



# Uttar Pradesh Metro Rail Corporation Limited

## उत्तर प्रदेश मेट्रो रेल कॉर्पोरेशन लिमिटेड

A joint Venture of Govt. of India and Govt. of Uttar Pradesh

Participant ID	
Participant Name	
Test Center Name	
Test Date	12/05/2024
Test Time	4:30 PM - 6:30 PM
Subject	Junior Engineer S and T

### Section : Section A

Q.1 Padma Bhushan awardee Shanta Dhananjayan is a famous exponent of \_\_\_\_\_.

- Ans
- A. Kathak
  - B. Odissi
  - C. Sattriya
  - D. Bharatanatyam

Question ID : 630680552874  
Status : Not Answered  
Chosen Option : --

Q.2 Paradox of thrift states that, if all the people of the economy \_\_\_\_\_ the proportion of income they save, the total value of savings in the economy will not \_\_\_\_\_.

- Ans
- A. increase; change
  - B. increase; increase
  - C. increase; decrease
  - D. decrease; change

Question ID : 63068054970  
Status : Answered  
Chosen Option : C

Q.3 The magnetic reluctance of a magnetic circuit is:

- Ans
- A. proportional to the length of the circuit and proportional to the area of the magnetic path
  - B. proportional to the length of the circuit but inversely proportional to the area of the magnetic path
  - C. None of the given
  - D. proportional to the length of the circuit and also proportional to the relative permeability of the material

Question ID : 630680780488  
Status : Answered  
Chosen Option : B

Q.4 A three-phase, 415 V, 20 KW motor draws line current of 27 A. What will be the phase current if the winding is delta connected?

- Ans
- A.  $9\sqrt{3} A$
  - B.  $27\sqrt{3} A$
  - C. 81 A
  - D. 27 A

Question ID : 630680780491  
Status : Answered  
Chosen Option : A

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

She is the cleverest physicist the world \_\_\_\_\_ ever known.

- Ans
- A. had
  - B. have
  - C. has had
  - D. has

Question ID : 630680512914  
Status : Answered  
Chosen Option : D

Q.6 A system with transfer function:

$$T(s) = \frac{(S + 1)}{S(S + 4)}$$

The pole of the transfer function is:

- Ans
- A.  $S = \text{infinity}$
  - B.  $S = 0$  and  $S = (-)4$
  - C.  $S = (-)1$
  - D.  $S = 1$

Question ID : 630680780572  
Status : Answered  
Chosen Option : B

Q.7 Which of the following groups of hills are part of the 'Purvachal' ?

- Ans
- A. The Patkai, Naga, Manipur and Rajmahal hills
  - B. The Garo, Khasi, Rajmahal and Mizo hills
  - C. The Garo, Naga, Rajmahal and Mizo hills
  - D. The Patkai, Naga, Manipur and Mizo hills

Question ID : 630680511076  
Status : Not Answered  
Chosen Option : --

Q.8 In a certain code language, 'POND' is coded as '7398' and 'NODE' is coded as '8759'. What is the code for 'E' in the given code language?

- Ans  A. 8  
 B. 5  
 C. 7  
 D. 9

Question ID : 630680568447  
Status : Answered  
Chosen Option : D

Q.9 \_\_\_\_\_ is a one kind of P-N junction that conducts current in one direction and \_\_\_\_\_ is a one kind of diode that is used to generate light.

- Ans  A. Neon lamp; mercury vapour lamp  
 B. CFL; neon lamp  
 C. Diode; LED  
 D. Neon lamp; CFL

Question ID : 630680780515  
Status : Answered  
Chosen Option : C

Q.10 The armature current drawn by a 200 V DC series motor of armature resistance  $1 \Omega$  and back EMF 180 V is:

- Ans  A. 20 A  
 B. 40 A  
 C. (-)40 A  
 D. (-)20 A

Question ID : 630680780499  
Status : Answered  
Chosen Option : D

Q.11 If a NOT gate is connected at the output of an OR gate, which will be the resulting gate?

- Ans  A. OR Gate  
 B. EX-OR Gate  
 C. NAND Gate  
 D. NOR Gate

Question ID : 630680780555  
Status : Answered  
Chosen Option : D

Q.12 A P-N junction diode and a Zener diode conduct \_\_\_\_\_ respectively .

- Ans  A. P-N Junction diode : Reverse and Zener diode : reverse direction  
 B. P-N Junction diode : in forward direction Zener diode : in reverse direction  
 C. P-N Junction diode : Forward Zener diode : Forward direction  
 D. P-N Junction diode : Forward Zener diode : Both Forward and reverse direction

Question ID : 630680780569  
Status : Answered  
Chosen Option : B

Q.13 The armature of a separately excited DC motor is fed from an AC supply through a full wave controlled converter. What is the armature voltage at  $0^\circ$  delay angle? Consider that the peak voltage of the AC source is  $100\pi$  volts.

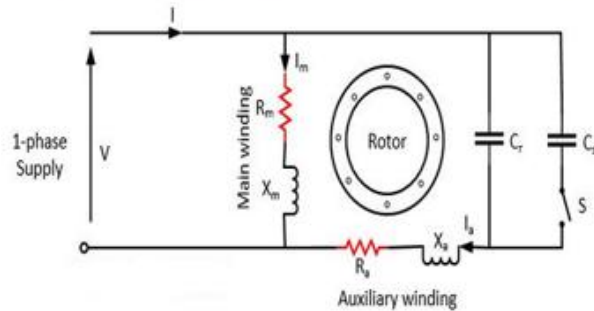
- Ans
- A. 50 V
  - B. 0 V
  - C. 200 V
  - D. 100 V

Question ID : 630680780535

Status : Answered

Chosen Option : D

Q.14 The given circuit diagram shows which type of motor?



- Ans
- A. Separately excited DC motor
  - B. Shunt wound DC motor
  - C. Split-phase induction motor
  - D. Capacitor-start capacitor-run induction motor

Question ID : 630680780497

Status : Answered

Chosen Option : D

Q.15 Which of the following statements is correct about mercury vapour lamps?

- Ans
- A. The efficiency is 80-90 lumens per watt.
  - B. There is no auxiliary electrode in them except for main electrodes.
  - C. Whenever supply voltage is provided, it reaches full intensity within 1 minutes.
  - D. The inner tube is filled with argon and a certain amount of mercury.

Question ID : 630680780514

Status : Not Attempted and Marked For Review

Chosen Option : --

Q.16 Methods such as constant voltage, constant current, a mixed constant current/constant voltage and pulse method are related to \_\_\_\_\_.

- Ans
- A. discharging a capacitor
  - B. charging a capacitor
  - C. charging a battery
  - D. discharging a battery

Question ID : 630680780533

Status : Not Answered

Chosen Option : --

Q.17 Each group of letters in the following triads is related to the subsequent one following a certain logic. Select the option in which the triad follows the same logic.

PATH - HTPA - PTAH  
SHOP - POSH - SOHP

- Ans  A. NEWS - SWNE - EWNS  
 B. YAKS - AKYS - AKSY  
 C. LORD - DRLO - LROD  
 D. RATE - RTAE - ETAR

Question ID : 630680574581

Status : Answered

Chosen Option : C

Q.18 A 10 KVA 2000/400 V transformer has the primary and secondary resistances as  $5.5 \Omega$  and  $0.2 \Omega$ , respectively. The reactances of the primary and secondary sides are  $12 \Omega$  and  $0.45 \Omega$ , respectively. The equivalent resistance of transformer referred to secondary is:

- Ans  A.  $0.22 \Omega$   
 B.  $0.93 \Omega$   
 C.  $0.48 \Omega$   
 D.  $0.42 \Omega$

Question ID : 630680780506

Status : Answered

Chosen Option : D

Q.19 When a number is divided by 38, the remainder is 21. The remainder when the same number is divided by 19 will be :

- Ans  A. 0  
 B. 1  
 C. 2  
 D. 3

Question ID : 63068068442

Status : Not Attempted and Marked For Review

Chosen Option : --

Q.20 Select the most appropriate idiom that can substitute the underlined segment in the given sentence.

He is not worldly wise and that is the reason he wasted his money in foolish and unpractical tasks.

- Ans  A. standing in good stead  
 B. quixotic projects  
 C. pyrrhic victory  
 D. picking holes

Question ID : 630680597455

Status : Answered

Chosen Option : B

Q.21 The laplace domain expression of voltage across inductor and capacitor are:

Ans

✓ A.  $\frac{1}{sC}I(s)$  and  $sLI(s)$

✗ B.  $\frac{1}{sC}I(s)$  and  $\frac{1}{s}LI(s)$

✗ C.  $\frac{1}{sC}I(s)$  and  $\frac{1}{sL}I(s)$

✗ D.  $sCI(s)$  and  $sLI(s)$

Question ID : 630680780573

Status : Answered

Chosen Option : A

Q.22 The cathode and anode in a dry cell are commonly made of \_\_\_\_\_ and \_\_\_\_\_, respectively.

Ans

✗ A. zinc ; carbon

✗ B. zinc ; magnesium

✓ C. carbon ; zinc

✗ D. glass ; rubber

Question ID : 630680780532

Status : Not Answered

Chosen Option : --

Q.23 The primary current of 33/11 kV transformer is 50 amp. What will the secondary current be?

Ans

✗ A. 50 amp

✗ B. 4.5 amp

✓ C. 150 amp

✗ D. 100 amp

Question ID : 630680780503

Status : Answered

Chosen Option : C

Q.24 A girl goes on a cycling trip. In the first part she travels for 2 hours at a speed of 35 km/hr. Next, she travels at a speed of 30 km/hr for 80 minutes, and then she cycles at a speed of 40 km/hr for 57 minutes. How much distance (in km) she cycled in the entire journey?

Ans

✗ A. 125

✗ B. 152

✓ C. 148

✗ D. 136

Question ID : 630680633837

Status : Not Attempted and Marked For Review

Chosen Option : --

Q.25 What is the name of India's first full stack Artificial Intelligence, which Ola CEO Bhavish Aggarwal introduced in 2023?

- Ans  A. Shakti  
 B. Krutrim  
 C. Sifra  
 D. Agni

Question ID : 630680777148  
Status : Not Answered  
Chosen Option : --

Q.26 Three equal capacitances are connected in parallel. Each capacitance value is C. The equivalent capacitance will be:

- Ans  A.  $3/2C$   
 B.  $C/3$   
 C.  $3/C$   
 D.  $3C$

Question ID : 630680780486  
Status : Answered  
Chosen Option : D

Q.27 A distribution box in wiring mainly helps \_\_\_\_\_ across the load.

- Ans  A. to reduce the proximity effect  
 B. to reduce the voltage of the line  
 C. to reduce the skin effect  
 D. to reduce frequency

Question ID : 630680780508  
Status : Answered  
Chosen Option : B

Q.28 There are four layers of the TCP/IP models, which are:

- Ans  A. internet, network access, transport and rejection  
 B. internet, network access, transport and application  
 C. internet, network access, communication and application  
 D. internet, transport, data access, application

Question ID : 630680780562  
Status : Answered  
Chosen Option : B

Section : Section B

Q.1 Select the most appropriate ANTONYM of the underlined word.

She had already visited the knife swallower's show and was severely disappointed.

- Ans  A. angry  
 B. satisfied  
 C. unhappy  
 D. injured

Question ID : 63068069060  
Status : Answered  
Chosen Option : B

Q.2 When did the RBI formally approve the microfinance programme in India?

- Ans  A. 1974  
 B. 1996  
 C. 1992  
 D. 1997

Question ID : 630680320718  
Status : Not Answered  
Chosen Option : --

Q.3 A capacitor connected in parallel with a single-phase inverter is worked as a:

- Ans  A. low pass filter  
 B. notch filter  
 C. high pass filter  
 D. band pass filter

Question ID : 630680780566  
Status : Answered  
Chosen Option : A

Q.4 In a fluorescent tube, the choke (or ballast) and starter are connected \_\_\_\_\_.

- Ans  A. both in parallel  
 B. in series and parallel, respectively  
 C. both in series  
 D. in parallel and series, respectively

Question ID : 630680780513  
Status : Answered  
Chosen Option : C

Q.5 Calculate the flux density required for an air gap of area of 200 cm<sup>2</sup> to produce a flux of 0.004 Wb.

- Ans  A. 0.004 T  
 B. 0.020 T  
 C. 0.2 T  
 D. 0.00020 T

Question ID : 630680780490  
Status : Answered  
Chosen Option : C

Q.6 Which of the following is NOT a unit of Illumination?

- Ans  A. Candela  
 B. Metre-candle  
 C. Lux  
 D. Lumens per square metre

Question ID : 630680780510  
Status : Answered  
Chosen Option : B



Q.7 Which Union Ministry launched the 'NEERMAN' Awards in July 2021?

- Ans  A. Ministry of Power
- B. Ministry of Animal Husbandry, Dairying And Fisheries
- C. Ministry of Panchayati Raj
- D. Ministry of Ayush

Question ID : 630680158431  
Status : Not Answered  
Chosen Option : --

Q.8 In an ACSR, SR is used to:

- Ans  A. to enhance the corona effect
- B. to increase the mechanical strength
- C. to increase the conductivity
- D. to decrease the tensile strength

Question ID : 630680780517  
Status : Answered  
Chosen Option : B

Q.9 The parallel port of any computer is generally called:

- Ans  A. modem port
- B. speaker port
- C. printer port
- D. VGA port

Question ID : 630680780559  
Status : Answered  
Chosen Option : D

Q.10 The present population of a town is 5,50,000. If it increases at the rate of 10% per annum, then what will be its population after 3 years?

- Ans  A. 7,23,500
- B. 7,23,050
- C. 7,32,500
- D. 7,32,050

Question ID : 630680524249  
Status : Answered  
Chosen Option : D

Q.11 Transform the time domain current  $i(t) = 5 \sin(377t + 150^\circ)$  into phasor in Indian nominal frequency.

- Ans  A.  $I = 5 \text{ ang } (90^\circ)$
- B.  $I = 5 \text{ ang } (60^\circ)$
- C.  $I = 5 \text{ ang } (377^\circ)$
- D.  $I = 5 \text{ ang } (150^\circ)$

Question ID : 630680780483  
Status : Answered  
Chosen Option : D

Q.12 In a certain code language, 'LAND' is coded as '4618' and 'LOAD' is coded as '6438'.  
What is the code for 'O' in the given code language?

- Ans  A. 3  
 B. 4  
 C. 1  
 D. 6

Question ID : 630680568430  
Status : Answered  
Chosen Option : A

Q.13 A 2 HP DC series motor is connected to a 200 V DC source. How much is the current neglecting series resistance?

- Ans  A. 7.43 A  
 B. 7.46 A  
 C. 3.71 A  
 D. 0.743 A

Question ID : 630680780502  
Status : Answered  
Chosen Option : B

Q.14 If the valance band is full and the conduction band is empty, it means that the material is:

- Ans  A. close to semiconductor  
 B. close to conductor  
 C. Between conductor and semiconductor  
 D. close to insulator

Question ID : 630680780520  
Status : Answered  
Chosen Option : D

Q.15 Who had founded the Poona Sarvajanik Sabha in 1870?

- Ans  A. Mahadev Govind Ranade  
 B. Mahatma Gandhi  
 C. Gopal Krishna Gokhale  
 D. Pheroz Shah Mehta

Question ID : 630680362748  
Status : Not Answered  
Chosen Option : --

Q.16 Which of the following statements is correct about DIAC and TRIAC?

- Ans  A. Both operate on gate signal  
 B. All are right  
 C. Both are three-terminal semiconductor devices including a gate terminal.  
 D. DIAC acts as an uncontrolled bidirectional device, but TRIAC acts as a controlled bi-directional device.

Question ID : 630680780570  
Status : Answered  
Chosen Option : D

Q.17 For turning the SCR off, the \_\_\_\_\_ interruption current is less than the \_\_\_\_\_

- Ans
- A. collector ; gate trigger current
  - B. emitter; peak repetitive off-state forward voltage
  - C. anode ; gate trigger current
  - D. anode ; holding current

Question ID : 630680780524

Status : Answered

Chosen Option : D

Q.18 A, B and C can do a work in 20 days, 30 days and 60 days, respectively. In how many days can A complete the work if he is assisted by B and C both on every third day?

- Ans
- A. 14
  - B. 12
  - C. 13
  - D. 15

Question ID : 630680239319

Status : Not Answered

Chosen Option : --

Q.19 Define two materials when A material "X" has resistivity of  $10^{-8}\Omega/\text{cm}$  and material "Y" has resistivity of  $10^8\Omega/\text{cm}$ . Then:

- Ans
- A. X is an insulator and Y is a semiconductor
  - B. X is a semiconductor and Y is an insulator
  - C. X is a conductor and Y is an insulator
  - D. X is an insulator and Y is a conductor

Question ID : 630680780516

Status : Answered

Chosen Option : C

Q.20 Two transformers are operated in parallel such that they share load in proportion to their kVA ratings. The rating of the first transformer is 250 kVA and its leakage impedance is 0.025 pu. If the rating of the second transformer is 50 kVA, then its leakage impedance is:

- Ans
- A. 0.025 pu
  - B. 0.1 pu
  - C. 0.125 pu
  - D. 0.005 pu

Question ID : 630680780498

Status : Answered

Chosen Option : D

Q.21 Which of the following atoms is present in a PVC insulator?

- Ans
- A. Oxygen
  - B. Silicon
  - C. Hydrogen
  - D. Nitrogen

Question ID : 630680780522

Status : Not Answered

Chosen Option : --

Q.22 Select the most appropriate verb to fill in the blank.

One of the members of the jury always \_\_\_\_\_ dissent in the final judgement.

- Ans  A. express  
 B. expressional  
 C. expresses  
 D. expressive

Question ID : 630680147440  
Status : Answered  
Chosen Option : C

Q.23 In intrinsic semiconductor, the current conduction under sunlight is:

- Ans  A. No one is true  
 B. very less  
 C. zero  
 D. very high

Question ID : 630680780565  
Status : Not Answered  
Chosen Option : --

Q.24 Which dance form among the following is highly ritualised, with a formalised song-and-dance introduction, sprinkling of holy water, and burning of incense, along with invocations of goddesses?

- Ans  A. Odissi  
 B. Kathakali  
 C. Kuchipudi  
 D. Kathak

Question ID : 630680756648  
Status : Not Answered  
Chosen Option : --

Q.25 Current density is the highest for:

- Ans  A. copper  
 B. zinc  
 C. brass  
 D. aluminium

Question ID : 630680780519  
Status : Answered  
Chosen Option : A

Q.26 What should come in place of '?' in the given series?

57 66 80 99 123 ?

- Ans  A. 152  
 B. 163  
 C. 167  
 D. 158

Question ID : 630680523609  
Status : Answered  
Chosen Option : A

**Q.27** When energy has to be supplied during each cycle of magnetism while magnetising the core of a transformer, it is known as:

- Ans  A. hysteresis loss  
 B. Eddy current loss  
 C. reactive power loss  
 D. a combination of Eddy current loss and hysteresis loss

Question ID : 630680780505  
Status : Answered  
Chosen Option : C

**Q.28** Identify whether the given statements are correct or incorrect.  
(A) Moving iron instruments have non-uniform scale.  
(B) Moving coil instruments have uniform scale.

- Ans  A. Only A is correct  
 B. Both A and B are correct  
 C. Only B is correct  
 D. Both A and B are incorrect

Question ID : 630680780545  
Status : Answered  
Chosen Option : B

Section : Section C

**Q.1** According to the law of inverse squares of illumination, if D is the distance between the light source and the surface, then the illumination of surface is proportional to:

- Ans  A.  $D^2$   
 B.  $D$   
 C.  $\frac{1}{D}$   
 D.  $\frac{1}{D^2}$

Question ID : 630680780509  
Status : Answered  
Chosen Option : D

**Q.2** What is the full form of 'RS' in the context of RS-232 based communication?

- Ans  A. Recommended Standard  
 B. Recommended Serial Communication  
 C. Recommended Serial  
 D. Readjusted Solution

Question ID : 630680780558  
Status : Answered  
Chosen Option : C

Q.3 Polyester plastic is a material of \_\_\_\_\_.

- Ans
- A. low dielectric, low temperature resistance and low tensile strength
  - B. low dielectric, high temperature resistance and low tensile strength
  - C. high dielectric, high temperature resistance and high tensile strength
  - D. low dielectric, high temperature resistance and high tensile strength

Question ID : 630680780523  
Status : Answered  
Chosen Option : C

Q.4 In electrical indicating instruments, Torque-*A* moves the pointer, Torque-*B* opposes the pointer's movement and Torque-*C* helps the pointer reach the final indicating position at the earliest. Then, *A* is \_\_\_\_\_, *B* is \_\_\_\_\_ and *C* is \_\_\_\_\_.

- Ans
- A. controlling torque; damping torque; deflecting torque
  - B. controlling torque; deflecting torque; damping torque
  - C. deflecting torque; damping torque; controlling torque
  - D. deflecting torque; controlling torque; damping torque

Question ID : 630680780546  
Status : Answered  
Chosen Option : D

Q.5 In a variable speed DC motor, what will be the relation between back EMF  $E_g$  and supply voltage  $V_a$  during motoring mode and regenerative braking mode?

- Ans
- A. Motoring mode:  $V_a < E_g$   
Regenerative mode:  $E_g = V_a$
  - B. Motoring mode:  $V_a > E_g$   
Regenerative mode:  $E_g > V_a$
  - C. Motoring mode :  $V_a > E_g$   
Regenerative mode:  $E_g = V_a$
  - D. Motoring mode:  $V_a = E_g$   
Regenerative mode:  $E_g = V_a$

Question ID : 630680780536  
Status : Not Answered  
Chosen Option : --

Q.6 Which of the following is a factor that can lead to a decrease in the aggregate demand?

- Ans
- A. A decrease in the taxes
  - B. An increase in government spending
  - C. A decrease in the interest rates
  - D. A decrease in the money supply

Question ID : 630680321529  
Status : Not Answered  
Chosen Option : --

Q.7 Which of the following numbers is exactly divisible by 44?

- Ans  A. 8,64,324  
 B. 5,32,868  
 C. 6,98,522  
 D. 6,97,884

Question ID : 630680545920  
Status : Answered  
Chosen Option : D

Q.8 Communication through USB follows:

- Ans  A. serial communication and one bit at a time  
 B. serial communication and multiple bits at a time  
 C. parallel communication and multiple bits at a time  
 D. parallel communication and one bit at a time

Question ID : 630680780560  
Status : Not Answered  
Chosen Option : --

Q.9 In a transistor circuit,  $\alpha$  is called \_\_\_\_\_.

- Ans  A. injection factor  
 B. amplification factor  
 C. reduction factor  
 D. rejection factor

Question ID : 630680780568  
Status : Answered  
Chosen Option : B

Q.10 In a row of 29 people facing north, Diya is 13<sup>th</sup> from the right end. If Tina is 6<sup>th</sup> to the right of Diya, what is Tina's position from the left end?

- Ans  A. 23<sup>rd</sup>  
 B. 22<sup>nd</sup>  
 C. 25<sup>th</sup>  
 D. 24<sup>th</sup>

Question ID : 630680519045  
Status : Answered  
Chosen Option : B

Q.11 The Cripps Mission came to India during the \_\_\_\_\_.

- Ans  A. First World War  
 B. Second Anglo Afghan War  
 C. Second World War  
 D. Third Anglo-Burmese War

Question ID : 630680326434  
Status : Not Answered  
Chosen Option : --

**Q.12** The process of joining, combining and forming one piece of material from separate pieces of material by heating these materials to a temperature high enough to cause softening or melting is called:

- Ans  A. welding  
 B. heating  
 C. condensing  
 D. cable joing

Question ID : 630680780543  
 Status : Answered  
 Chosen Option : A

**Q.13** In a certain code language, 'FLOW' is coded as '4792' and 'LOAF' is coded as '7269'. What is the code for 'A' in the given code language?

- Ans  A. 9  
 B. 7  
 C. 2  
 D. 6

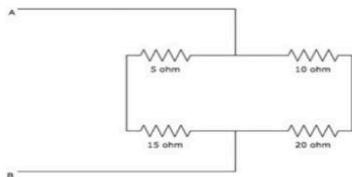
Question ID : 630680568434  
 Status : Answered  
 Chosen Option : D

**Q.14** The force on a current carrying conductor in a magnetic field:

- Ans  A. decreases with current  
 B. increase with area of the conductor  
 C. increases with flux density  
 D. decreases with the length of the conductor

Question ID : 630680780489  
 Status : Answered  
 Chosen Option : C

**Q.15**



In the given network, if the 10  $\Omega$  resistor is short circuited, then the equivalent resistance between A and B is equal to \_\_\_\_\_.

- Ans  A. 10  $\Omega$   
 B. 20  $\Omega$   
 C. 5  $\Omega$   
 D. 15  $\Omega$

Question ID : 630680780479  
 Status : Answered  
 Chosen Option : A



**Q.16** The use of hairsprings and damping vane in the permanent magnet moving coil DC metre are \_\_\_\_\_, respectively.

- Ans**
- A. to return the coil to its original position when there is no current through the coil and to reduce the amplitude of oscillations
  - B. to give the RMS value and average value of the measured signal
  - C. to reduce the amplitude of oscillations and to return the coil to its original position when there is no current through the coil
  - D. to give the average value and to reduce the amplitude of oscillations

Question ID : **630680780551**  
Status : **Answered**  
Chosen Option : **A**

**Q.17** Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

- A. It was extracted from uraninite and this discovery was published five days later.
- B. It was isolated in its metallic state through electrolysis in 1911.
- C. Radium was discovered by Madame Marie Curie and Pierre Curie.
- D. They found it in the form of radium chloride from an ore mined at Jachymov.

- Ans**
- A. ADCB
  - B. CDAB
  - C. BCDA
  - D. BCAD

Question ID : **630680204469**  
Status : **Answered**  
Chosen Option : **B**

**Q.18** A variable resistor in series with the shunt resistor for shunt motor is used to control:

- Ans**
- A. only the speed of the motor
  - B. the speed, torque and armature current of the motor
  - C. only the armature current of the motor
  - D. only the torque of the motor

Question ID : **630680780576**  
Status : **Not Answered**  
Chosen Option : **--**

**Q.19** Which of the following schemes covers the risks faced by livestock farmers on account of fortuitous accidents, disease and disabilities and is being increasingly accepted by farmers across India in 2023?

- Ans**
- A. Sampoorna Pashudhan Kavach
  - B. Pradhan Mantri Jeevan Jyoti Bima Yojana
  - C. Saral Krishi Bima
  - D. Krishi Suraksha Bima Yojana

Question ID : **630680275422**  
Status : **Answered**  
Chosen Option : **A**

Q.20 The two-wattmeter method of power measurement is suitable for:

- Ans  A. only balanced system  
 B. only unbalanced system  
 C. when source is balanced but load is unbalanced  
 D. both balanced and unbalanced system

Question ID : 630680780550  
Status : Answered  
Chosen Option : A

Q.21 In a lithium-ion battery, oxidation takes place in:

- Ans  A. both, anode and cathode  
 B. anode  
 C. electrolyte  
 D. cathode

Question ID : 630680780530  
Status : Answered  
Chosen Option : C

Q.22 How many electromagnets are arranged in an induction type energy meter?

- Ans  A. Three  
 B. Two  
 C. One  
 D. Four

Question ID : 630680780549  
Status : Answered  
Chosen Option : B

Q.23 Select the most appropriate option to fill in the blank.

John being extremely \_\_\_\_\_ could not perform any of his tasks to completion.

- Ans  A. flexible  
 B. sincere  
 C. annoying  
 D. incompetent

Question ID : 63068066095  
Status : Answered  
Chosen Option : D

Q.24 The transfer function of a system:

- Ans  A. is the ratio of output to that of the input in time domain considering initial conditions  
 B. is the ratio of Laplace transform of output to that of the input without considering initial condition  
 C. is the ratio of output to that of the input in time domain without considering initial conditions  
 D. is the ratio of Laplace transform of output to that of the input considering initial conditions

Question ID : 630680780571  
Status : Answered  
Chosen Option : B

**Q.25** A workshop was conducted last year as well as this year. This year the number of participants increased by 25% and the fees for the workshop was increased by 20%. The amount that the organisers received this year is ₹40,000 more than that of the last year. If no other expenses were made, then the amount received from the workshop this year is:

- Ans  A. ₹1,40,000  
 B. ₹1,20,000  
 C. ₹1,35,700  
 D. ₹1,30,055

Question ID : 630680628870  
Status : Answered  
Chosen Option : A

**Q.26** A three-phase squirrel cage induction motor of rating 4 pole, 3 phase, 50 Hz, 5 kW, runs at a speed of 1440 rpm. The frequency of the rotor current is:

- Ans  A. 2 Hz  
 B. 200 Hz  
 C. 2.5 Hz  
 D. 20 Hz

Question ID : 630680780495  
Status : Answered  
Chosen Option : A

**Q.27** The current in a circuit is 10 amp and power factor is 1. The nature of the circuit and phasor representation of current are \_\_\_\_ and \_\_\_\_\_, respectively.

- Ans  A. resistive;  $10 < 0^\circ$   
 B. inductive;  $10 < 90^\circ$   
 C. inductive;  $10 < -90^\circ$   
 D. capacitive;  $10 < 90^\circ$

Question ID : 630680780485  
Status : Answered  
Chosen Option : A

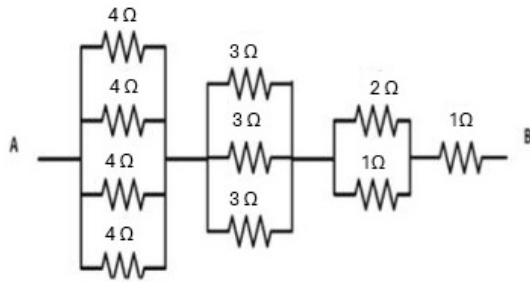
**Q.28** Which of the following is the most recent landform of India?

- Ans  A. Indian Peninsula  
 B. Aravalli Range  
 C. Indo-Gangetic Plains  
 D. Dharwar Craton

Question ID : 630680511366  
Status : Answered  
Chosen Option : C

Section : Section D

Q.1 The equivalent resistance between terminals A and B in the shown circuit is:



- Ans  A. 3.66  $\Omega$   
 B. 4  $\Omega$   
 C. 1.33  $\Omega$   
 D. 10  $\Omega$

Question ID : 630680780478

Status : Answered

Chosen Option : A

Q.2 If R is not present in a series resonance circuit, the theoretical value of the current will be:

- Ans  A. a very small positive value but not zero  
 B. zero  
 C. a negative value  
 D. infinity

Question ID : 630680780494

Status : Answered

Chosen Option : D

Q.3 Heaviside bridge gives the value of:

- Ans  A. mutual inductance  
 B. capacitance  
 C. resistance  
 D. temperatue

Question ID : 630680780552

Status : Answered

Chosen Option : A

Q.4 Select the set in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

11 – 44 – 54 – 108

15 – 60 – 70 – 140

- Ans  A. 9 – 81 – 91 – 182  
 B. 12 – 48 – 58 – 116  
 C. 8 – 32 – 42 – 62  
 D. 4 – 16 – 64 – 74

Question ID : 630680467182

Status : Answered

Chosen Option : B

Q.5 Which of the following is NOT a quantitative tool to control the extent of money supply by the Central Bank?

- Ans  A. Open Market Operation  
 B. Cash Reserve Ratio  
 C. Margin Requirement  
 D. Bank Rate

Question ID : 630680580470  
Status : Not Answered  
Chosen Option : --

Q.6 The  $I^2R$  loss of a transformer at full load is 4 kW. The same loss at half load will be:

- Ans  A. 4 kW  
 B. 8 kW  
 C. 1 kW  
 D. 2 kW

Question ID : 630680780504  
Status : Answered  
Chosen Option : C

Q.7 The uncertainty of the S-R flip-flop arises when  $S_n$  and  $R_n$  are equal to:

- Ans  A.  $S_n = R_n = 1$   
 B.  $S_n = R_n = 0$   
 C.  $S_n = 0, R_n = 1$   
 D.  $S_n = 1$  and  $R_n = 0$

Question ID : 630680780553  
Status : Answered  
Chosen Option : A

Q.8 Which of the following institutes, situated at Poojappurna, Trivandapuram, provides teaching in Indian classical dance?

- Ans  A. Uday Shankar India Cultural Centre  
 B. Noopura Institute of Classical Dance and Music  
 C. Visva-Bharati University  
 D. Kathak Nrityakala Kendra

Question ID : 630680139011  
Status : Not Answered  
Chosen Option : --

Q.9 Mr. X donated 10% of his income to an old age home and deposited 20% of the remaining in the bank. If Mr. X is left with ₹14,400, then his total income is:

- Ans  A. ₹15,000  
 B. ₹18,000  
 C. ₹15,500  
 D. ₹20,000

Question ID : 630680756625  
Status : Answered  
Chosen Option : B

Q.10 Convert  $(736)_8$ , an octal number into a binary number.

- Ans  A. 11111111  
 B. 111101110  
 C. 011111101  
 D. 111011110

Question ID : 630680780554  
Status : Answered  
Chosen Option : D

Q.11 Which of the following statements about a BLDC motor is correct?

- Ans  A. A single phase is wound on the rotor.  
 B. Rotor field is excited by a DC source  
 C. Hall effect sensors are used to control the speed.  
 D. Brushless DC motor has a commutator.

Question ID : 630680780575  
Status : Answered  
Chosen Option : B

Q.12 Identify whether the given statements about light are true or false.

- (A) Light with wavelengths below 400 nanometers is infrared.  
(B) Light with wavelengths above 700 nanometers is ultraviolet.

- Ans  A. Both A and B are false  
 B. A is true and B is false  
 C. B is true and A is false  
 D. Both A and B are true

Question ID : 630680780511  
Status : Answered  
Chosen Option : D

Q.13 A 200 V lamp has 4000 lumens at current of 1 amp. What is the luminous efficiency?

- Ans  A. 50  
 B. 20  
 C. 15  
 D. 4000

Question ID : 630680780512  
Status : Answered  
Chosen Option : B

Q.14 A lead-acid battery of 10 Ah rating can theoretically discharge:

- Ans  A. 10 amperes for four hours  
 B. 10 amperes for three hours  
 C. 5 amperes for two hours  
 D. 10 amperes for two hours

Question ID : 630680780528  
Status : Not Answered  
Chosen Option : --

Q.15 A car travels the first 10 km at 40 km/h, the next 20 km at 50 km/h, and the last 30 km at 60 km/h. Find the average speed (in km/h) for the entire journey.

- Ans
- A.  $53\frac{6}{23}$
  - B.  $52\frac{6}{23}$
  - C.  $53\frac{4}{23}$
  - D.  $52\frac{4}{23}$

Question ID : 630680499249

Status : Answered

Chosen Option : D

Q.16 If the two coils are connected in series and the current enters the coils in the same direction, the total induced EMF, both in coil A and B, due to the mutual inductance M will be:

- Ans
- A.  $M\frac{di}{dt}$
  - B.  $2M\frac{di}{dt}$
  - C.  $(-)M\frac{di}{dt}$
  - D.  $(-)2M\frac{di}{dt}$

Question ID : 630680780487

Status : Answered

Chosen Option : B

Q.17 For providing a better environment for the generations to come, India is now committed to reduce emissions intensity of its GDP by \_\_\_\_ by 2030.

- Ans
- A. 45%
  - B. 25%
  - C. 35%
  - D. 15%

Question ID : 630680194411

Status : Not Answered

Chosen Option : --

Q.18 In star delta starting, an induction motor is connected through a \_\_\_\_\_ throughout the starting period. Then, once the motor reaches the required speed, the motor is connected through a \_\_\_\_\_.

- Ans
- A. star connection; star connection
  - B. None of the given option
  - C. star connection; delta connection
  - D. delta connection; star connection

Question ID : 630680780496

Status : Answered

Chosen Option : C

Q.19 The power consumed by a three-phase load can be expressed by:

Ans  A.  $P = 3V_L I_L \cos \phi$

B.  $P = \sqrt{3} V_p I_p \cos \phi$

( ' P ' in subscript denotes phase quantities)

C.  $P = \sqrt{3} V_L I_L \cos \phi$

( ' L ' in subscript denotes phase quantities)

D.  $P = \sqrt{3} V_p I_p \sin \phi$

Question ID : 630680780493

Status : Answered

Chosen Option : A

Q.20 In this question, three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

All papers are folders.

All books are scales.

Some books are papers.

Conclusions:

I. Some scales are folders.

II. Some folders are books.

Ans  A. Only conclusion I follows.

B. Neither conclusion I nor II follows.

C. Both conclusions I and II follow.

D. Only conclusion II follows.

Question ID : 630680519109

Status : Answered

Chosen Option : B

Q.21 "By controlling frequency and flux density, the amount of heat can be controlled." Which method of heating?

Ans  A. Resistance heating

B. Radiant heating

C. Eddy current heating

D. Arc heating

Question ID : 630680780541

Status : Answered

Chosen Option : C

Q.22 Select the most appropriate ANTONYM of the underlined word in the given sentence.

Local bank officials may be more successful in dealing with hundreds and thousands of these small borrowers than a single asset reconstruction company.

Ans  A. efficacious

B. inutile

C. fruitful

D. effective

Question ID : 630680102518

Status : Answered

Chosen Option : B



Q.23 Select the most appropriate adverb to fill in the blank.

The administrative office of the university holds meetings \_\_\_\_\_.

- Ans
- A. lowly
  - B. meekly
  - C. frequently
  - D. ferociously

Question ID : 630680321914  
Status : Answered  
Chosen Option : C

Q.24 The SCR structure is basically a/an:

- Ans
- A. NPPN structure like a four-transistor arrangement
  - B. NPPN structure like a two-transistor arrangement
  - C. PNP structure like a two-transistor arrangement
  - D. PNP structure like a four-transistor arrangement

Question ID : 630680780525  
Status : Answered  
Chosen Option : C

Q.25 Which of the following is a characteristic of balanced load?

- Ans
- A. All the three phases may have the same power factor.
  - B. All the three phases do not have the same impedance in magnitude and phase angle.
  - C. The power drawn by a load should be equal to any of the phases.
  - D. All the three phases have the same impedance in magnitude and phase angle.

Question ID : 630680780492  
Status : Answered  
Chosen Option : D

Q.26 Who among the following was the head of the department of Justice in Sultanate?

- Ans
- A. Sadr-us Sudur
  - B. Wakil-i-Dar
  - C. Muhtasib
  - D. Qazi-ul-Quzzat

Question ID : 630680362739  
Status : Not Answered  
Chosen Option : --

Q.27 A 110 V DC shunt generator delivers a load current of 50 amp. The resistances of armature and field circuit are 0.2  $\Omega$  and 55  $\Omega$ , respectively. What will the shunt current be?

- Ans
- A. 2 A
  - B. 52 A
  - C. 50 A
  - D. 1 A

Question ID : 630680780501  
Status : Answered  
Chosen Option : A

**Q.28** Mention the welding process by which material at the joint is heated to a molten state and allowed to solidify.

- Ans
- A. Plastic welding
  - B. Radio frequency welding
  - C. Cold welding
  - D. Fusion Wleding

Question ID : **630680780542**  
Status : **Answered**  
Chosen Option : **D**

Section : **Section E**

**Q.1** What are the full forms of AAC and AAAC?

- Ans
- A. AAC – Alloy Auminium Conductor; AAAC – All Aluminium Alloy Conductor
  - B. AAC – All Alloy Conductor; AAAC – All Aluminium Alloy Conductor
  - C. AAC – All Aluminium Conductor; AAAC – All Aluminium Alloy Conductor
  - D. AAC – Aluminium-Aluminium Conductor; AAAC – All Aluminium Alloy Conductor

Question ID : **630680780518**  
Status : **Answered**  
Chosen Option : **C**

**Q.2** \_\_\_\_\_ can be accessed by a microprocessor with a 16-bit address bus.

- Ans
- A. 16 KB
  - B. 32 KB
  - C. 8 KB
  - D. 64 KB

Question ID : **630680780557**  
Status : **Answered**  
Chosen Option : **D**

**Q.3** A DC motor drive should be capable of:

- Ans
- A. five quadrant operations
  - B. six quadrant operations
  - C. only first quadrant operations
  - D. four quadrant operations

Question ID : **630680780538**  
Status : **Not Answered**  
Chosen Option : **--**

**Q.4** In what circumstances is an economy said to be in recession?

- Ans
- A. If real GDP falls for two consecutive quarters.
  - B. If real GDP falls in one year compared with the year before.
  - C. If real GDP falls for two consecutive years.
  - D. If real GDP falls in one quarter compared with the quarter before.

Question ID : **630680324082**  
Status : **Not Answered**  
Chosen Option : **--**

Q.5 For which motor is the torque characteristic  $T \propto I_a^2$  ?

- Ans  A. Series motor  
 B. Shunt motor  
 C. Synchronous motor  
 D. Induction motor

Question ID : 630680780500  
 Status : Answered  
 Chosen Option : A

Q.6 P is twice as good a workman as Q and takes 27 days less than Q to complete a piece of work. If they work on alternate days beginning with P, then how many days will it take to complete the work?

- Ans  A. 36  
 B.  $36\frac{1}{4}$   
 C.  $36\frac{3}{4}$   
 D.  $36\frac{1}{2}$

Question ID : 630680590844  
 Status : Not Answered  
 Chosen Option : --

Q.7 Which motor is extensively used for electric traction in electric trams and what is the return path for electric trams?

- Ans  A. Synchronous motor ; rail  
 B. DC series motor ; rails  
 C. DC series motor ; neutral wire  
 D. DC shunt motor ; rails

Question ID : 630680780537  
 Status : Answered  
 Chosen Option : B

Q.8 Select the option in which the given materials are correctly paired with their respective properties.

- Ans  A. Silver – Insulator; Silicon – SemiConductor; Glass – Insulator; Gold – Conductor  
 B. Silver – Conductor; Silicon – SemiConductor; Glass – Insulator; Gold – Conductor  
 C. Silver – Conductor; Silicon – Conductor; Glass – Insulator; Gold – Insulator  
 D. Silver – Conductor; Silicon – SemiConductor; Glass – Conductor; Gold – Conductor

Question ID : 630680780521  
 Status : Answered  
 Chosen Option : B

Q.9 ISA in computer operation directly supports:

- Ans  A. CPU operatipon  
 B. printer operation  
 C. sound card operation  
 D. gaming

Question ID : 630680780561  
 Status : Not Answered  
 Chosen Option : --

Q.10 What does the term 'maintenance-free battery' basically mean?

- Ans  A. The quality of anode material tend and cathode tends to degrade slowly
- B. The quality of electrolyte tends to slowly degrade
- C. The quality of cathode tends to degrade slowly
- D. The quality of anode material tends to slowly degrade

Question ID : 630680780529  
Status : Not Answered  
Chosen Option : --

Q.11 The closed loop transfer function is

$$T(S) = \frac{G(S)}{1+G(s)H(S)}$$

The characteristic equation is:

- Ans  A.  $1+G(s)H(S)$
- B.  $G(S)$
- C.  $H(S)$
- D.  $1 + G(s)H(S)$

Question ID : 630680780574  
Status : Answered  
Chosen Option : D

Q.12 \_\_\_\_\_ district of Tamil Nadu is also known as 'Granary of South India'

- Ans  A. Thirunelveli
- B. Tiruppur
- C. Thanjavur
- D. Tiruvannamalai

Question ID : 63068087426  
Status : Not Answered  
Chosen Option : --

Q.13 A DC generator is connected to a 220 V DC mains. The current delivered by the generator to the mains is 100 A. The armature resistance is 0.1  $\Omega$ . The armature copper loss is:

- Ans  A. 10000 W
- B. 10 W
- C. 100 W
- D. 1000 W

Question ID : 630680780507  
Status : Answered  
Chosen Option : D

Q.14 Select the most appropriate meaning of the given idiom.

To ride hell for leather

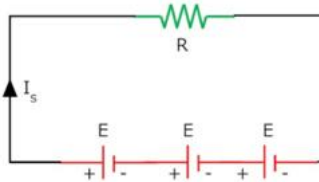
- Ans  A. To ride with at fast speed  
 B. To ride with at slow speed  
 C. To speak very fluently  
 D. To speak rudely

Question ID : 630680134946

Status : Answered

Chosen Option : D

Q.15 Neglecting internal resistance of the cells, what is the total voltage applied across 'R'?



- Ans  A. 3E  
 B. 4E  
 C. 2E  
 D. E

Question ID : 630680780480

Status : Answered

Chosen Option : D

Q.16 Who founded the 'Samata Sainik Dal' in 1927?

- Ans  A. Mahatma Gandhi  
 B. Jyotiba Phule  
 C. Dr. BR Ambedkar  
 D. Jawaharlal Nehru

Question ID : 630680321389

Status : Not Answered

Chosen Option : --

Q.17 What is the input voltage ( $V_{in}$ ) required to fire the SCR when a  $400\ \Omega$  resistor is connected in series with the gate of an SCR and the gate current required to fire the SCR is  $0.001$  amp? Consider that the junction voltage between the gate and cathode is  $0.7$  V.

- Ans  A. 3 V  
 B. 11.1 V  
 C. 2.1 V  
 D. 1.1 V

Question ID : 630680780526

Status : Answered

Chosen Option : D

Q.18 Identify the ferromagnetic materials from among the following metals.

- Copper
- Brass
- Nickel
- Iron
- Auminium

Ans  A. Copper and aluminium

B. Nickel and iron

C. Iron and brass

D. Copper and iron

Question ID : 630680780527

Status : Answered

Chosen Option : B

Q.19 Rotor resistances are used for which type of induction motor?

Ans  A. Capacitor start single-phase motor

B. Squirrel cage

C. Wound type

D. Reactance motor

Question ID : 630680780539

Status : Answered

Chosen Option : C

Q.20 The ripple factor of full wave and half wave rectifier are \_\_\_\_\_ and \_\_\_\_\_, respectively.

Ans  A. 0.48; 81.2

B. 0.48; 1

C. 1.21; 0.48

D. 0.48; 1.21

Question ID : 630680780564

Status : Answered

Chosen Option : D

Q.21 The marked price of a woolen jacket is ₹7,200. During the off season, it is sold for ₹6,192. Determine the discount percentage.

Ans  A. 18%

B. 12%

C. 14%

D. 16%

Question ID : 630680543540

Status : Answered

Chosen Option : B

**Q.22** A single-phase, 230 V, 50 Hz AC mains fed fully controlled bridge rectifier is feeding a 200 V DC, 1500 rpm, 10 A separately excited DC motor with ripple-free continuous current under all operating conditions. The armature resistance is  $1 \Omega$  and motor torque is 15 Nm. What will the motor speed be at a firing angle of  $30^\circ$ ?

- Ans  A. 1428.78 rpm  
 B. 1318.5 rpm  
 C. 2955.54 rpm  
 D. 904 rpm

Question ID : 630680780534  
Status : Not Answered  
Chosen Option : --

**Q.23** Select the most appropriate adjective to fill in the blank.

\_\_\_\_\_ cities like London and Paris are hectic and crowded, which sometimes strangulates the public experiences.

- Ans  A. Perverse  
 B. Meditative  
 C. Large  
 D. Solitary

Question ID : 630680321910  
Status : Answered  
Chosen Option : D

**Q.24** This law states that the amount of chemical change produced by a current at an electrode-electrolyte boundary is proportional to the quantity of electricity. Which law is being referenced here?

- Ans  A. Ostwald's law of electrolysis  
 B. Ampere's law of electrolysis  
 C. Kohlrausch's law of electrolysis  
 D. Faraday's law of electrolysis

Question ID : 630680780531  
Status : Answered  
Chosen Option : D

**Q.25** What should come in place of the question mark (?) in the given series?  
262 237 221 212 208 ?

- Ans  A. 206  
 B. 200  
 C. 207  
 D. 204

Question ID : 630680542310  
Status : Answered  
Chosen Option : D

**Q.26** A voltmeter that can read 10 V maximum has a 2  $\Omega$  internal resistance. If it is extended to read 100 V, then the resistance inserted in the series will have a value of:

- Ans
- A. 20  $\Omega$
  - B. 9  $\Omega$
  - C. 10  $\Omega$
  - D. 18  $\Omega$

Question ID : 630680780547

Status : Answered

Chosen Option : D

**Q.27** Since November 2020, to ensure women's safety, Delhi Government has deployed 20 \_\_\_\_\_ at major locations, with panic buttons to send a signal to the control centre for help.

- Ans
- A. enforcement vans
  - B. women autos
  - C. martial vehicles
  - D. enforcement buggies

Question ID : 630680115183

Status : Not Answered

Chosen Option : --

**Q.28** Each vowel in the word CONSUMABLE is changed to the letter immediately following it in the English alphabetical order and each consonant is changed to the second letter preceding it in the English alphabetical order. How many letters will appear twice in the group of letters thus formed?

- Ans
- A. One
  - B. Zero
  - C. Two
  - D. Three

Question ID : 630680533510

Status : Answered

Chosen Option : B