Participant ID	
Participant Name	MEDICHETTY SANJAY
Test Center Name	Surya Technologies
Test Date	27/07/2022
Test Time	12:30 PM - 2:30 PM
Subject	Junior Executive(ATC)

AAI ATC 27 JULY 2022
2nd Shift Paper With Answer Key

Section : **English Language**

Q.1 **Select the option that gives the most appropriate meaning of the underlined idiom.**
Beginners should not put all eggs in one basket.

Ans ✗ 1. Put all eggs in a basket and carry

✗ 2. Put all materials in a container

✔ 3. Risk everything in one venture

✗ 4. Use all money you have with you

Question ID : **63068054124**
Status : **Answered**
Chosen Option : **3**

Q.2 **Select the most appropriate meaning of the given proverb.**

Curiosity killed the cat.

Ans ✗ 1. Interfering in others' work is helpful for them.

✗ 2. Being more curious than necessary in studies is harmful.

✔ 3. Inquiring into others' business can get dangerous.

✗ 4. Minding our own business is dangerous.

Question ID : **63068055145**
Status : **Answered**
Chosen Option : **2**

Q.3 Select the option that can be used as a one-word substitute for the given group of words/phrase.
A person who takes care of a collection in museum or exhibits in an art gallery

Ans ✗ 1. Concierge

✓ 2. Curator

✗ 3. Excavator

✗ 4. Caretaker

Question ID : **63068050740**
Status : **Marked For Review**
Chosen Option : **1**

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

When he visited Italy we saw a lot of <u>circular buildings with domes.</u>

Ans ✗ 1. Accordions

✓ 2. Rotundas

✗ 3. Baroques

✗ 4. Adobes

Question ID : **63068069271**
Status : **Marked For Review**
Chosen Option : **4**

Q.5 The following sentence has been split into four segments. Identify the segment that contains a grammatical error.
Last month, / Gunjan had began / to sell stationery as well / in her bookstore.

Ans ✗ 1. Last month

✗ 2. in her bookstore

✗ 3. to sell stationery as well

✓ 4. Gunjan had began

Question ID : **63068050193**
Status : **Answered**
Chosen Option : **4**

Q.6 Sentences of a paragraph are given below. While the first sentence (1) is in the correct order, the sentences in between are jumbled up. Select the option that arranges the sentences in the correct order to form a meaningful and coherent paragraph.
1.I think just like men, women too crave for equality, economic independence and recognition at the workplace.
A.Men are taking care of the kids, while the woman earns for the family, as per the decision taken by the couple.
B.Times have changed and there are a lot of cases where men have willingly agreed to be house-husbands.
C.And as far as babies are concerned, they are the responsibility of both the parents.
D.Their contribution in the workplace is as important as that of their male colleagues.

Ans ✗ 1. BADC

✓ 2. DCBA

✗ 3. BCDA

✗ 4. DBCA

Question ID : **63068058397**
Status : **Answered**
Chosen Option : **4**

Q.7 **Select the most appropriate article to fill in the blank.**
Ranjan works in UPPCL. He is _____ SDO.

Ans ✗ 1. somee

  ✓ 2. An

  ✗ 3. a

  ✗ 4. No article

Question ID : **63068054052**
Status : **Answered**
Chosen Option : **2**

Q.8 **Four statements are given below labelled A, B, C and D. Among these, three statements are in logical order and form a coherent paragraph. From the following options, choose the option that does NOT fit into the theme of the paragraph.**

A.The origin of the game Tennis was at first a solemn fertility rite in Egypt and in the Middle East.
B.Etymology is the study of the origin of words and the way in which their meanings have changed throughout history.
C.The term is derived from an Egyptian town on the Nile known as Tinnis and 'racket' is from the Arab word'rahat'.
D.Records confirm that tennis was played in France in the 12th century at first with the palm of the hand.

Ans ✗ 1. D

  ✗ 2. C

  ✓ 3. B

  ✗ 4. A

Question ID : **63068086371**
Status : **Answered**
Chosen Option : **3**

Q.9 **Choose the option that is the simple past tense form of the given sentence.**

The roads were wet as it had been raining heavily.

Ans ✗ 1. The roads are wet as it has been raining heavily.

  ✗ 2. The roads are wet as it rained heavily.

  ✗ 3. The roads were wet as it has been raining heavily.

  ✓ 4. The roads were wet as it rained heavily.

Question ID : **63068048044**
Status : **Answered**
Chosen Option : **4**

Q.10 **Select the most appropriate option to fill in the blank.**
Turn on _____ light, please.

Ans ✗ 1. an

  ✗ 2. a

  ✗ 3. No article required

  ✓ 4. the

Question ID : **63068050231**
Status : **Answered**
Chosen Option : **4**

Q.11 Select the option that can be used as a one-word substitute for the given group of words.
A vigorous campaign for political, social, or religious change

Ans ✗ 1. War

✗ 2. Rebellion

✓ 3. Crusade

✗ 4. Combat

Question ID : **63068054848**

Status : **Answered**

Chosen Option : **2**

Q.12 Select the most appropriate synonym of the given word.
Evocative

Ans ✗ 1. Boring

✗ 2. Amazing

✓ 3. Inspiring

✗ 4. Deceiving

Question ID : **63068050277**

Status : **Answered**

Chosen Option : **3**

Q.13 Select the option that correctly rectifies the error in the given sentence.
There was a group of laundry on Rohan's bed.

Ans ✗ 1. There was a large group of laundry on Rohan's bed.

✓ 2. There was a pile of laundry on Rohan's bed.

✗ 3. There was a collection of laundry on Rohan's bed.

✗ 4. There was a big group of laundry on Rohan's bed.

Question ID : **63068050293**

Status : **Answered**

Chosen Option : **2**

Q.14 Select the most appropriate ANTONYM of the underlined word to fill in the blank.

Although the court accused him of being guilty of the crime, in reality, he was actually
_____.

Ans ✗ 1. ignorant

✗ 2. ashamed

✗ 3. culpable

✓ 4. innocent

Question ID : **63068064307**

Status : **Answered**

Chosen Option : **4**

Q.15 Select the option that gives the most appropriate meaning of the underlined word.
As the audience gathered around the ring, the fighters entered.

Ans ✗ 1. Surround

✓ 2. Roped enclosure in combat sports

✗ 3. An ornament worn on fingers

✗ 4. Circular marking or pattern

Question ID : **63068054536**

Status : **Answered**

Chosen Option : **2**

Q.16 Select the most appropriate option to fill in the blanks.
_____ the on-going pandemic, one must keep ____ mind to wear a mask and follow the guidelines authorised _____ the government.

Ans ✗ 1. For; on; over

✓ 2. Amidst; in; by

✗ 3. For; in; by

✗ 4. Amidst; at; to

Question ID : **63068050173**
Status : **Answered**
Chosen Option : **2**

Q.17 In the given sentence, four words have been underlined and the underlined words are given as options. Select the option that contains an error.

The teacher spoke <u>softly and gentle</u> to the <u>inconsolably</u> crying child, as she <u>instinctively</u> knew the soft heart below the <u>rough</u> surface.

Ans ✗ 1. rough

✓ 2. softly and gentle

✗ 3. instinctively

✗ 4. inconsolably

Question ID : **63068047986**
Status : **Answered**
Chosen Option : **2**

Q.18 Parts of a sentence are given below in jumbled order. Arrange the parts in the correct order to form a meaningful sentence.
As well as / our General Manager / his deputy / is / till the end / on official tour / of this month.

Ans ✗ 1. Our General Manager, as well as his deputy, is till the end of this month on official tour.

✓ 2. Our General Manager, as well as his deputy, is on official tour till the end of this month.

✗ 3. Till the end of this month, Our General Manager is on official tour as well as his deputy.

✗ 4. His deputy, as well as Our General Manager is till the end of this month on official tour.

Question ID : **63068054128**
Status : **Answered**
Chosen Option : **2**

Q.19 Select the most appropriate adjective to fill in the blank.

My father is so _____ that people constantly cheat him.

Ans ✓ 1. gullible

✗ 2. jovial

✗ 3. old

✗ 4. happy

Question ID : **63068047972**
Status : **Answered**
Chosen Option : **1**

Q.20 Select the grammatically correct form of the given sentence from the following options.

These measures have slowly started making a positive impact, but there are still a long way to go.

Ans ✗ 1. These measures have slowly starting making a positive impact, but there is still a long way to go.

✗ 2. These measures have slowly started making a positive impact, but there are still a long way to go.

✓ 3. These measures have slowly started making a positive impact, but there is still a long way to go.

✗ 4. These measures has slowly started making a positive impact, but there are still a long way to go.

Question ID : **63068049391**
Status : **Answered**
Chosen Option : **3**

Section : **General Intelligence or Reasoning**

Q.1 A man facing south walks 30 metres towards his right and turns right again to walk for 50 metres. He then turns left and walks for 20 metres.Then, he takes a final left and walks for another 20 metres. In which direction is he now from his starting point?

Ans ✗ 1. North-east

✗ 2. South-west

✗ 3. South-east

✓ 4. North-west

Question ID : **63068048491**
Status : **Answered**
Chosen Option : **4**

Q.2 Refer to the following letter, number, symbol series and answer the question that follows.
(Left) 3 ∞ M 6 R Y Ω 4 D π S 2 @ 7 K E 5 & B % G (Right)
If all the letters are deleted from the given series, what will be the seventh element from the right end?

Ans ✗ 1. 4

✗ 2. Ω

✗ 3. 2

✓ 4. π

Question ID : **63068049826**
Status : **Answered**
Chosen Option : **4**

Q.3 In a certain code language, 'ABODE' is coded as 97856 and 'BOARD' is coded as 85962.
What will be the code for 'R' in the given code language?

Ans ✗ 1. 7

✗ 2. 5

✗ 3. 8

✓ 4. 2

Question ID : **63068057803**
Status : **Answered**
Chosen Option : **4**

Q.4 In this question, a statement is followed by two conclusions, numbered I and II. Find out which conclusion(s) is/are true based on the given statement.

Statement:

A ≤ C ≥ B ≥ D ≥ F< E

Conclusions:

I. C > F

II. F= C

Ans   ✓ 1. Either conclusion I or conclusion II is true.

   ✗ 2. Both conclusions I and II are true.

   ✗ 3. Only conclusion I is true.

   ✗ 4. Only conclusion II is true.

Question ID : **63068048932**
Status : **Answered**
Chosen Option : **1**

Q.5 K, S, R, F, G and L are sitting in a row, facing north. G and L are in the centre. G is the immediate neighbour of R. K and S are at the extreme ends. R sits to the immediate right of S. Who is to the left of K?

Ans   ✗ 1. R

   ✓ 2. F

   ✗ 3. G

   ✗ 4. L

Question ID : **63068058145**
Status : **Answered**
Chosen Option : **2**

Q.6 Six children C, D, E, F, G and H are sitting on a circular bench, facing towards the centre. C and F are sitting together. D is sitting immediately to the left of F. Only G is sitting between C and H.

Who is sitting between H and D?

Ans   ✗ 1. C

   ✗ 2. G

   ✓ 3. E

   ✗ 4. H

Question ID : **63068048424**
Status : **Answered**
Chosen Option : **3**

Q.7 Read the given information and answer the question(s) that follow(s).

In a certain code language, 'Hot Monsoon Rain' is written as 'DAV RAV SAK', 'Enjoy Lovely Monsoon' is written as 'KAS ANK RAV' and 'AC Enjoy Rain' is written as 'ANK DAV UHS'.

How will 'Rain' be written in that language?

Ans   ✓ 1. DAV

   ✗ 2. SAK

   ✗ 3. ANK

   ✗ 4. UHS

Question ID : **63068059282**
Status : **Answered**
Chosen Option : **1**

Q.8 If '÷' means '+', '×' means '-', '+' means '÷' and'-' means '×',select the number from among the given options that can replace the question mark (?) in the following equation.
9 × 16 + 8 ÷ 6 − 3 = 32 + ? ÷ 3 − 8

Ans   ✗ 1. 8

     ✗ 2. 24

     ✔ 3. 32

     ✗ 4. 36

Question ID : **63068048340**
Status : **Answered**
Chosen Option : **3**

Q.9 A certain number of people are sitting in a row, facing North. E sits third to the right of D. Only two people sit between A and C. Only six people sit between B and D. F sits to the immediate left of D. Only two people sit between C and D. E sits at one corner of the row. If no other person is sitting in the row, what is the total number of persons seated?

Ans   ✗ 1. 14

     ✔ 2. 11

     ✗ 3. 15

     ✗ 4. 10

Question ID : **63068057373**
Status : **Answered**
Chosen Option : **2**

Q.10 Robin says while pointing to a man, "He is the only son of my grandfather". How is the man related to Robin?

Ans   ✗ 1. Grandfather

     ✗ 2. Brother

     ✗ 3. Son

     ✔ 4. Father

Question ID : **63068058814**
Status : **Answered**
Chosen Option : **4**

Q.11 Refer to the following letter, number, symbol series and answer the question that follows.
(Left) R Y # 5 E Ω D 2 @ 6 K 4 G & T 3 S C % 7 M (Right)
As per the given series, three of the following four are alike in a certain way and hence form a group. Which of the following does NOT belong to that group?

Ans   ✔ 1. SM3

     ✗ 2. E25

     ✗ 3. K&6

     ✗ 4. TC&

Question ID : **63068049832**
Status : **Answered**
Chosen Option : **1**

Q.12 Six colleagues Vansh, Priya, Sam, Krish, Dipa and John are sitting around a circular table for lunch. Only two friends are sitting between Krish and Dipa. John and Sam are not the neighbours of Krish. Sam is sitting immediately to the left of Dipa and Priya is sitting immediately to the right of Krish.
Who is sitting second to the left of Sam?

Ans ❌ 1. Priya

❌ 2. John

✅ 3. Krish

❌ 4. Vansh

Question ID : **63068048423**
Status : **Answered**
Chosen Option : **3**

Q.13 If 'X' means 8, 'Y' means 19 and'÷' means '+',select the number from among the given options that can replace the question mark (?) in the following equation.
Y ÷ ? × X + 3 = 38

Ans ❌ 1. 171

✅ 2. 2

❌ 3. 4

❌ 4. 231

Question ID : **63068048329**
Status : **Answered**
Chosen Option : **2**

Q.14 Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.
_kj_hl_ji_lk_ih_k_ih_kj_h

Ans ❌ 1. likhljjli

❌ 2. lihkljjli

❌ 3. ilkjiljil

✅ 4. likhjljli

Question ID : **63068063935**
Status : **Answered**
Chosen Option : **4**

Q.15 This question has two statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. You have to decide which conclusion/s logically follow/s from the given statements.
Statements:
All hats are inks.
All inks are fans.
Conclusions (I): All fans are inks.
Conclusions (II): All hats are fans.

Ans ❌ 1. Only conclusion (I) follows.

✅ 2. Only conclusion (II) follows.

❌ 3. Neither conclusion (I) nor (II) follows.
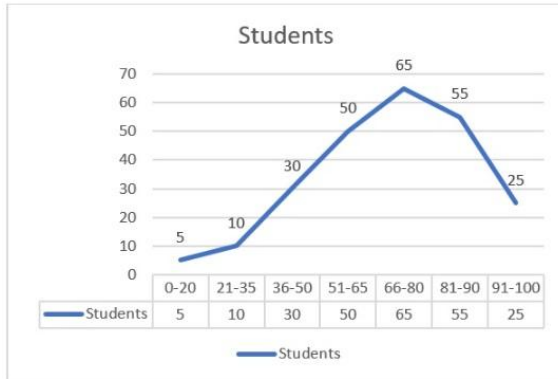
❌ 4. Both conclusions (I) and (II) follow.

Question ID : **63068083927**
Status : **Answered**
Chosen Option : **2**

Section : **General Aptitude or Numerical Ability**

Q.1 Study the given line-graph carefully

The line-graph shows the marks obtained by 240 students. It is given that the passing marks are 36 and the mean marks are 50.

The percentage of students getting more than 80% marks is _____.

Ans

  ✗ 1. 35%

  ✗ 2. 32%

  ✗ 3. 32.25%

  ✔ 4. 33.33%

Q.2 The frustum of a right circular cone has the radii of base and top as 4 cm and 2 cm, respectively. If the height is 6 cm, then find the volume of the frustum.

Ans

  ✗ 1. $50\,\pi\ cm^3$

  ✔ 2. $56\,\pi\ cm^3$

  ✗ 3. $68\,\pi\ cm^3$

  ✗ 4. $86\,\pi\ cm^3$

Q.3 If $x = y^a$, $y = z^b$, $z = x^c$, then abc is:

Ans

  ✔ 1. 1

  ✗ 2. xyz

  ✗ 3. –1

  ✗ 4. 0

Q.4 3 men, 4 women and 6 children working together can finish a piece of work in 7 days. If each woman works twice as much as a man does, and each child does half as much as a man does, how many women, working together, can finish the work in 7 days?

Ans   ✗ 1. 9

      ✗ 2. 8

      ✔ 3. 7

      ✗ 4. 10

Q.5 Manish buys and old car for ₹5,300 and spend ₹1,000 on its repairs. If he sells the car for ₹7,000, his gain percent is:

Ans   ✗ 1. 12%

      ✗ 2. $11\frac{2}{9}\%$

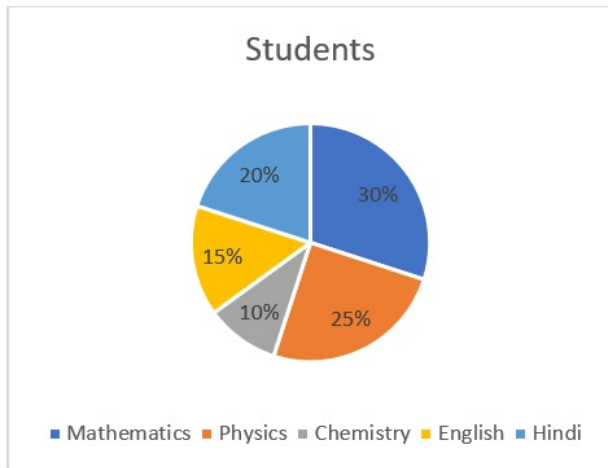   ✗ 3. $21\frac{1}{9}\%$

      ✔ 4. $11\frac{1}{9}\%$

Q.6 Study the given pie-chart carefully

The pie-chart shows the number of students studying different subjects in a school.

Total number of students is 8000.

Students

- Mathematics ■ Physics ■ Chemistry ■ English ■ Hindi

Find the sectorial angle made by the Hindi and English subject students.

Ans

✗ 1. 60°

✔ 2. 126°

✗ 3. 106°

✗ 4. 120°

Q.7 The sides of a triangle are in the ratio 5:12:13 and its perimeter is 300m. Find its area.

Ans

✗ 1. 1500 m^2

✗ 2. 2500 m^2

✔ 3. 3000 m^2

✗ 4. 750 m^2

Q.8 A sum of money becomes ₹4,875 in 4 years at a rate of 12.5% per annum simple interest.
What is the sum?

Ans

✗ 1. ₹3,215

✔ 2. ₹3,250

✗ 3. ₹3,200

✗ 4. ₹3,225

Q.9 A thief noticed a policeman at a distance of 400 m. Then the thief started running and the policeman chased him. The thief and policeman are running at the rate of 10 km and 12 km per hour, respectively. Find the time required for the policeman to catch the thief.

Ans ✗ 1. 8 minutes

✓ 2. 12 minutes

✗ 3. 15 minutes

✗ 4. 10 minutes

Question ID : **63068076041**
Status : **Answered**
Chosen Option : **2**

Q.10 If on a marked price, the difference of selling prices with a discount of 30% and two successive discounts of 20% and 10% is Rs.72, then the marked price is:

Ans ✗ 1. Rs.3,400

✓ 2. Rs.3,600

✗ 3. Rs.4,000

✗ 4. Rs.3,800

Question ID : **63068057563**
Status : **Answered**
Chosen Option : **2**

Q.11 If two numbers are each divided by the same divisor, the remainders are, respectively, 5 and 6. If the sum of the two numbers is divided by the same divisor, the remainder is 4. The divisor is:

Ans ✗ 1. 5

✗ 2. 3

✓ 3. 7

✗ 4. 9

Question ID : **63068050009**
Status : **Marked For Review**
Chosen Option : **3**

Q.12 The cost of an article decreased from ₹50 to ₹40. Find the percentage of decrease.

Ans ✗ 1. 30%

✗ 2. 25%

✓ 3. 20%

✗ 4. 15%

Question ID : **63068051611**
Status : **Answered**
Chosen Option : **3**

Q.13 In a class of 68 students, the ratio of boys and girls is 11 : 6. A student K ranks 49th among all the students from the top and 13th among boys from the bottom. How many girls are ranked above K?

Ans ✗ 1. 15

✗ 2. 23

✓ 3. 17

✗ 4. 20

Question ID : **63068052677**
Status : **Answered**
Chosen Option : **3**

Q.14 A man buys a scooter on making a cash payment of ₹16,224 and promises to pay two more yearly instalment of equivalent amount in the next two years. If the rate of interest is 4% per annum compounded yearly, what is the cash value of the scooter?

Ans ✖ 1. ₹30,000

✖ 2. ₹46,000

✔ 3. ₹46,824

✖ 4. ₹40,800

Question ID : **63068070857**
Status : **Answered**
Chosen Option : **3**

Q.15 In a certain class, 20% of students have an average weight of 64 kg, 35% of students have an average weight of 72 kg, 30% of students have an average weight of 68 kg, and the remaining students have an average weight of 82 kg. What is the average weight of all students in the class?

Ans ✖ 1. 70.5 kg

✖ 2. 80 kg

✖ 3. 70.9 kg

✔ 4. 70.7 kg

Question ID : **63068060052**
Status : **Answered**
Chosen Option : **3**

Section : **General Knowledge or Awareness**

Q.1 When the demand and supply curve intersect each other, _____ is determined.

Ans ✖ 1. producer's satisfaction

✖ 2. consumer satisfaction

✔ 3. equilibrium price

✖ 4. aggregate demand

Question ID : **63068051001**
Status : **Answered**
Chosen Option : **3**

Q.2 In which year was the Dronacharya Award instituted?

Ans ✖ 1. 1981

✔ 2. 1985

✖ 3. 1987

✖ 4. 1983

Question ID : **63068051051**
Status : **Marked For Review**
Chosen Option : **2**

Q.3 The length of India's border with Bangladesh is:

Ans ✖ 1. 5096 km

✖ 2. 2096 km

✖ 3. 3096 km

✔ 4. 4096 km

Question ID : **63068059726**
Status : **Marked For Review**
Chosen Option : **4**

Q.4 Antoine Laurent Lavoisier was well known for his discovery of:

Ans ✔ 1. oxygen's role in combustion and respiration

✘ 2. a systematic relation between wave-length and atomic number

✘ 3. accurate atomic weights for the chemical elements

✘ 4. a new metal – cobalt

Question ID : **63068051548**
Status : **Marked For Review**
Chosen Option : **2**

Q.5 Nidhi Company is recognised under Section _____ of the Companies Act, 2013.

Ans ✔ 1. 406

✘ 2. 620A

✘ 3. 403

✘ 4. 612

Question ID : **63068050982**
Status : **Answered**
Chosen Option : **1**

Q.6 Select the correct pair of the Buddhist monument and its respective state, from the given options.

Ans ✘ 1. Kesaria stupa - Madhya Pradesh

✘ 2. Dhamkesh stupa - West Bengal

✔ 3. Chaukhandi stupa - Uttar Pradesh

✘ 4. Mahabodhi temple - Odisha

Question ID : **63068083755**
Status : **Marked For Review**
Chosen Option : **4**

Q.7 Which of the following is caused by the deficiency of vitamin D?

Ans ✘ 1. Loss of vision

✔ 2. Rickets

✘ 3. Scurvy

✘ 4. Beriberi

Question ID : **63068052837**
Status : **Answered**
Chosen Option : **2**

Q.8 In 1932, where was the Poona Pact signed?

Ans ✘ 1. Rajahmundry Central Jail

✘ 2. The Cellular Jail

✔ 3. Yerawada Central Jail

✘ 4. Naini Central Jail

Question ID : **63068053023**
Status : **Answered**
Chosen Option : **1**

Q.9 In which of the following seasons do the coastal areas of Tamil Nadu receive rainfall due to retreating monsoon?

Ans ✗ 1. Summer

✓ 2. Winter

✗ 3. Autumn

✗ 4. Spring

Question ID : **63068068546**

Status : **Answered**

Chosen Option : **2**

Q.10 Which Constitution Amendment Act substituted the category of Union Territories in place of Part C states in the Constitution?

Ans ✗ 1. 5th Amendment Act

✗ 2. 21st Amendment Act

✗ 3. 89th Amendment Act

✓ 4. 7th Amendment Act

Question ID : **63068051161**

Status : **Marked For Review**

Chosen Option : **2**

Section : **Discipline related**

Q.1 Which of the following represents direction cosines of the line?

Ans ✗ 1. $0, \frac{1}{2}, \frac{1}{2}$

✓ 2. $0, \frac{\sqrt{3}}{2}, \frac{1}{2}$

✗ 3. $\frac{1}{3}, \frac{1}{3}, \frac{1}{3}$

✗ 4. $0, \frac{1}{\sqrt{3}}, \frac{1}{3}$

Question ID : **63068099954**

Status : **Answered**

Chosen Option : **2**

Q.2 The intercept of the y-axis for the graph between stopping potential versus frequency will give us:

Ans ✗ 1. maximum kinetic energy of the emitted electron

✗ 2. stopping potential of the metal

✓ 3. work function of the metal in natural units

✗ 4. maximum potential energy of the emitted electron

Question ID : **630680100062**

Status : **Answered**

Chosen Option : **1**

Q.3 The domain of $\sin^{-1}\left(\frac{x+1}{3}\right)$ is:

Ans ✗ 1. $[-1,1]$

✗ 2. $(-4,2)$

✓ 3. $[-4,2]$

✗ 4. R

Question ID : **63068099935**
Status : **Answered**
Chosen Option : **3**

Q.4 If $\lambda\hat{i} + 2\lambda\hat{j} + 2\lambda\hat{k}$ is a unit vector, then the value of λ is:

Ans ✗ 1. $\frac{1}{4}$

✗ 2. $\frac{1}{2}$

✓ 3. $\frac{1}{3}$

✗ 4. $\frac{1}{9}$

Question ID : **63068099924**
Status : **Answered**
Chosen Option : **3**

Q.5 Consider an ideal toroid of average radius 16.0 cm with 240 turns. A current of 10 A is maintained in it. The magnitude of magnetic field inside the toroid is $[(\frac{\mu_0}{4\pi}) = 10^{-7}$ Tm/A]:

Ans ✗ 1. 6.0 mT

✗ 2. 9.0 mT

✓ 3. 3.0 mT

✗ 4. 1.5 mT

Question ID : **630680100016**
Status : **Answered**
Chosen Option : **1**

Q.6 A point source in air is placed at a distance of 40 cm in front of a spherical convex glass surface (n = 1.5) of radius of curvature 10 cm. The image of the source is formed at a distance of _____ from the surface in the direction of incident light.

Ans ✗ 1. 70 cm

✓ 2. 60 cm

✗ 3. 80 cm

✗ 4. 90 cm

Question ID : **630680100054**
Status : **Answered**
Chosen Option : **3**

Q.7 A 2.0 m long metallic rod is rotated with an angular frequency of 100 rad/s about an axis normal to the rod and passing through its one end. A uniform magnetic field of 2.0 T exits parallel to the axis. The emf induced between the two ends of the rod is:

Ans
✔ 1. 400 V

✘ 2. 40 V

✘ 3. 200 V

✘ 4. 20 V

Question ID : **630680100029**
Status : **Answered**
Chosen Option : **3**

Q.8 Which of the following statements is/are correct about a p-n junction diode?

(a) The threshold voltage or cut-in voltage for germanium diode is about 0.7 V.

(b) The current under reverse bias is essentially voltage independent up to breakdown voltage.

Ans
✘ 1. Neither (a) nor (b)

✘ 2. Only (a)

✘ 3. Both (a) and (b)

✔ 4. Only (b)

Question ID : **630680100026**
Status : **Answered**
Chosen Option : **3**

Q.9 An object is placed on the axis of a concave mirror at a point beyond centre of curvature. Its image formed by the mirror is:

Ans
✔ 1. real and inverted

✘ 2. virtual and erect

✘ 3. real and erect

✘ 4. virtual and inverted

Question ID : **63068099995**
Status : **Answered**
Chosen Option : **3**

Q.10 The ratio of the longest wavelength to the shortest wavelength ($\frac{\lambda_L}{\lambda_S}$) in Brackett series of hydrogen spectrum is:

Ans
✔ 1. $\dfrac{25}{9}$

✘ 2. $\dfrac{25}{3}$

✘ 3. $\dfrac{16}{9}$

✘ 4. $\dfrac{16}{3}$

Question ID : **630680100034**
Status : **Answered**
Chosen Option : **1**

Q.11 Two coils, A and B, are arranged parallel to each other. When the current in coil A increases at the rate of 20 A/s and current in coil B is 5A/s, the induced emf in coil B is 60 mV. The mutual inductance of the two coils is:

Ans

✗ 1. 4 mH

✗ 2. 5 mH

✗ 3. 6 mH

✓ 4. 3 mH

Q.12 A copper wire of uniform area of cross-section 3.4×10^{-5} m^2 carries a current of 4.0 A. The magnitude of the electric field applied is _____ (Resistivity of copper: 1.7×10^{-8} Ω m).

Ans

✓ 1. $2.0 \times 10^{-3} \ \dfrac{V}{m}$

✗ 2. $1.0 \times 10^{-3} \ \dfrac{V}{m}$

✗ 3. $3.4 \times 10^{-2} \ \dfrac{V}{m}$

✗ 4. $1.6 \times 10^{-2} \ \dfrac{V}{m}$

Q.13 The frequency of an electromagnetic (EM) wave is 6×10^{14} Hz. The wavelength of the EM wave is _____, and it falls in the range _____.

Ans

✓ 1. 500 nm, visible rays

✗ 2. 0.5 mm, microwaves

✗ 3. 500 mm, infrared waves

✗ 4. 50 nm, UV rays

Q.14 Find the distance between two points (2, 6, 5) and (2, 3, 9).

Ans

✓ 1. 5 units

✗ 2. 0 units

✗ 3. 7 units

✗ 4. 4 units

Q.15 Find the value of $\dfrac{\sin(180°+\theta)\sec(360°-\theta)\cot(90°-\theta)}{\tan(180°+\theta)\sec(-\theta)\cos(90°+\theta)}$.

Ans ✗ 1. 0

✔ 2. 1

✗ 3. $tan(\theta)$

✗ 4. $sin(\theta)$

Q.16 The probability of three persons A, B and C becoming clerks of a certain administrative office are 3 : 2 : 4. The probabilities that incentive will be introduced if they become clerks are 0.4, 0.5 and 0.3, respectively. If the incentive has been introduced, then what is the probability that C is appointed as the clerk?

Ans ✔ 1. $\dfrac{6}{17}$

✗ 2. $\dfrac{1}{3}$

✗ 3. $\dfrac{3}{8}$

✗ 4. $\dfrac{2}{5}$

Q.17 Find the value of dy/dx if $x = cost, y = sint$.

Ans ✗ 1. $cott$

✗ 2. $-tant$

✗ 3. $tant$

✔ 4. $-cott$

Q.18 The total decay rate R of a sample is related to the decay rate R_0 at t = 0 and the disintegration constant or decay constant λ as:

Ans ✔ 1. $R = R_0\, e^{-(\lambda)t}$

✗ 2. $R = R_0\, e^{-(2\lambda)t}$

✗ 3. $R = R_0\, e^{-(\frac{\lambda}{2})t}$

✗ 4. $R = R_0\, e^{-(\frac{\lambda}{4})t}$

Q.19 A series LCR circuit with R = 10 Ω, X_L = 30 Ω and X_C = 24 Ω is connected to a 220 V, 50 Hz AC source. The power dissipated in the circuit is:

Ans   ✔ 1. 3.56 kW

     ✘ 2. 4.36 kW

     ✘ 3. 2.56 kW

     ✘ 4. 3.26 kW

> Question ID : **630680100048**
> Status : **Answered**
> Chosen Option : **3**

Q.20 Find $[f \circ g](x)$ if $g(x) = x + 2$ and $f(x) = x^2 - x + 4$.

Ans   ✘ 1. $x^2 - 3x + 15$

     ✔ 2. $x^2 + 3x + 6$

     ✘ 3. $x^2 - 3x - 6$

     ✘ 4. $x^2 - 3x + 6$

> Question ID : **63068099934**
> Status : **Answered**
> Chosen Option : **3**

Q.21 Find the value of the integral $\int \ln(x)\, dx$.

Ans   ✔ 1. $x\ln(x) - x + C$

     ✘ 2. $x\ln(x) - 1 + C$

     ✘ 3. $-x\ln(x) + \frac{1}{x} + C$

     ✘ 4. $\frac{1}{x}\ln(x) - x + C$

> Question ID : **63068099895**
> Status : **Answered**
> Chosen Option : **1**

Q.22 If $\vec{a}$ and $\vec{b}$ are two-unit vectors inclined at an angle θ , then the value of $|\vec{a} - \vec{b}|$ is:

Ans   ✘ 1. $2\cos\theta$

     ✔ 2. $2\sin(\theta/2)$

     ✘ 3. $2\sin\theta$

     ✘ 4. $2\cos(\theta/2)$

> Question ID : **63068099974**
> Status : **Answered**
> Chosen Option : **4**

Q.23 The area enclosed by the curves $y = x - 1$ and $y^2 = 2x + 6$ is:

Ans
✗ 1. 21
✔ 2. 18
✗ 3. 24
✗ 4. 20

Question ID : 63068099923
Status : **Answered**
Chosen Option : **3**

Q.24 Differentiate $f(x) = \cos(\tan 3x) + \sin(\tan 3x)$.

Ans
✗ 1. $\cos(\tan 3x) + \sin(\tan 3x)$
✗ 2. $\sec^2 3x(\cos(\tan 3x) + \sin(\tan 3x))$
✗ 3. $\cos(\tan 3x) - \sin(\tan 3x)$
✔ 4. $3\sec^2 3x(\cos(\tan 3x) - \sin(\tan 3x))$

Question ID : 63068099917
Status : **Answered**
Chosen Option : **4**

Q.25 An EM wave has energy of the order of 20 eV. Which part of the EM wave spectrum does it belong to?

Ans
✔ 1. Ultraviolet
✗ 2. Radiowave
✗ 3. Visible
✗ 4. Infrared

Question ID : 630680100076
Status : **Answered**
Chosen Option : **1**

Q.26 Consider two nuclei, A of mass number 27 and B of mass number 64. Considering them as liquid –drops, the ratio of

their densities $\left(\frac{d_A}{d_B}\right)$ will be:

Ans
✗ 1. $\dfrac{9}{16}$

✗ 2. $\dfrac{\sqrt{3}}{2}$

✔ 3. 1

✗ 4. $\dfrac{3}{4}$

Question ID : 630680100032
Status : **Answered**
Chosen Option : **2**

Q.27

If the matrix $A = \begin{bmatrix} 0 & 1 & -1 \\ 4 & -3 & 4 \\ 3 & -3 & 4 \end{bmatrix} = B + C$, where B is symmetric and C is skew-symmetric matrix, find the matrix B.

Ans

✗ 1. $\dfrac{1}{2}\begin{bmatrix} 0 & 1 & 2 \\ 1 & -2 & 1 \\ 1 & 2 & 4 \end{bmatrix}$

✓ 2. $\dfrac{1}{2}\begin{bmatrix} 0 & 5 & 2 \\ 5 & -6 & 1 \\ 2 & 1 & 8 \end{bmatrix}$

✗ 3. $\dfrac{1}{2}\begin{bmatrix} 0 & -3 & -4 \\ 3 & 0 & 7 \\ 4 & -7 & 0 \end{bmatrix}$

✗ 4. $\dfrac{1}{2}\begin{bmatrix} 0 & 3 & 4 \\ -3 & 0 & -7 \\ -4 & 7 & 0 \end{bmatrix}$

Question ID : **63068099915**
Status : **Answered**
Chosen Option : **2**

Q.28 Which of the following electromagnetic waves/rays has the minimum frequency?

Microwaves, Radio waves, Ultraviolet rays, X-rays

Ans

✗ 1. Microwaves

✗ 2. Ultraviolet rays

✓ 3. Radio waves

✗ 4. X-rays

Question ID : **63068099992**
Status : **Answered**
Chosen Option : **1**

Q.29 A coil is carrying a current of 10 A and has radius 10 cm and number of turns 500. It is rewound to make a new coil of radius 5 cm and it carries same current 10 A. The ratio of magnetic moment of original coil to that of new coil is

Ans

✗ 1. $4 : 1$

✗ 2. $3 : 2$

✗ 3. $4 : 3$

✓ 4. $2 : 1$

Question ID : **630680100070**
Status : **Answered**
Chosen Option : **4**

Q.30 When Ge is doped with _____ a p-type semiconductor is formed.

Ans

✗ 1. antimony

✗ 2. arsenic

✗ 3. phosphorous

✓ 4. boron

Question ID : **630680100025**
Status : **Answered**
Chosen Option : **2**

Q.31

The inverse of the matrix $A = \begin{pmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{pmatrix}$ is:

Ans

✔ 1. $\begin{pmatrix} 3 & 1 & 1.5 \\ -1.25 & -0.25 & -0.75 \\ -0.25 & -0.25 & -0.25 \end{pmatrix}$

✘ 2. $\begin{pmatrix} 3 & 1 & 1.5 \\ -1.50 & -0.25 & -0.75 \\ -0.25 & -0.25 & -0.25 \end{pmatrix}$

✘ 3. $\begin{pmatrix} 3 & 1 & 1.5 \\ -1.25 & -0.75 & -0.25 \\ -0.25 & -0.25 & -0.25 \end{pmatrix}$

✘ 4. $\begin{pmatrix} 3 & 1 & 1.5 \\ -1.25 & -0.25 & -0.75 \\ -0.25 & -0.75 & -0.25 \end{pmatrix}$

Question ID : **63068099891**
Status : **Answered**
Chosen Option : **4**

Q.32 The set of all possible outcomes is known as _____.

Ans ✘ 1. null set

✘ 2. event

✔ 3. sample space

✘ 4. probability

Question ID : **63068099955**
Status : **Answered**
Chosen Option : **3**

Q.33 Let A be {l,m,n}. Let the relation R be {}. Which of the following statements about R is true?

Ans ✔ 1. R is not reflexive, is symmetric, and is transitive.

✘ 2. R is not reflexive, is symmetric, and is not transitive.

✘ 3. R is reflexive, is symmetric, and is not transitive.

✘ 4. R is not reflexive, is not symmetric, and is not transitive.

Question ID : **63068099958**
Status : **Answered**
Chosen Option : **4**

Q.34 Two charges, A (48 pC) and B (36 pC), are located at (3 cm, 0 cm) and (0 cm, 4 cm), respectively. The magnitude of electric field at point (3 cm, 4 cm) due to these two charges is:

Ans

✗ 1. 9.0×10^3 N/C

✗ 2. 9.0×10^2 N/C

✗ 3. 4.5×10^3 N/C

✔ 4. 4.5×10^2 N/C

Question ID : **63068099984**
Status : **Answered**
Chosen Option : **3**

Q.35 Find the general solution of equation $tan x = \frac{1}{\sqrt{3}}$.

Ans

✗ 1. $x = n\pi + \frac{5\pi}{6}$

✗ 2. $x = n\pi + \frac{\pi}{3}$

✔ 3. $x = n\pi + \frac{\pi}{6}$

✗ 4. $x = n\pi + \frac{2\pi}{3}$

Question ID : **63068099937**
Status : **Answered**
Chosen Option : **3**

Q.36 The S.I. unit for torque experienced by an electric dipole in a uniform electric field is given by:

Ans

✗ 1. $Kg\text{-}m^2$

✗ 2. N/m^2

✔ 3. N-m

✗ 4. Kg/m^2

Question ID : **630680100063**
Status : **Answered**
Chosen Option : **3**

Q.37 Suppose a uniform electric field is given as $E = 6 \times 10^4 \hat{\jmath}$ N/C ($\hat{\jmath}$ is the unit vector along y axis). Then the flux of this field through a square of 40 cm on a side whose plane is inclined at an angle 60° to the xz plane is:

Ans

✔ 1. 4800 N m²/C

✗ 2. 488 N m²/C

✗ 3. 480 N m²/C

✗ 4. 4880 N m²/C

Question ID : **630680100065**
Status : **Answered**
Chosen Option : **4**

Q.38 Consider the mass of iron nucleus as 55.85 u and A=56. Then the nuclear density is:

Ans ✗ 1. $4.29 \times 10^{17} \ kg/m^3$

✗ 2. $3.29 \times 10^{17} \ kg/m^3$

✗ 3. $1.29 \times 10^{17} \ kg/m^3$

✔ 4. $2.29 \times 10^{17} \ kg/m^3$

Question ID : 630680100081
Status : **Answered**
Chosen Option : **4**

Q.39 The vector $20\hat{\imath} + 50\hat{\jmath}$ is added to a vector. The result gives $25\hat{\imath} + 10\hat{\jmath}$ as the answer. The unknown vector is:

Ans ✗ 1. $-5\hat{\imath} + 40\hat{\jmath}$

✗ 2. $-5\hat{\imath} - 40\hat{\jmath}$

✗ 3. $5\hat{\imath} + 40\hat{\jmath}$

✔ 4. $5\hat{\imath} - 40\hat{\jmath}$

Question ID : 63068099950
Status : **Answered**
Chosen Option : **4**

Q.40

For what values of x, the matrix $\begin{pmatrix} 3-x & 2 & 2 \\ 2 & 4+x & 1 \\ -2 & -4 & -1+x \end{pmatrix}$ is singular?

Ans ✗ 1. $-3.1, 3$

✗ 2. $-3i. 0, 3i$

✗ 3. $0, 1, 3$

✔ 4. $-3.0, 3$

Question ID : 63068099890
Status : **Answered**
Chosen Option : **4**

Q.41 The equation of the plane that passes through $(1, -1 \ 2)$ and has direction ratios $(1, 2, 3)$ is:

Ans ✗ 1. $2x + y + 3z = 5$

✔ 2. $x + 2y + 3z = 5$

✗ 3. $x + 3y + 2z = 5$

✗ 4. $3x + 2y + 2z = 5$

Question ID : 63068099928
Status : **Answered**
Chosen Option : **2**

Q.42 Find parametric equations of the line that passes through the points A $(2, 4, -3)$ and B $(3, -1, 1)$.

Ans
✗ 1. $x = -2 + t, y = -4 - 5t, z = 3 + 4t$

✗ 2. $x = 2 - t, y = 4 + 5t, z = -3 - 4t$

✔ 3. $x = 2 + t, y = 4 - 5t, z = -3 + 4t$

✗ 4. $x = 1 + 2t, y = -5 + 4t, z = 4 - 3t$

Question ID : **63068099902**
Status : **Answered**
Chosen Option : **3**

Q.43 The derivative of the function f $(x) = -3x^2 + 6x - 4$ is given by:

Ans
✗ 1. $6x + 6$

✗ 2. $6x - 6$

✗ 3. $-6x - 6$

✔ 4. $-6x + 6$

Question ID : **63068099942**
Status : **Answered**
Chosen Option : **4**

Q.44 In a single slit diffraction experiment, light of wavelength 600 nm is used and the first minimum is observed at an angle of 30°. The width of the slit is:

Ans
✗ 1. $0.6 \ \mu m$

✗ 2. $2.4 \ \mu m$

✗ 3. $1.8 \ \mu m$

✔ 4. $1.2 \ \mu m$

Question ID : **630680100053**
Status : **Answered**
Chosen Option : **4**

Q.45 If two events A and B such that $P(A \cup B) = \frac{7}{8}$ and $P(A \cap B) = \frac{1}{4}$ and $P(\bar{A}) = \frac{5}{8}$, then $P(\bar{A} \cup \bar{B}) = ?$

Ans
✗ 1. $\dfrac{1}{4}$

✔ 2. $\dfrac{3}{4}$

✗ 3. $\dfrac{3}{8}$

✗ 4. $\dfrac{1}{8}$

Question ID : **63068099929**
Status : **Answered**
Chosen Option : **4**

Q.46 A relation R is said to be an equivalence relation if:

Ans ✗ 1. It is a symmetric

✔ 2. It is reflexive, symmetric, and transitive relation

✗ 3. It is a transitive

✗ 4. it is a reflexive

Question ID : **63068099931**
Status : **Answered**
Chosen Option : **2**

Q.47 What is wrong with the following calculation?

$$\int_{-1}^{3} \frac{1}{x^2} dx = -\frac{4}{3}$$

Ans ✗ 1. $f(x) = \frac{1}{x^2} < 0$

✔ 2.
The value of the integral does not exist, since $f(x) = \frac{1}{x^2}$ has an infinite discontinuity at $x = 0$

✗ 3.
Fundamental Theorem of Calculus applies to discontinuous functions.

✗ 4. $f(x) = \frac{1}{x^2}$ is continuous function on [-1,3]

Question ID : **63068099897**
Status : **Answered**
Chosen Option : **2**

Q.48 Three resistors R_1, R_2, and R_3 have their resistance values in the ratio of 2 : 3 : 4. They are combined in parallel and their equivalent resistance is 24 Ω. Then the individual resistances R_1, R_2, and R_3 are:

Ans ✗ 1. 6 Ω, 9 Ω and 12 Ω

✗ 2. 10 Ω, 15 Ω and 20 Ω

✗ 3. 9 Ω, 27 Ω and 36 Ω

✔ 4. 52 Ω, 78 Ω and 104 Ω

Question ID : **63068100066**
Status : **Answered**
Chosen Option : **4**

Q.49 Compute

$$\lim_{x \to 4} \frac{(x^2 - 7x + 12)}{x - 4}$$

Ans ✗ 1. 0

✗ 2. 2

✔ 3. 1

✗ 4. −1

Question ID : **63068099968**
Status : **Answered**
Chosen Option : **3**

Q.50 Consider a pair of coils arranged coaxially parallel to each other, in a vertical plane. When the current in one coil increases from 0 to 10 A in 0.5 s, the emf induced in the other coil is 20 V. The mutual inductance of the coils is:

Ans
✗ 1. 4.0 H
✗ 2. 0.5 H
✔ 3. 1.0 H
✗ 4. 2.0 H

Question ID : 630680100028
Status : **Marked For Review**
Chosen Option : **2**

Q.51 Two batteries E_1(emf: 6V,internal resistance: 0.5Ω) and E_2 (emf: 12V,internal resistance: 1.0 Ω) are connected in parallel by connecting their positive terminals to point A and negative terminals to point B. A third battery E_3[emf: 6V,internal resistance: $(\frac{2}{3})$ Ω] is connected in series with this combination by connecting its positive terminal to B. The equivalent emf of this combination is

Ans
✗ 1. 12 V
✗ 2. 2 V
✗ 3. 24 V
✔ 4. 14 V

Question ID : 63068099987
Status : **Marked For Review**
Chosen Option : **3**

Q.52

The value of the determinant of the matrix $\begin{pmatrix} 21 & 17 & 7 & 10 \\ 24 & 22 & 6 & 10 \\ 6 & 8 & 2 & 3 \\ 6 & 7 & 1 & 2 \end{pmatrix}$ is:

Ans
✗ 1. 1
✔ 2. 0
✗ 3. 4
✗ 4. 2

Question ID : 63068099889
Status : **Answered**
Chosen Option : **2**

Q.53 Evaluate $\int_0^1 \dfrac{dx}{x + \sqrt{x}}$.

Ans
✗ 1. $\sqrt{2}$
✗ 2. $\log_e 2$
✔ 3. $\log_e 4$
✗ 4. $\dfrac{1}{2}$

Question ID : 63068099971
Status : **Marked For Review**
Chosen Option : **2**

Q.54 A tank is filled with a liquid to a depth of 80 cm. A point source of light is placed at the centre of the bottom. The area of the surface of the liquid through which light from the source can emerge out is:

(Take refractive index of liquid = $2/\sqrt{3}$)

Ans
✗ 1. 5.07 m^2

✔ 2. 6.03 m^2

✗ 3. 7.07 m^2

✗ 4. 4.07 m^2

Q.55 The radian equivalent of 150° is_____.

Ans
✗ 1. $\dfrac{3\pi}{7}$

✔ 2. $\dfrac{5\pi}{6}$

✗ 3. $\dfrac{3\pi}{5}$

✗ 4. $\dfrac{7\pi}{9}$

Q.56 A potentiometer wire of length 100 cm has a resistance of 30 ohms. It is connected in series with a resistance of 20 ohms and an accumulator of emf 10 V having negligible internal resistance. A source of 2.4 V is balanced against a length L of the potentiometer wire. What is the value of L?

Ans
✗ 1. 30 cm

✔ 2. 40 cm

✗ 3. 50 cm

✗ 4. 60 cm

Q.57 A 3.0 cm segment of a wire, centred at the origin (0, 0, 0) lies along Y-axis. It carries a current of 6.0 A in positive Y-direction. The magnetic field due to this segment at a point (3.0 m, 0 ,0) is [($\frac{\mu_o}{4\pi}$)= 10^{-7} Tm/A, and i, j and k are unit vectors along X-axis, Y-axis and Z-axis, respectively]

Ans
✗ 1. $(1.0 \times 10^{-9}$ T$)$ k

✗ 2. $(2.0 \times 10^{-9}$ T$)$ k

✗ 3. $-(1.0 \times 10^{-9}$ T$)$ k

✔ 4. $-(2.0 \times 10^{-9}$ T$)$ k

Q.58 Which of the following relations is symmetric but neither reflexive nor transitive for a set A = {a, b, c}?

Ans

✗ 1. R = {(a, b), (a, c), (a, d)}

✗ 2. R = {(a, a), (a, b), (b, c)}

✔ 3. R = {(a, b), (b, a) (b,c),(c,b),(a,c),(c,a)}

✗ 4. R = {(a, a), (b, b), (c, c)}

Q.59 The Bohr radius is equal to:

Ans

✗ 1. 5.29×10^{-12} m

✗ 2. 5.29×10^{-9} m

✔ 3. 5.29×10^{-11} m

✗ 4. 5.29×10^{-10} m

Q.60 Suppose every second 10^{16} electrons come out of a body and move to another body, then the time is required to get a total charge of 3.2 C on the other body is:

Ans

✗ 1. 20000 s

✗ 2. 40000 s

✗ 3. 4000 s

✔ 4. 2000 s