

- 1. ✘ A only
- 2. ✘ B only
- 3. ✘ Both A and B
- 4. ✓ Neither A nor B

**Question Number : 4 Question Id : 630680412119 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following methods are used for preparation of the plates of a lead acid battery?

Options :

- 1. ✘ Plante process and Shedding process
- 2. ✘ Shedding process and Faure process
- 3. ✓ Plante process and Faure process
- 4. ✘ Perforated process and Shedding process

**Question Number : 5 Question Id : 630680412120 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the followings for indication of a fully discharged lead – acid cell:

- A. Both the plates become Lead peroxide ( $PbO_2$ ).
- B. The electrolyte shows a slight milky appearance.

Choose the correct answer.

Options :

- 1. ✘ A only
- 2. ✓ B only
- 3. ✘ Both A and B
- 4. ✘ Neither A nor B

**Question Number : 6 Question Id : 630680412121 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following statement INCORRECT for a Nickel-iron cell?

**Options :**

1.  It is exclusively used where mechanical vibrations are severe.
2.  It is not affected by corrosive liquids and fumes.
3.  Its cost is lower compared to lead-acid cell.
4.  It can withstand high charge currents.

**Question Number : 7 Question Id : 630680412122 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Mesh in a network circuit is defined as:

**Options :**

1.  A path that connects two nodes.
2.  A loop that does not contain any other loops within it.
3.  A node where only two elements are joined.
4.  A node where three or more elements are joined.

**Question Number : 8 Question Id : 630680412123 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the followings for a parallel AC circuit consists of three branches with  $B$  = total susceptance,  $G$  = Total conductance and  $Y$  = Total admittance.

A.  $B = B_1 + B_2 + B_3$ , where  $B_1$ ,  $B_2$  and  $B_3$  are susceptance of each branch.

B.  $B = \sqrt{Y^2 + G^2}$

C. Units of susceptance is Siemens.

D. Phase angle  $\theta = \frac{G}{Y}$

Choose the correct answer:

**Options :**

1.  A and B only
2.  A and C only
3.  A, B and C only

4. ✘ A, C and D only

**Question Number : 9 Question Id : 630680412124 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements:

- A. Delta connection is most suitable for rotary convertors.
- B. Most of 3- phase induction motors are star connected.
- C. Delta connection has higher reliability comparing to star connection.

Choose the correct statements.

**Options :**

- 1. ✘ A and B only
- 2. ✘ B and C only
- 3. ✓ A and C only
- 4. ✘ A, B and C

**Question Number : 10 Question Id : 630680412125 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the followings are the conditions for buildup of EMF in a self - excited DC generator:

- A. There must be some residual magnetism in the generator poles.
- B. The field coil should be connected such that the flux produced by the exciting current flowing through them must be in opposite direction of residual magnetic flux.
- C. In DC shunt generator, the field resistance must be less than that of critical field resistance.
- D. In DC series generator, the external load resistance should be less than the critical field resistance.

Choose the correct answer:

**Options :**

- 1. ✘ A, B and C only
- 2. ✘ A, B and D only
- 3. ✓ A, C and D only
- 4. ✘ B, C and D only

**Question Number : 11 Question Id : 630680412126 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is a mechanical loss in the DC generator?

**Options :**

1.  Windage losses
2.  Eddy current losses
3.  Copper losses
4.  Armature losses

**Question Number : 12 Question Id : 630680412127 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0****Correct Marks : 1 Wrong Marks : 0**

Net reduction in the main flux due to armature reaction is called as:

**Options :**

1.  Residual magnetism
2.  Magnetic susceptibility
3.  Cross magnetizing effect
4.  Demagnetizing effect

**Question Number : 13 Question Id : 630680412128 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0****Correct Marks : 1 Wrong Marks : 0**

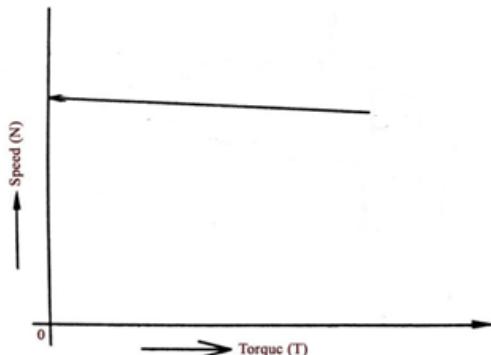
The energy conversion in a DC motor is possible due to:

**Options :**

1.  Armature reaction
2.  Commutation
3.  Back emf
4.  Eddy current

**Question Number : 14 Question Id : 630680412129 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0****Correct Marks : 1 Wrong Marks : 0**

Identify the type of DC motors having following Speed-Torque characteristics.



Options :

1. ✘ Series motor
2. ✓ Shunt motor
3. ✘ Cumulative compound motor
4. ✘ Differential compound motor

Question Number : 15 Question Id : 630680412130 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Arrange the followings in increasing order for magnitude the starting torque:

- A. DC Series motor
- B. DC Shunt motor
- C. DC compound motor

Options :

1. ✘ A, B, C
2. ✓ B, C, A
3. ✘ C, B, A
4. ✘ A, C, B

Question Number : 16 Question Id : 630680412131 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT TRUE for Swinburne's test?

Options :

1. ✘ Swinburne's test is applicable to those machines in which the flux is practically constant.
2. ✘ Efficiency can be predetermined for any load.

3.  Iron losses are taken into account.

4.  It is economical and convenient as the power required to test a large machine is small.

**Question Number : 17 Question Id : 630680412132 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following effect is used in Bolometer measuring instruments?

**Options :**

1.  Chemical effect

2.  Electrostatic effect

3.  Induction effect

4.  Thermal effect

**Question Number : 18 Question Id : 630680412133 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following pairs:

A. Dynamometer type instruments : Sensitive to overloads.

B. Attraction type moving iron type instruments : Robust construction.

C. Repulsion type moving iron type instruments : No Hysteresis loss.

D. Moving coil instruments : Uniform scales

Choose the correct answer.

**Options :**

1.  A, B and C only

2.  B, C and D only

3.  A, C and D only

4.  A, B and D only

**Question Number : 19 Question Id : 630680412134 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is NOT TRUE for a shaded pole type induction meter?

**Options :**

1.  Suitable only for AC

2.  Poor damping

3.  High power consumption

4.  Full scale deflection of over  $300^\circ$  can be obtained

**Question Number : 20 Question Id : 630680412135 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following method is used for correction of Creeping error in single phase induction type energy meters?

**Options :**

1.  Shading loop

2.  Magnetic shunt

3.  Lag plate

4.  Holes on disc

**Question Number : 21 Question Id : 630680412136 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following statement is NOT true for Weston Synchroscope?

**Options :**

1.  At the correct instant of synchronism, the pointer is at horizontal position.

2.  When the frequency of incoming machine is different from the bus bar frequency, the lamp will flicker and flickering rate depends on the difference in frequencies.

3.  When two voltages are  $180^\circ$  out of phase the lamp does not glow.

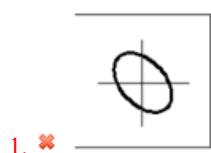
4.  When the two voltages are in phase the lamp glows bright.

**Question Number : 22 Question Id : 630680412137 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

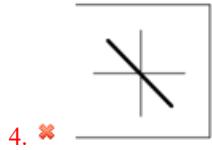
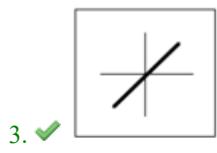
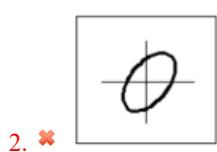
**Correct Marks : 1 Wrong Marks : 0**

Identify the Lissajous figure in CRO when the phase difference between the horizontal voltage and vertical deflection voltage is 0 V.

**Options :**



1.



**Question Number : 23 Question Id : 630680412138 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements.

- A. For open circuit test of the transformer the LV side is connected to AC supply through ammeter, wattmeter and variac whereas the other side of the transformer is kept open.
- B. For short circuit test of the transformer the HV side is connected to AC supply through variac, ammeter and voltmeter whereas the other side is short circuited with the help of thick copper wire or solid link.

Choose the correct answer:

**Options :**

- 1. ❌ A only
- 2. ❌ B only
- 3. ✓ Both A and B
- 4. ❌ Neither A nor B

**Question Number : 24 Question Id : 630680412139 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following statement is NOT TRUE for Auto transformers, comparing to two winding transformers?

**Options :**

- 1. ❌ Saving in conductor cost.
- 2. ❌ Reduce in power loss.
- 3. ✓ Decrease in KVA rating.
- 4. ❌ Better voltage regulation.

**Question Number : 25 Question Id : 630680412140 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following connection is used for Handling of large unbalanced loads?

**Options :**

1.  Delta-Delta connection

2.  Delta-Star connection

3.  Star-Star connection

4.  Star-Delta connection

**Question Number : 26 Question Id : 630680412141 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements.

A. Revolving-armature type of alternator are usually of relatively small KVA capacity and low-voltage rating.

B. Power delivered to the field circuit in revolving-field type of alternator is relatively high.

Choose the correct Statement.

**Options :**

1.  Only A

2.  Only B

3.  Both A and B

4.  Neither A nor B

**Question Number : 27 Question Id : 630680412142 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In the case of small alternators, the regulation may be found by:

**Options :**

1.  Zero power factor or Potier method

2.  Synchronous Impedance or E.M.F. Method

3.  The Ampere-turn or M.M.F. Method

4.  Direct loading method

**Question Number : 28 Question Id : 630680412143 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements.

- A. For constant supply frequency Synchronous motors behave as constant speed motor irrespective of load condition.
- B. Synchronous motors have the unique characteristics of operating under any electrical power factor.

Choose the correct answer:

**Options :**

1. ✘ A only
2. ✘ B only
3. ✓ Both A and B
4. ✘ Neither A nor B

**Question Number : 29 Question Id : 630680412144 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider following pair of statements for slip ring induction motor.

- A. Addition of resistance in rotor : Not possible
- B. Starting torque : Can be high
- C. Maintenance requirements : frequently
- D. Application : Drilling machine

Choose the correct answer:

**Options :**

1. ✘ A and B only
2. ✓ B and C only
3. ✘ C and D only
4. ✘ A, B, C, D

**Question Number : 30 Question Id : 630680412145 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

For starting of squirrel cage induction motor \_\_\_\_\_ percent of rated voltage is applied during starting in using primary resistor method of starting.

**Options :**

1. ✘ 42
2. ✘ 58

3. ✘ 65

4. ✓ 70

**Question Number : 31 Question Id : 630680412146 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Match the following statements for application of different types of motor.

A. Shaded pole induction motor	1. Fans and blowers in heaters and air conditioners.
B. Permanent split capacitor motor	2. Small instruments like hair dryer and toys.
C. Capacitor start induction motor	3. fans, blowers, centrifugal pumps, washing machine, grinder, lathes.
D. Split phase induction motor	4. conveyors, grinder, air conditioners, compressor.

Choose the correct answer.

**Options :**

1. ✘ A-2, B-3, C-4, D-1

2. ✓ A-2, B-1, C-4, D-3

3. ✘ A-3, B-4, C-1, D-2

4. ✘ A-3, B-1, C-4, D-2

**Question Number : 32 Question Id : 630680412147 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following pairs for Permanent magnet brushless motors.

A. Peripheral rotor : Permanent magnet flux is radial.

B Interior rotor : Permanent magnet flux is centripetal.

C. Claw pole rotor : Permanent magnet flux is axial.

D. Transverse rotor : Permanent magnet flux is circumferential.

Choose the correct answer:

**Options :**

1. ✘ A, B and C only

2. ✘ B, C and D only

3.  A, C and D only

4.  A, B and D only

**Question Number : 33 Question Id : 630680412148 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange the followings according to their frequencies of operation in increasing order.

A. Class A amplifiers.

B. Class AB amplifiers.

C. Class B amplifiers

D. Class C amplifiers.

**Options :**

1.  A, B, C, D

2.  A, C, B, D

3.  B, A, D, C

4.  B, C, D, A

**Question Number : 34 Question Id : 630680412149 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange the following numbers in increasing order of their decimal equivalent.

A.  $(1110010)_2$

B.  $(137)_8$

C.  $(1E0)_{16}$

D.  $(112)_{10}$

**Options :**

1.  A, B, C, D

2.  B, C, D, A

3.  A, D, C, B

4.  B, D, A, C

**Question Number : 35 Question Id : 630680412150 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements.

- A. Under any conditions, in a T flip-flop the frequency of the signal at the Q output is double the frequency of the signal applied at the T input.
- B. A D flip-flop can be used to provide temporary storage of two bits of information.

Choose the correct answer.

**Options :**

- 1. ✘ A only
- 2. ✘ B only
- 3. ✘ Both A and B
- 4. ✓ Neither A nor B

**Question Number : 36 Question Id : 630680412151 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If  $t_{pd}$  is the propagation delay in each flip-flop, then, in a ripple counter with N flip-flops having a modulus of less than or equal to  $2N$ , the maximum usable clock frequency is given by  $f_{max}$  is:

**Options :**

- 1. ✓  $f_{max} = \frac{1}{Nt_{pd}}$ .
- 2. ✘  $f_{max} = \frac{1}{2Nt_{pd}}$ .
- 3. ✘  $f_{max} = Nt_{pd}$
- 4. ✘  $f_{max} = 2Nt_{pd}$

**Question Number : 37 Question Id : 630680412152 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

An eight-bit D/A converter have an approximate resolution of \_\_\_\_\_ mV for a full scale output of 5 V.

**Options :**

- 1. ✘ 10
- 2. ✓ 20
- 3. ✘ 40
- 4. ✘ 100

**Question Number : 38 Question Id : 630680412153 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A certain microcontroller with 8 MHz clock, has an on-chip 16-bit counter/timer system. The clock signal time period is:

**Options :**

1.  0.125  $\mu$ s

2.  1.25  $\mu$ s

3.  2.5  $\mu$ s

4.  5  $\mu$ s

**Question Number : 39 Question Id : 630680412154 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following pair of statements.

A. NOP : Machine control instruction

B. RET : Arithmetic instruction

C. RRC : Logic instruction

D. DCR R : Program control instruction

Choose the correct answer:

**Options :**

1.  A and C only

2.  A and D only

3.  B and C only

4.  B and D only

**Question Number : 40 Question Id : 630680412155 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is a conventional source of energy?

**Options :**

1.  Bio-mass based energy

2.  Nuclear energy

3.  Geothermal energy

4.  Tidal energy

**Question Number : 41 Question Id : 630680412156 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange the following power plants in increasing order of their efficiency.

A. Diesel power plant

B. Hydel power plant

C. Nuclear power plant

D. Steam power plant

**Options :**

1.  A, D, B, C

2.  D, A, C, B

3.  A, D, C, B

4.  D, A, B, C

**Question Number : 42 Question Id : 630680412157 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements.

A. Greater part of power developed by the turbine of gas power station is used for driving compressor.

B. The temperature of combustion chamber of gas power station is around  $3000^{\circ}$  F.

C. The initial and operating costs of gas power station are much lower than that of equivalent steam power station.

D. Gas power station is much smaller in size as compared to steam power station of the same capacity.

Choose the correct answer.

**Options :**

1.  A, B and C only

2.  A, B and D only

3.  B, C and D only

4.  A, B, C, D

**Question Number : 43 Question Id : 630680412158 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Making capacity of circuit breaker is defined as:

**Options :**

1. ❌  $\sqrt{2} \times$  Symmetrical breaking capacity
2. ❌  $\sqrt{3} \times$  Symmetrical breaking capacity
3. ✓  $1.8 \times \sqrt{2} \times$  Symmetrical breaking capacity
4. ❌  $1.8 \times \sqrt{3} \times$  Symmetrical breaking capacity

**Question Number : 44 Question Id : 630680412159 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange the following metals in decreasing order of their fusing constant.

A. Aluminum

B. Copper

C. Lead

D. Tin

**Options :**

1. ❌ A, B, C, D
2. ✓ B, A, D, C
3. ❌ B, A, C, D
4. ❌ A, B, D, C

**Question Number : 45 Question Id : 630680412160 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements.

- A. Time-distance relay operates instantaneously for fault up to a pre-determined distance from the relay.
- B. Definite-distance relay operates in time proportional to the distance of fault from the relay point.

Choose the correct answer.

**Options :**

1. ❌ A only
2. ❌ B only
3. ❌ Both A and B

4.  Neither A nor B

**Question Number : 46 Question Id : 630680412161 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Match the following statements.

List 1	List 2
A. Skin effect	1. Power loss
B. Ferranti Effect	2. Crowding of current near the conductor surface
C. Corona effect	3. Receiving end voltage is higher than that of sending end

Choose the correct answer.

**Options :**

1.  A-1, B-2, C-3

2.  A-2, B-3, C-1

3.  A-3, B-1, C-2

4.  A-3, B-2, C-1

**Question Number : 47 Question Id : 630680412162 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements for HVDC transmission.

A. A substation having more than two converter stations and one transmission line is called a point-to-point system.

B. A substation having more than two converter stations and interconnecting DC terminal line is called bipolar system.

Choose the correct answer.

**Options :**

1.  A only

2.  B only

3.  Both A and B

4.  Neither A nor B

**Question Number : 48 Question Id : 630680412163 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is NOT a desirable property of conductor material for overhead transmission line?

**Options :**

1. ✘ High electrical conductivity
2. ✓ High specific gravity
3. ✘ High tensile strength
4. ✘ Low cost

**Question Number : 49 Question Id : 630680412164 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Pipe ventilated enclosure is applied to electrical motors if:

**Options :**

1. ✘ The motor has to work in explosive atmosphere.
2. ✘ Admission of air from outside is not permissible.
3. ✓ The motor is used in chemical works, flour, cement works.
4. ✘ The motor is used for general in workshop.

**Question Number : 50 Question Id : 630680412165 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements for lowering the soil resistance at earthing point.

A. Increase in electrode area.

B. Increase in pit depth.

C. Electrodes in series.

Choose the correct answer:

**Options :**

1. ✓ A and B only
2. ✘ B and C only
3. ✘ A and C only
4. ✘ A, B, C

**Question Number : 51 Question Id : 630680412166 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The basic physical principles used in optical luminaire are:

**Options :**

1. ✘ Reflection, absorption, conduction, and refraction.
2. ✓ Reflection, absorption, transmission, and refraction.
3. ✘ Reflection, absorption, convention, and refraction.
4. ✘ Reflection, absorption, condensation, and refraction.

**Question Number : 52 Question Id : 630680412167 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange the illumination level required for the following works in decreasing order.

- A. Color matching (paint work).
- B. Control panel (fine chemical manufacturers).
- C. Process plant with remote control (Petroleum, Chemical and Petrochemical works).
- D. Grinding, granulating, mixing, drying, tableting (Pharmaceutical manufacturer).

**Options :**

1. ✘ D, A, B, C
2. ✘ D, A, C, B
3. ✓ A, D, B, C
4. ✘ A, D, C, B

**Question Number : 53 Question Id : 630680412168 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following electric drives is noiseless, slipless and smooth in operation?

**Options :**

1. ✘ Rope drive
2. ✘ Direct drive
3. ✘ Belt drive
4. ✓ Chain drive

**Question Number : 54 Question Id : 630680412169 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Consider the following statements.

- A. Dynamic braking is used where deceleration speeds vary or energy dissipation is required periodically.
- B. Regenerative braking is used where the motor is stopped frequently or the deceleration time is fixed.

Choose the correct answer:

Options :

- 1.  A only
- 2.  B only
- 3.  Both A and B
- 4.  Neither A nor B

**Question Number : 55 Question Id : 630680412170 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In resistance firing circuit for SCR, the triggering angle is limited to:

Options :

- 1.  45 degree
- 2.  90 degree
- 3.  180 degree
- 4.  270 degree

**Question Number : 56 Question Id : 630680412171 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange the following semiconductor devices according to their switching frequency from low to high.

A. BJT

B. SCR

C. IGBT

D. MOSFET

Options :

- 1.  A, B, C, D
- 2.  B, C, D, A
- 3.  A, D, B, C

4.  B, A, C, D

**Question Number : 57 Question Id : 630680412172 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Class E chopper operates in:

**Options :**

1.  One quadrant
2.  Two quadrants
3.  Three quadrants
4.  Four quadrants

**Question Number : 58 Question Id : 630680412173 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A  $250\ \Omega$  resistor is connected with a DC source of 10 V. Calculate the current through the resistor.

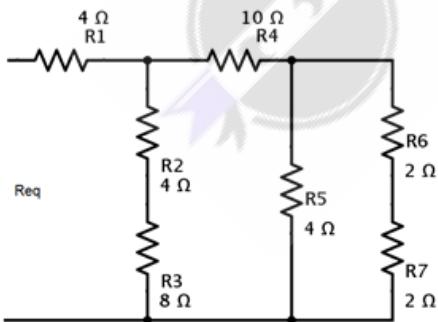
**Options :**

1.  4 mA
2.  40 mA
3.  400 mA
4.  4000 mA

**Question Number : 59 Question Id : 630680412174 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Calculate the equivalent resistance in the following circuit:



**Options :**

1.  16 Ω
2.  14 Ω
3.  12 Ω

4.  10  $\Omega$ 

**Question Number : 60 Question Id : 630680412175 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

What should be the specific gravity of electrolyte in a fully charged lead-acid battery?

**Options :**

1.  1.66 to 1.70

2.  1.46 to 1.50

3.  1.26 to 1.30

4.  1.06 to 1.10

**Question Number : 61 Question Id : 630680412176 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

During the discharging of lead-acid battery the plates of cells are converted into Lead Sulfate which is \_\_\_\_\_ in colour.

**Options :**

1.  Whitish

2.  Chocolate brown

3.  Gray

4.  Black

**Question Number : 62 Question Id : 630680412177 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to electrostatics state TRUE / FALSE for following statements:

1. The unit of electric field intensity is coulombs / newton.

2. The force between two charged bodies placed near each other is directly proportional to the square of the distance between them.

**Options :**

1.  1-True; 2-True

2.  1-False; 2-False

3.  1-True; 2-False

4.  1-False; 2-True

**Question Number : 63 Question Id : 630680412178 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to electromagnetic induction, which of the following statements are correct?

- A. The direction of self-induced e.m.f. is opposite to that of the applied voltage.
- B. Mutually induced e.m.f. is basically a dynamically induced e.m.f.
- C. For magnetically isolated coils the coefficient of coupling is zero.
- D. The unit of mutual inductance is henry.

**Options :**

1. ✘ Statement A and Statement B only
2. ✘ Statement A, Statement B and Statement C only
3. ✘ Statement B, Statement C and Statement D only
4. ✓ Statement A, Statement C and Statement D only

**Question Number : 64 Question Id : 630680412179 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Match the type of cell with the associated electrolyte used:

A. Laclanche cell	1. Lithium salt
B. Mercury cell	2. Sulfuric acid
C. Lead-acid cell	3. Potassium hydroxide
D. Lithium cell	4. Ammonium chloride

**Options :**

1. ✘ A-2, B-4, C-1, D-3
2. ✓ A-4, B-3, C-2, D-1
3. ✘ A-3, B-4, C-2, D-1
4. ✘ A-4, B-3, C-1, D-2

**Question Number : 65 Question Id : 630680412180 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to charging process of a car battery arrange following steps in chronological order:

- A. Turn off the charger.
- B. Remove the battery from the car.
- C. Connect the charger cables with appropriate battery terminals.
- D. Clean the battery terminals and add distilled water to each cell, if needed.
- E. Turn on the charger and set desired charge rate.

**Options :**

1. ✓ B-D-C-E-A
2. ✘ B-E-D-C-A

3. ✘ B-C-E-D-A

4. ✘ E-B-C-D-A

**Question Number : 66 Question Id : 630680412181 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A 200 V, variable frequency supply drives a series RLC circuit, comprising of resistance  $R = 20 \Omega$ , inductance  $L = 0.5 \text{ H}$  and capacitance  $C = 0.1 \mu\text{F}$ . Calculate the current in the circuit at resonance.

**Options :**

1. ✘ 5 A

2. ✓ 10 A

3. ✘ 15 A

4. ✘ 20 A

**Question Number : 67 Question Id : 630680412182 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is WRONG for parallel resonance circuit?

**Options :**

1. ✘ Power factor is unity.

2. ✓ Net susceptance is infinity.

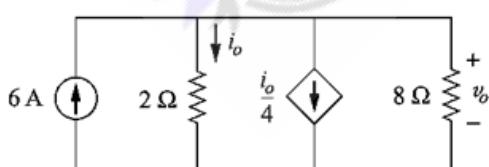
3. ✘ In parallel resonance circuit, current amplification takes place.

4. ✘ At resonance, line current is minimum.

**Question Number : 68 Question Id : 630680412183 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Find the voltage ' $v_o$ ' in following circuit:



**Options :**

1. ✘ 4 V

2. ✓ 8 V

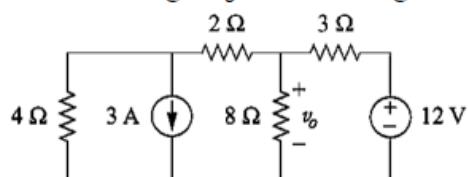
3. ✘ 12 V

4. ✘ 16 V

**Question Number : 69 Question Id : 630680412184 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Find the voltage ' $v_o$ ' in following circuit:



**Options :**

1. ✘ 12 V

2. ✘ 8 V

3. ✓ 3.2 V

4. ✘ 1.6 V

**Question Number : 70 Question Id : 630680412185 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

State TRUE / FALSE for following statements:

1. In a polyphase circuit, if the load is purely resistive, power factor is unity.
2. In a star connected three-phase system, line voltage is equal to the phase voltage.

**Options :**

1. ✘ 1-True; 2-True

2. ✓ 1-True; 2-False

3. ✘ 1-False; 2-False

4. ✘ 1-False; 2-True

**Question Number : 71 Question Id : 630680412186 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to the comparison between single-phase and three-phase supply, which of the following statements are correct?

- A. Three-phase supply is more reliable than single-phase supply.
- B. Three-phase supply is also known as split-phase supply.
- C. Efficiency of single-phase supply is higher than that of three-phase supply.

**Options :**

1. ✓ Only statement-A is correct

2. ✘ Only statement-A and statement-B are correct
3. ✘ Only statement-A and statement-C are correct
4. ✘ Only statement-B is correct

**Question Number : 72 Question Id : 630680412187 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Match each network theorem with its most unique feature:

A. Norton's theorem	1. Applicable to only single source network
B. Superposition theorem	2. Resultant network has one voltage source and a series resistance
C. Thevenin's theorem	3. Can not be applied for power calculation
D. Reciprocity theorem	4. Resultant network has one current source and a parallel resistance

**Options :**

1. ✘ A-2, B-3, C-4, D-1
2. ✓ A-4, B-3, C-2, D-1
3. ✘ A-4, B-1, C-2, D-3
4. ✘ A-1, B-4, C-2, D-3

**Question Number : 73 Question Id : 630680412188 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Identify the correct pairs of AC signal and the corresponding frequency of the signal:

- A.  $v(t) = 10 \sin 314t$  : frequency = 60 Hz
- B.  $v(t) = 20 \cos 80\pi t$  : frequency = 40 Hz
- C.  $i(t) = 30 \sin 100\pi t$  : frequency = 25 Hz
- D.  $i(t) = 40 \cos 628t$  : frequency = 100 Hz

**Options :**

1. ✘ A and B only
2. ✘ B and C only
3. ✘ C and D only
4. ✓ B and D only

**Question Number : 74 Question Id : 630680412189 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange following signals in descending order with reference to their peak amplitudes:

- A.  $v(t) = 30 + 20 \cos 80\pi t$
- B.  $v(t) = 20 + 25 \cos 40\pi t$
- C.  $v(t) = 10 + 50 \cos 80\pi t$
- D.  $v(t) = 55 \cos 80\pi t$

**Options :**

1.  C, D, A, B
2.  B, A, D, C
3.  D, C, B, A
4.  A, B, C, D

**Question Number : 75 Question Id : 630680412190 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In a 6-pole lap wound DC machine, the number of brushes required is \_\_\_\_\_.

**Options :**

1.  2
2.  4
3.  6
4.  12

**Question Number : 76 Question Id : 630680412191 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is NOT a correct method of improving commutation in DC generator?

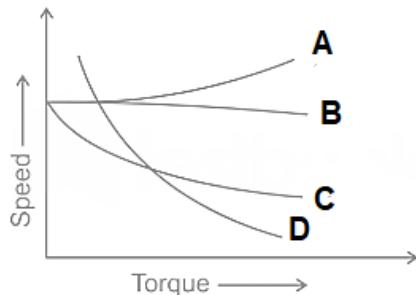
**Options :**

1.  Resistance commutation
2.  Capacitance commutation
3.  Voltage commutation
4.  Compensating windings

**Question Number : 77 Question Id : 630680412192 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The speed-torque characteristics of different DC motors are shown in following figure. The characteristic curve denoted by 'B' is for \_\_\_\_\_.



Options :

1.  Shunt motor
2.  Series motor
3.  Differential compound motor
4.  Cumulative compound motor

**Question Number : 78 Question Id : 630680412193 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A DC series motor develops a torque of 5 Nm when the load current is 1 A. If the load current is increased to 2 A, the developed torque will be \_\_\_\_\_.

Options :

1.  2.5 Nm
2.  5 Nm
3.  10 Nm
4.  20 Nm

**Question Number : 79 Question Id : 630680412194 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The armature resistance of a 200 V shunt motor is  $0.5 \Omega$  and no-load current is 2 A. when loaded and taking an armature current of 50 A, the speed is 1225 r.p.m. Find the no-load speed.

Options :

1.  1393 r.p.m.
2.  1592 r.p.m.
3.  1791 r.p.m.
4.  1194 r.p.m.

**Question Number : 80 Question Id : 630680412195 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

State TRUE / FALSE for following statements related to the armature mmf wave in DC machine:

1. The mmf waveform has a triangular shape.
2. The armature mmf is stationary with respect to field poles.

**Options :**

1.  1-False; 2-False

2.  1-True; 2-True

3.  1-True; 2-False

4.  1-False; 2-True

**Question Number : 81 Question Id : 630680412196 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to testing of DC motors, which of the following statements are correct:

- A. Hopkinson's test is also called regenerative test.
- B. Hopkinson's test requires two identical DC machines.
- C. Swinburne's test is not applicable for shunt machines.
- D. In Hopkinson's test stray losses are not considered.

**Options :**

1.  A, B and C only

2.  A, B and D only

3.  A and B only

4.  C and D only

**Question Number : 82 Question Id : 630680412197 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Match different types of DC motor with its suitable application:

A. Shunt motor	1. Traction system
B. Series motor	2. Lathe machine
C. Differential compound motor	3. Rolling mill
D. Cumulative compound motor	4. Not suitable for practical application

**Options :**

1.  A-4, B-3, C-1, D-2

2.  A-2, B-4, C-1, D-3

3. ✘ A-2, B-3, C-4, D-1

4. ✓ A-2, B-1, C-4, D-3

**Question Number : 83 Question Id : 630680412198 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

From the following pairs, identify the correct pairs of category of losses and the losses covered under the same category in DC machine:

- A. Core losses : Hysteresis losses
- B. Electrical losses : Armature copper losses
- C. Stray-load losses : Frictional losses
- D. Mechanical losses : windage losses

**Options :**

1. ✓ A, B and D only

2. ✘ A, B and C only

3. ✘ B, C and D only

4. ✘ A, C and D only

**Question Number : 84 Question Id : 630680412199 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A voltmeter used to measure a voltage of 200 V reads 199 V. Find the percentage error.

**Options :**

1. ✘ 0.0005%

2. ✘ 0.005%

3. ✘ 0.05%

4. ✓ 0.5%

**Question Number : 85 Question Id : 630680412200 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The minimum number of wattmeter(s) required to measure power in 3-phase, 4-wire system is \_\_\_\_\_.

**Options :**

1. ✘ One

2. ✘ Two

3. ✓ Three

## 4. ❌ Four

**Question Number : 86 Question Id : 630680412201 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is NOT a valid advantage of moving iron instruments?

**Options :**

1. ❌ Simple and robust design
2. ✓ No hysteresis losses
3. ❌ Can measure AC as well as DC
4. ❌ Low cost

**Question Number : 87 Question Id : 630680412202 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In Weston Synchroscope, if the frequency of the incoming alternator is different from the supply frequency of the bus bars, then:

**Options :**

1. ❌ The lamp will not turn ON
2. ❌ The lamp will be fully and consistently ON
3. ❌ The lamp will burn out
4. ✓ The lamp will flicker

**Question Number : 88 Question Id : 630680412203 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A potentiometer wire of length 100 cm has a resistance of  $30 \Omega$ . It is connected in series with a resistance of  $20 \Omega$  and an accumulator of emf 10 V having negligible internal resistance. A source of 3 V is balanced against a length 'L' of the potentiometer wire. Find the value of 'L'.

**Options :**

1. ✓ 50 cm
2. ❌ 40 cm
3. ❌ 30 cm
4. ❌ 20 cm

**Question Number : 89 Question Id : 630680412204 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

State TRUE / FALSE for following statements:

A. Hay's bridge is used for the measurement of inductors having  $Q < 5$ .  
 B. Wein bridge may be difficult to balance because of its frequency sensitivity.

**Options :**

1.  A-True; B-True  
 2.  A-True; B-False  
 3.  A-False; B-False  
 4.  A-False; B-True

**Question Number : 90 Question Id : 630680412205 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to the digital voltmeter, which of the following statements are correct?

A. The accuracy of digital voltmeter is better than analog voltmeter.  
 B. Digital voltmeter suffers from parallax error.  
 C. The input impedance of digital voltmeter is very low.  
 D. Digital voltmeter is more stable and reliable than analog voltmeter.

**Options :**

1.  Only statements A and B are correct  
 2.  Only statements A and C are correct  
 3.  Only statements A and D are correct  
 4.  Only statements B and C are correct

**Question Number : 91 Question Id : 630680412206 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Match the parameter being measured and the suitable sensor or transducer used for measurement of the parameter:

A. Temperature	1. Barometer
B. Flow	2. Hygrometer
C. Pressure	3. Pyrometer
D. Humidity	4. Rotameter

**Options :**

1.  A-4, B-3, C-1, D-2  
 2.  A-3, B-4, C-1, D-2  
 3.  A-3, B-4, C-2, D-1

4. ✘ A-2, B-3, C-4, D-1

**Question Number : 92 Question Id : 630680412207 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A pressure reading is measured with the help of four pressure gauges with different accuracies, as listed below. If the full scale is 5000 psi, then arrange the pressure gauges in descending order considering the magnitude of error in the measurement made:

- A. pressure gauge with accuracy of 0.5% of full scale.
- B. pressure gauge with accuracy of 0.1% of full scale.
- C. pressure gauge with accuracy of 0.2% of full scale.
- D. pressure gauge with accuracy of 1% of full scale.

**Options :**

1. ✓ D-A-C-B

2. ✘ A-D-B-C

3. ✘ B-C-A-D

4. ✘ D-B-A-C

**Question Number : 93 Question Id : 630680412208 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

An unknown voltage is measured with the help of dual slope integrating DVM. Arrange following parts of the DVM in chronological order starting from application of unknown voltage to the input:

- A. Zero detector
- B. Display
- C. Integrator
- D. logic gate

**Options :**

1. ✘ C-D-A-B

2. ✓ C-A-D-B

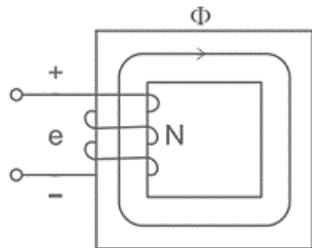
3. ✘ D-C-A-B

4. ✘ D-A-C-B

**Question Number : 94 Question Id : 630680412209 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A single-phase 111 V, 50 Hz supply is connected to a coil with 100 turns of a coil-core assembly as shown below. Find the magnitude of maximum flux in the core.



Options :

1. ✘ 10 mWb
2. ✘ 7.5 mWb
3. ✓ 5 mWb
4. ✘ 2.5 mWb

Question Number : 95 Question Id : 630680412210 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 5 kVA, 50 V/100 V, single-phase transformer has a secondary terminal voltage of 98 V when fully loaded. The regulation of the transformer is \_\_\_\_\_.

Options :

1. ✘ 1%
2. ✓ 2%
3. ✘ 4%
4. ✘ 8%

Question Number : 96 Question Id : 630680412211 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a part of 3-phase induction motor?

Options :

1. ✓ Commutator
2. ✘ Stator
3. ✘ Rotor
4. ✘ Yoke

Question Number : 97 Question Id : 630680412212 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Calculate the highest speed at which the 60 Hz alternator can be operated.

Options :

1. ✘ 1800 rpm

2. ✘ 2400 rpm

3. ✘ 3000 rpm

4. ✓ 3600 rpm

**Question Number : 98 Question Id : 630680412213 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Calculate the stepping angle for a 3-phase, 24-pole, permanent magnet stepper motor.

Options :

1. ✘  $2.5^\circ$  per step

2. ✓  $5^\circ$  per step

3. ✘  $7.5^\circ$  per step

4. ✘  $10^\circ$  per step

**Question Number : 99 Question Id : 630680412214 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

State TRUE / FALSE for following statements:

1. In 3-phase synchronous motors, the v-curves are the plot of power factor versus field current.

2. The loci of constant power factor points on the V-curves are called compounding curves.

Options :

1. ✘ 1-True; 2-True

2. ✘ 1-True; 2-False

3. ✘ 1-False; 2-False

4. ✓ 1-False; 2-True

**Question Number : 100 Question Id : 630680412215 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

State TRUE / FALSE for following statements:

1. In 3-phase synchronous motors, hunting can lead to loss of synchronism.

2. Hunting occurs in synchronous motors as well as synchronous generators.

Options :

1.  1-True; 2-True

2.  1-True; 2-False

3.  1-False; 2-False

4.  1-False; 2-True

**Question Number : 101 Question Id : 630680412216 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following statements are WRONG for 3-phase induction motors?

- A. In squirrel-cage induction motor brushes are required.
- B. Slip ring induction motor offers high starting torque.
- C. Squirrel-cage induction motor offers higher efficiency and higher power factor.
- D. Additional resistance cannot be added in the rotor circuit of wound rotor induction motor.

**Options :**

1.  A and B only

2.  A and C only

3.  A and D only

4.  B and C only

**Question Number : 102 Question Id : 630680412217 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Match the AC machine with the corresponding specific feature observed in the respective AC machine:

A. Universal Motor	1. Self-starting machine
B. Alternator	2. Efficiency > 95%
C. Three-phase induction motor	3. Synchronous generator
D. Transformer	4. Can work on AC or DC power

**Options :**

1.  A-4, B-3, C-1, D-2

2.  A-2, B-3, C-1, D-4

3.  A-4, B-1, C-2, D-3

4.  A-3, B-4, C-1, D-2

**Question Number : 103 Question Id : 630680412218 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to the different types of the single-phase induction motors, which of the following pairs are correct?

- A. Split-phase induction motor : No capacitor is needed
- B. Two value capacitor motor : Two capacitors connected in series
- C. Shaded pole motor : No reversal of direction of rotation
- D. Permanent split capacitor motor : Centrifugal switch is required

**Options :**

1. ✘ A and B only
2. ✓ A and C only
3. ✘ A and D only
4. ✘ B and C only

**Question Number : 104 Question Id : 630680412219 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The speed of a three-phase induction motor is varied from standstill to synchronous speed. With reference to the same, arrange following values of slip in the order it is observed:

- A. Slip,  $s = 0$
- B. Slip,  $s = 1$
- C. Slip,  $s = 0.5$
- D. Slip,  $s = 0.8$

**Options :**

1. ✓ B, D, C, A
2. ✘ A, C, D, B
3. ✘ A, B, C, D
4. ✘ C, D, B, A

**Question Number : 105 Question Id : 630680412220 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The series 79XX regulators are the three-terminal IC regulators, which provide a \_\_\_\_\_.

**Options :**

1. ✘ Fixed positive output voltage
2. ✓ Fixed negative output voltage
3. ✘ Adjustable positive output voltage
4. ✘ Adjustable negative output voltage

**Question Number : 106 Question Id : 630680412221 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If a circle is obtained as a Lissajous figure, the phase difference between the horizontal and vertical signal will be \_\_\_\_\_.

**Options :**

1. ❌  $0^\circ$  or  $180^\circ$
2. ❌  $30^\circ$  or  $120^\circ$
3. ❌  $60^\circ$  or  $240^\circ$
4. ✓  $90^\circ$  or  $270^\circ$

**Question Number : 107 Question Id : 630680412222 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The control grid in the cathode ray tube is made from \_\_\_\_\_.

**Options :**

1. ❌ Copper
2. ✓ Nickel
3. ❌ Iron
4. ❌ Silver

**Question Number : 108 Question Id : 630680412223 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The minimum number of 2-input NAND gates required to implement a 2-input XNOR gate are \_\_\_\_\_.

**Options :**

1. ❌ 7
2. ❌ 6
3. ✓ 5
4. ❌ 4

**Question Number : 109 Question Id : 630680412224 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If the binary number  $(110101.11)_2$  is divided by the binary number  $(101)_2$ , then the answer will be:

**Options :**

1. ❌  $(1011.01)_2$

2.  (1001.11)<sub>2</sub>

3.  (1010.01)<sub>2</sub>

4.  (1010.11)<sub>2</sub>

**Question Number : 110 Question Id : 630680412225 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

State TRUE / FALSE for following statements with reference to 8051 microcontroller:

1. In 8051 microcontroller, Timer0 is a 16-bit register.
2. There are 4 I/O ports in 8051 microcontroller.

**Options :**

1.  1-True; 2-True

2.  1-True; 2-False

3.  1-False; 2-False

4.  1-False; 2-True

**Question Number : 111 Question Id : 630680412226 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to registers, which of the following statements are correct?

- A. The buffer register is the simplest of registers.
- B. Universal shift register is a bidirectional register whose output is always in parallel form.
- C. Static shift registers consume more power as compared to dynamic shift register.
- D. Dynamic shift registers are made up of flipflops.

**Options :**

1.  A and B only

2.  A and C only

3.  A and D only

4.  B and C only

**Question Number : 112 Question Id : 630680412227 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Match the addressing modes used in 8051 microcontroller with the suitable example of the same:

A. Immediate addressing mode	1. MOV @R1, B
B. Register indirect addressing mode	2. MOV R2, A
C. Direct addressing mode	3. MOV R3, #0AF H
D. Register addressing mode	4. MOV R0, 40 H

Options :

1. ✘ A-2, B-1, C-4, D-3

2. ✘ A-3, B-1, C-2, D-4

3. ✓ A-3, B-1, C-4, D-2

4. ✘ A-4, B-1, C-2, D-3

**Question Number : 113 Question Id : 630680412228 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following are the correct pairs of a number represented in hexadecimal and decimal number system?

A.  $(22)_{16} = (34)_{10}$

B.  $(1F)_{16} = (30)_{10}$

C.  $(44)_{16} = (64)_{10}$

D.  $(3C)_{16} = (60)_{10}$

Options :

1. ✘ A and B only

2. ✘ A and C only

3. ✓ A and D only

4. ✘ B and C only

**Question Number : 114 Question Id : 630680412229 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange following flags according to their bit position in descending order as they appear in the program status word of the 8051 microcontroller:

A. Overflow flag

B. Auxiliary carry flag

C. Parity flag

D. Carry flag

Options :

1. ✘ A-B-C-D

2. ✓ D-B-A-C

3. ✘ B-D-C-A

4. ✘ D-B-C-A

**Question Number : 115 Question Id : 630680412230 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to the pin diagram of 8051 microcontroller in DIP package, arrange following pin-names in chronological order as they appear when counted from pin number 1 to pin number 40.

A. ALE

B. XTAL1

C. RST

D. XTAL2

**Options :**

1. ✘ C-B-D-A

2. ✘ A-B-D-C

3. ✘ A-D-B-C

4. ✓ C-D-B-A

**Question Number : 116 Question Id : 630680412231 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is a non-conventional source of energy?

**Options :**

1. ✘ Coal

2. ✓ Biogas

3. ✘ Petroleum

4. ✘ Natural gas

**Question Number : 117 Question Id : 630680412232 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The insulation resistance of a cable of length 5 km is  $1 \text{ M}\Omega$ . Its resistance for 50 km length will be \_\_\_\_\_.

**Options :**

1. ✓  $0.1 \text{ M}\Omega$

2. ✘  $1 \text{ M}\Omega$

3. ✘  $0.5 \text{ M}\Omega$

4. ✘ 5 MΩ

**Question Number : 118 Question Id : 630680412233 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A 500 kVA transformer with 5% reactance will have a reactance of \_\_\_\_\_ at 1000 kVA base.

**Options :**

1. ✘ 2.5%

2. ✘ 5%

3. ✓ 10%

4. ✘ 20%

**Question Number : 119 Question Id : 630680412234 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is NOT required in hydroelectric power plant?

**Options :**

1. ✘ Surge tank

2. ✓ Condenser

3. ✘ Penstock

4. ✘ Spillways

**Question Number : 120 Question Id : 630680412235 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

State TRUE / FALSE for following statements:

1. Buchholz relay is a gas actuated relay.

2. The most important stator winding fault of an alternator is earth fault.

**Options :**

1. ✘ 1-True; 2-False

2. ✘ 1-False; 2-False

3. ✘ 1-False; 2-True

4. ✓ 1-True; 2-True

**Question Number : 121 Question Id : 630680412236 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to the Corona effect in transmission lines, which of the following statements are correct?

- A. Corona reduces the effects of transients produced by surges.
- B. The current drawn by the line due to corona is non-sinusoidal.
- C. Corona does not affect the transmission efficiency of the line.
- D. Corona reduces the virtual diameter of the conductor.

Options :

1.  A and B only
2.  A and C only
3.  A and D only
4.  B and C only

**Question Number : 122 Question Id : 630680412237 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is the correct path of the flue gases as they start their journey from boiler and are released to atmosphere?

Options :

1.  Air pre-heater – Super heater – Economizer – Chimney
2.  Economizer – Air pre-heater – Super heater – Chimney
3.  Super heater – Economizer – Air pre-heater – Chimney
4.  Chimney – Super heater – Economizer – Air pre-heater

**Question Number : 123 Question Id : 630680412238 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following property is NOT desirable for earth electrode?

Options :

1.  Long life
2.  Low ground resistance
3.  Low corrosion resistance
4.  Capacity to withstand high fault currents

**Question Number : 124 Question Id : 630680412239 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

According to IE rules, the wooden poles cannot be used for voltages greater than \_\_\_\_\_.

Options :

1.  20 kV

2.  10 kV

3.  5 kV

4.  1 kV

**Question Number : 125 Question Id : 630680412240 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

For which of the following application, ward Leonard method of speed control is NOT suitable?

**Options :**

1.  Colliery winding motor

2.  Lifts and elevators

3.  Rolling mills

4.  Vacuum cleaners

**Question Number : 126 Question Id : 630680412241 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

State TRUE / FALSE for following statements:

1. Expulsion type fuse is an example of low voltage fuse.

2. Striker type fuse is an example of high voltage fuse.

**Options :**

1.  1-True; 2-False

2.  1-False; 2-False

3.  1-False; 2-True

4.  1-True; 2-True

**Question Number : 127 Question Id : 630680412242 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to earthing, which of the following statements are WRONG?

A. A metal plate, pipe or rod can be used as an earth electrode.

B. The ideal value of earthing resistance used for large power stations is  $50 \Omega$ .

C. The earthing resistance value is independent of soil resistivity.

D. Pipe earthing is very cheap in cost as compared to other methods of earthing.

**Options :**

1.  A and B only

2.  A and C only

3.  A and D only

4.  B and C only

**Question Number : 128 Question Id : 630680412243 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Match the type of earthing with most suitable application area for respective type of earthing:

A. Rod earthing	1. For rocky earth bed
B. Plate earthing	2. For ordinary soil
C. Strip earthing	3. For large stations and transmission lines
D. Pipe earthing	4. For sandy area

**Options :**

1.  A-2, B-3, C-1, D-4

2.  A-4, B-1, C-3, D-2

3.  A-4, B-3, C-1, D-2

4.  A-2, B-3, C-4, D-1

**Question Number : 129 Question Id : 630680412244 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following pairs of cable and related voltage level are correct?

A. Low-tension cable : 5000 V

B. High-tension cable : 18000 V

C. Super-tension cable : 25000 V

D. Extra-High-tension cable : 50000 V

**Options :**

1.  A and B only

2.  B and C only

3.  C and D only

4.  A and D only

**Question Number : 130 Question Id : 630680412245 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange following transmission lines in ascending order with reference to the ground clearance of lowest conductor:

- A. Extra high voltage line
- B. Low voltage line - bare conductor
- C. Low voltage line - insulated
- D. High voltage line

**Options :**

1.  C-B-D-A
2.  A-B-C-D
3.  C-D-B-A
4.  C-A-D-B

**Question Number : 131 Question Id : 630680412246 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange following items in chronological order with reference to their specified dimension, from smallest to largest:

- A. Length of the GI pipe electrode
- B. Diameter of the copper rod electrode
- C. Length of the copper plate electrode
- D. Diameter of the galvanized steel pipe electrode

**Options :**

1.  B-D-C-A
2.  C-D-B-A
3.  C-A-D-B
4.  B-D-A-C

**Question Number : 132 Question Id : 630680412247 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following method is NOT used for the speed control of induction motor drives?

**Options :**

1.  Supply voltage control
2.  V/f control
3.  Slip power recovery control
4.  Linear control

**Question Number : 133 Question Id : 630680412248 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Crest speed is the \_\_\_\_\_ speed attained by the vehicle during the run.

**Options :**

1.  Minimum

2.  Maximum

3.  Average

4.  Scheduled

**Question Number : 134 Question Id : 630680412249 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

With reference to traction load, which of the following is correct?

**Options :**

1.  Train resistance = internal friction + external friction

2.  Train resistance = internal friction + air friction

3.  Train resistance = air friction + external friction

4.  Train resistance = internal friction + external friction + air friction

**Question Number : 135 Question Id : 630680412250 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is an application of dielectric heating?

**Options :**

1.  Surface hardening of steel

2.  Preheating of plastic preforms

3.  Brazing

4.  Annealing of brass items

**Question Number : 136 Question Id : 630680412251 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The candle power of a lamp is 180. A plane surface is placed at a distance of 3 meters from this lamp. Calculate the illumination on the surface when it is normal to the rays.

**Options :**

1.  20 lux

2. ✘ 30 lux

3. ✘ 40 lux

4. ✘ 60 lux

**Question Number : 137 Question Id : 630680412252 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The quadrilateral speed-time curve suburban service consists of following three periods. Arrange them in the correct chronological order:

A. Coasting

B. Breaking

C. Acceleration

**Options :**

1. ✘ C-B-A

2. ✘ A-C-B

3. ✘ B-C-A

4. ✓ C-A-B

**Question Number : 138 Question Id : 630680412253 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

State TRUE / FALSE for following statements:

1. Efficiency of incandescent lamp is dependent on the filament temperature.

2. The lamp filament of the incandescent lamp must have low resistivity.

**Options :**

1. ✘ 1-True; 2-True

2. ✓ 1-True; 2-False

3. ✘ 1-False; 2-False

4. ✘ 1-False; 2-True

**Question Number : 139 Question Id : 630680412254 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following statements are INCORRECT?

A. Tungsten is the most widely used metal for incandescent lamp filament.

B. Arc lamps are used in searchlights and projection lamps.

C. Discharge lamps are free from stroboscopic effect.

**Options :**

1. ✘ A only
2. ✘ B only
3. ✓ C only
4. ✘ A and B only

**Question Number : 140 Question Id : 630680412255 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Match the type of lighting with the respective arrangement:

A. Indirect lighting	1. 
B. Direct lighting	2. 
C. Semi-indirect lighting	3. 
D. Semi direct lighting	4. 

**Options :**

1. ✘ A-4, B-2, C-1, D-3
2. ✓ A-2, B-4, C-1, D-3
3. ✘ A-2, B-4, C-3, D-1
4. ✘ A-2, B-3, C-4, D-1

**Question Number : 141 Question Id : 630680412256 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Intrinsic standoff ratio is the characteristic of \_\_\_\_\_.

**Options :**

1. ✘ SCR

2. ✘ TRIAC

3. ✓ UJT

4. ✘ GTO

**Question Number : 142 Question Id : 630680412257 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is NOT a characteristic of SCR?

**Options :**

1. ✘ Three terminal PNPN device

2. ✓ Bidirectional

3. ✘ Latching current

4. ✘ Holding current

**Question Number : 143 Question Id : 630680412258 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In full bridge inverter having resistive load, the output current will be \_\_\_\_\_ as compared to half bridge inverter.

**Options :**

1. ✘ Half

2. ✘ Same

3. ✓ Twice

4. ✘ Four times

**Question Number : 144 Question Id : 630680412259 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

After triggering an SCR, if the gate pulse is removed when anode current is greater than the latching current, then the anode current in the SCR will \_\_\_\_\_.

**Options :**

1. ✓ Remain the same.

2. ✘ Increase and become double.

3. ✘ Immediately fall to zero.

4. ✘ Rise a little and then become zero.

**Question Number : 145 Question Id : 630680412260 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A step-up chopper is supplied through 100 V source and operated with duty cycle of 0.6. Find the output voltage.

**Options :**

1.  150 V

2.  200 V

3.  250 V

4.  300 V

**Question Number : 146 Question Id : 630680412261 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In a single-phase halfwave converter having highly inductive load, the SCR is triggered at  $\alpha = 20^\circ$ . For one complete cycle of input, the free-wheeling diode will conduct for a period of \_\_\_\_\_.

**Options :**

1.   $160^\circ$

2.   $180^\circ$

3.   $190^\circ$

4.   $200^\circ$

**Question Number : 147 Question Id : 630680412262 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

State TRUE / FALSE for following statements related to IGBT:

1. The on-state losses on an IGBT are more than MOSFET.
2. The switching frequency of IGBT is very low as compared to BJT.

**Options :**

1.  1-True; 2-True

2.  1-True; 2-False

3.  1-False; 2-False

4.  1-False; 2-True

**Question Number : 148 Question Id : 630680412263 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following statements are correct?

- A. TRIAC gives four-quadrant operation.
- B. The TRIAC is rarely used in first quadrant with negative gate current.
- C. On-state voltage drop of GTO is more than that of SCR.
- D. In GTO, the magnitude of latching current is more than SCR.
- E. Gate drive circuit losses are zero in GTO.

Options :

1.  A and B only
2.  B and C only
3.  C and D only
4.  D and E only

**Question Number : 149 Question Id : 630680412264 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Arrange following types of chopper in ascending order with reference to the number of quadrants in which the specific type of chopper is operating:

- A. Class-E chopper
- B. Class-C chopper
- C. Class-A chopper

Options :

1.  C-B-A
2.  A-B-C
3.  B-C-A
4.  A-C-B

**Question Number : 150 Question Id : 630680412265 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following pairs are WRONG?

- A. Step down chopper : 1<sup>st</sup> quadrant chopper
- B. Class-D chopper : 3<sup>rd</sup> and 4<sup>th</sup> quadrant chopper
- C. Jones chopper : complementary commutation
- D. Class-B chopper : 2<sup>nd</sup> quadrant chopper

Options :

1.  A and B only
2.  B and C only

3.  C and D only

4.  D and A only

