Section : **English Language**

Q.1 **The following sentence has been split into four segments. Identify the segment that contains a grammatical error.**
The bag she had lost / in the morning contain her documents, / therefore, she is / very worried.

Ans
✗ 1. The bag she had lost
✗ 2. therefore she is
✓ 3. in the morning contain her documents
✗ 4. very worried.

Question ID : **63068050194**
Status : **Answered**
Chosen Option : **1**

Q.2 **Select the option that expresses the given sentence in the past perfect continuous tense.**

When the President came to visit our school, the Headmaster was teaching there for ten years.

Ans
✗ 1. When the President came to visit our school, the Headmaster had taught there for ten years.
✗ 2. When the President came to visit our school, the Headmaster has been teaching there for ten years.
✗ 3. When the President came to visit our school, the Headmaster taught there for ten years.
✓ 4. When the President came to visit our school, the Headmaster had been teaching there for ten years.

Question ID : **63068050640**
Status : **Answered**
Chosen Option : **4**

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Q.3 **Parts of a sentence are given below in jumbled order. Arrange the parts in the correct order to form a meaningful sentence.**
Cognition / with the process of / or / coming to know / is to do / understand something.

Ans
✔ 1. Cognition is to do with the process of coming to know or understand something.
✘ 2. Cognition with the process of or coming to know is to do understand something.
✘ 3. Cognition is to do or coming to know with the process of understand something.
✘ 4. Cognition or coming to know is to do with the process of understand something.

Question ID : **63068054133**
Status : **Marked For Review**
Chosen Option : **3**

Q.4 **Select the most appropriate option to fill in the blank.**
My father used to listen to _____ radio a lot.

Ans
✘ 1. a
✘ 2. an
✘ 3. No article required
✔ 4. the

Question ID : **63068050225**
Status : **Answered**
Chosen Option : **4**

Q.5 **Select the most appropriate ANTONYM of the underlined word.**

The manager made me feel <u>inferior</u> without any reason at the office.

Ans
✘ 1. Deceitful
✘ 2. Fugitive
✔ 3. Superior
✘ 4. Lesser

Question ID : **63068067220**
Status : **Answered**
Chosen Option : **3**

Q.6 **Four sentences have been given, out of which three are alike in some manner and one is different. Select the one that is different.**

A. Deforestation causes soil erosion.
B. The magician performed a trick.
C. The patient was looked after by the nurse.
D. Karan gave me a book.

Ans
✔ 1. The patient was looked after by the nurse.
✘ 2. Karan gave me a book.
✘ 3. Deforestation causes soil erosion.
✘ 4. The magician performed a trick.

Question ID : **63068064271**
Status : **Answered**
Chosen Option : **2**

Q.7 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.Rob Wood is the founder and creative director of Music Concierge, a company that chooses background music for businesses.
B.The European robin, known simply as the robin redbreast in Great Britain, is a small bird that appears frequently in poems.
C.His clients include iconic fashion brands, such as Harvey Nichols and Mulberry, and luxury London hotels, such as the Savoy.
D.Some clients hire him because they want to influence individuals' behaviour in a constructive way as they wish.

Ans
✔ 1. B
✘ 2. D
✘ 3. C
✘ 4. A

Question ID : **63068086370**
Status : **Marked For Review**
Chosen Option : **1**

Q.8 In the given sentence, four words have been underlined and the underlined words are given as options. Select the option that contains an error.

My brother described how he would love floating in the swimming pool, on his back, serene and happily.

Ans
✘ 1. happily
✔ 2. serene
✘ 3. described
✘ 4. floating

Question ID : **63068047989**
Status : **Answered**
Chosen Option : **2**

Q.9 Identify the option that rearranges the given jumbled words and correctly fills in the blank.
Little Hercules _____age.
strength / displayed / from / young / his / a very

Ans
✘ 1. a very young strength displayed from his
✘ 2. from strength displayed his a very young
✔ 3. displayed his strength from a very young
✘ 4. displayed a very young strength from his

Question ID : **63068050728**
Status : **Answered**
Chosen Option : **3**

Q.10 Select the option that can be used as a one-word substitute for the given group of words.
Soldiers on horses

Ans
✗ 1. Chivalry
✗ 2. Gallantry
✗ 3. Combats
✓ 4. Cavalry

Question ID : **63068054851**
Status : **Answered**
Chosen Option : **2**

Q.11 Select the most appropriate meaning of the given idiom.

Cold turkey

Ans
✗ 1. To cook and cool turkey for a meal
✗ 2. To have an intense dislike of birds
✗ 3. To develop cold feet to do something
✓ 4. To suddenly stop a bad habit or addiction

Question ID : **63068064339**
Status : **Answered**
Chosen Option : **4**

Q.12 Select the most appropriate option to fill in the blank.
After the principal finished his speech, he asked the students ___ approach his secretary for further clarification.

Ans
✗ 1. in
✓ 2. to
✗ 3. over
✗ 4. for

Question ID : **63068050172**
Status : **Answered**
Chosen Option : **2**

Q.13 Select the most appropriate option to fill in the blank.
_____ thing of magic is a wonder for the children.

Ans
✗ 1. Either
✗ 2. An
✗ 3. The
✓ 4. A

Question ID : **63068054640**
Status : **Answered**
Chosen Option : **4**

Q.14 Select the most appropriate synonym of the given word.
Amiable

Ans
✗ 1. Cold
✗ 2. Horrid
✗ 3. Hostile
✓ 4. Friendly

Question ID : **63068050275**
Status : **Answered**
Chosen Option : **3**

Q.15 Select the option that can be used as a one-word substitute for the given group of words/phrase.
To improve a situation or to make something better

Ans
✗ 1. abide
✗ 2. abscond
✓ 3. Ameliorate
✗ 4. abolish

Question ID : **63068058523**
Status : **Answered**
Chosen Option : **3**

Q.16 Select the most appropriate adjective to fill in the blank.
She talked to herself in whispers, in a/an _____ manner.

Ans
✗ 1. timely
✓ 2. clandestine
✗ 3. forthright
✗ 4. organised

Question ID : **63068047974**
Status : **Marked For Review**
Chosen Option : **2**

Q.17 Select the most appropriate meaning of the given proverb.

Birds of a feather flock together.

Ans
✓ 1. People with similar interests spend time together.
✗ 2. All birds live together in group.
✗ 3. Birds with similar feathers live together.
✗ 4. People with different interests fight together.

Question ID : **63068049345**
Status : **Answered**
Chosen Option : **1**

Q.18 Select the most appropriate option that can substitute the underlined segment in the given sentence.
Work hard if you want to <u>reach</u> your dream.

Ans
✗ 1. get
✓ 2. achieve
✗ 3. attain
✗ 4. secure

Question ID : **63068050267**
Status : **Answered**
Chosen Option : **2**

Q.19 Select the option that expresses the given sentence in the past perfect continuous tense.

At the time of his daughter's birth, he was writing an autobiography.

Ans
✗ 1. At the time of his daughter's birth, he has been writing an autobiography.
✗ 2. At the time of his daughter's birth, he wrote an autobiography.
✗ 3. At the time of his daughter's birth, he is writing an autobiography.
✓ 4. At the time of his daughter's birth, he had been writing an autobiography.

Question ID : **63068050641**
Status : **Answered**
Chosen Option : **2**

Q.20 Select the option that gives the most appropriate meaning of the underlined word.
The <u>band</u> swept all awards at the show.

Ans
✗ 1. Range
✗ 2. Strip
✗ 3. Stripe
✓ 4. Group of musicians

Question ID : **63068054531**
Status : **Answered**
Chosen Option : **4**

Section : **General Intelligence or Reasoning**

Q.1 Read the given information and answer the question(s) that follow(s).
In a certain code language, 'Floors are Marble' is written as 'SOR MAB SIN',
'Shine is Marble' is written as 'COS SIN TAN' and
'Floors as Shine' is written as 'SOR COS FOL'.
How will 'as' be written in that language?

Ans
✗ 1. SOR
✗ 2. COS
✓ 3. FOL
✗ 4. MAB

Question ID : **63068057964**
Status : **Answered**
Chosen Option : **3**

Q.2 In a row facing east, Kiran is sitting twelfth from the right and Vinay is sitting fifteenth from the left. Kiran sits to the immediate left of Vinay. How many people are sitting in the row?

Ans
✗ 1. 27
✗ 2. 26
✗ 3. 28
✓ 4. 25

Question ID : **63068058525**
Status : **Answered**
Chosen Option : **1**

Q.3 Six friends Sandhya, Kanika, Jayant, Vinayak, Priyanka and Anshu are sitting around a circular table, facing away from the centre. Kanika is sitting immediately to the right of Anshu. Only Vinayak is sitting between Anshu and Priyanka. Sandhya is sitting immediately to the left of Priyanka.
Who is sitting immediately to the right of Kanika?

Ans
✗ 1. Sandhya
✗ 2. Anshu
✓ 3. Jayant
✗ 4. Priyanka

Question ID : **63068048426**
Status : **Answered**
Chosen Option : **1**

Q.4 Six students Kamal, Rajat, Vinay, Navya, Lalit and Divya are sitting around a circular table, facing each other. Rajat and Divya are sitting together. Rajat is sitting immediately to the left of Kamal, who is sitting second to the left of Vinay. Lalit is not the neighbour of Divya.
Who is sitting second to the left of Lalit?

Ans
✗ 1. Kamal
✗ 2. Divya
✗ 3. Navya
✓ 4. Rajat

Question ID : **63068048431**
Status : **Answered**
Chosen Option : **1**

Q.5 Refer to the following letter, number, symbol series and answer the question that follows.
(Left) K π 4 D * S G 2 @ C6& T % # 3 5 E 7 R Y (Right)
How many such numbers are there in the given series each of which is immediately preceded by a letter and also immediately followed by a symbol?

Ans
✗ 1. Three
✗ 2. None
✓ 3. Two
✗ 4. One

Question ID : **63068049814**
Status : **Answered**
Chosen Option : **3**

Q.6 If '÷' means '+', '−' means '×', '+' means '−', and '×' means '÷', then what will be the value of the following expression?
16 + 8 − 49 × 7 ÷ 9

Ans
✔ 1. -31
✘ 2. 30
✘ 3. -30
✘ 4. 31

Question ID : **63068049077**
Status : **Answered**
Chosen Option : **1**

Q.7 A certain number of people are sitting in a row, facing North. Only three persons sit between R and Q. Only two persons sit between P and R. T sit fourth to the right of R. If no other person is sitting in the row, what is the total number of persons seated?

Ans
✘ 1. 12
✔ 2. 9
✘ 3. 11
✘ 4. 10

Question ID : **63068057377**
Status : **Answered**
Chosen Option : **2**

Q.8 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 ants are goats.
All goats are balls.
Conclusions (I): All ants are balls.
Conclusions (II): Some goats are ants.

Ans
✘ 1. Only conclusion (I) follows.
✔ 2. Both conclusions (I) and (II) follow.
✘ 3. Only conclusion (II) follows.
✘ 4. Neither conclusion (I) nor (II) follows.

Question ID : **63068083930**
Status : **Answered**
Chosen Option : **2**

Q.9 If '+' means '×', '−' means '+', '×' means '÷', '÷' means '−', what will come in place of the '?' in the given equation?
36 + 6 − 8 ÷ 18 × 9 = ?

Ans
✘ 1. 38
✘ 2. 48
✔ 3. 222
✘ 4. 220

Question ID : **63068053365**
Status : **Answered**
Chosen Option : **3**

Q.10 This question is based on the following words.
RUG OWN DIP RAN
If the last letter of each word is replaced by 'E', how many new meaningful English words will be formed?

Ans
✔ 1. Three
✘ 2. Four
✘ 3. One
✘ 4. Two

Question ID : **63068049328**
Status : **Answered**
Chosen Option : **4**

Q.11 Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.
QR_U_V J_L_M_ TU_X_Y IJ_ML_ N_P_QS

Ans
✘ 1. TSNKOVWKNOR
✘ 2. TSNKOWVKNOR
✘ 3. STNKOWVKNOR
✔ 4. STKNOVWKNOR

Question ID : **63068060470**
Status : **Marked For Review**
Chosen Option : **4**

Q.12 A statement is given followed by two conclusions. Find which conclusion(s) is/are true based on the given statement.
Statement:
P > Q > R < S > X ≤ T; L ≥ N < O
Conclusions:
I. T < O
II. O ≥ T

Ans
✘ 1. Only II
✘ 2. Only I
✘ 3. Both I and II
✔ 4. Neither I nor II

Question ID : **63068050107**
Status : **Answered**
Chosen Option : **4**

Q.13 A is the brother of B and C, D is the mother of C and E is the father of A. Which of the following CANNOT be considered true in this case?

Ans
✘ 1. E is father of C.
✘ 2. A is son of D.
✘ 3. E and D is husband-wife.
✔ 4. B is daughter of E.

Question ID : **63068062094**
Status : **Answered**
Chosen Option : **4**

Q.14 In a certain code language, 'DRAIN' is coded as 06597 and 'DRINK' is coded as 50369. What will be the code for 'A' in the given code language?

Ans
✗ 1. 5
✓ 2. 7
✗ 3. 0
✗ 4. 3

Question ID : **63068057800**
Status : **Answered**
Chosen Option : **2**

Q.15 A bus is going in the west direction. Then it turns to the left and then to the right.In which direction is the bus going now?

Ans
✗ 1. East
✓ 2. West
✗ 3. South
✗ 4. North

Question ID : **63068048849**
Status : **Answered**
Chosen Option : **2**

Section : **General Aptitude or Numerical Ability**

Q.1 Rohan started from home to school at 9a.m.on bicycle. His brother started for office at 10:15 a.m.on scooter in the same direction and caught up with him at 12:30p.m. If Rohan's speed is 12 km/h, then what is his brother's speed?

Ans
✗ 1. $12\frac{2}{3}$ km/h
✗ 2. $24\frac{2}{3}$ km/h
✓ 3. $18\frac{2}{3}$ km/h
✗ 4. 36 km/h

Question ID : **63068076120**
Status : **Answered**
Chosen Option : **3**

Q.2 $(0.04 \times 5 - 0.004 \times 25)$ equals:

Ans
✗ 1. 0.2
✗ 2. 0.01
✗ 3. 0.02
✓ 4. 0.1

Question ID : **63068049969**
Status : **Answered**
Chosen Option : **4**

Q.3 There are two sections of a library consisting of 48 and 64 book racks. The average number of books per rack is 75. If the average number of books per rack in the first section containing 48 racks is 55, what is the average number of books per rack in the other section of the library?

Ans
1. 72
2. 90
3. 65
4. 94

Question ID : **63068058294**
Status : **Answered**
Chosen Option : **2**

Q.4 The population of a town triples itself in 10 years. In how many years will it be 9 times if it keeps growing at the same rate?

Ans
1. 12 years
2. 20 years
3. 18 years
4. 15 years

Question ID : **63068071035**
Status : **Answered**
Chosen Option : **2**

Q.5 The radius and height of a cone are 35cm and 72cm, respectively. Find its volume.

Ans
1. $9240\ cm^3$
2. $12656\ cm^3$
3. $92400\ cm^3$
4. $924000\ cm^3$

Question ID : **63068067885**
Status : **Answered**
Chosen Option : **3**

Q.6 Rajesh brought a TV priced at ₹2,000. He was given two successive discounts of 10% and 5%. What is the net price?

Ans
1. ₹ 1,730
2. ₹1,740
3. ₹1,710
4. ₹ 1,800

Question ID : **63068067661**
Status : **Answered**
Chosen Option : **3**

Q.7 Given that $\sqrt{10} = 3.16$, find the square root of $1\frac{1}{9}$ up to two places of decimals.

Ans
✗ 1. 0.35
✗ 2. 0.33
✗ 3. 1.22
✓ 4. 1.05

Question ID : **63068049984**
Status : **Answered**
Chosen Option : **4**

Q.8 The price of a VCR is marked at ₹15,000. If successive discounts of 20%, 15% and 10 % are allowed, then at what price does a customer buy it?

Ans
✗ 1. ₹10,200
✗ 2. ₹10,180
✗ 3. ₹11,080
✓ 4. ₹9,180

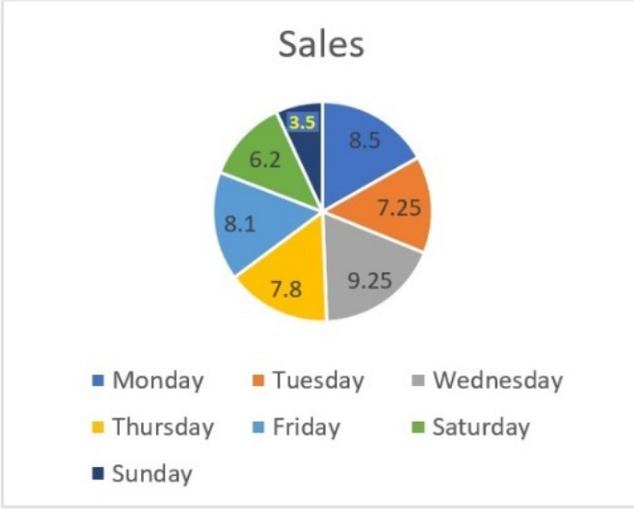
Question ID : **63068067292**
Status : **Answered**
Chosen Option : **4**

Q.9 15 buckets are needed to fill a tank in 45 minutes. How long will it take for only 5 buckets of the same type to fill that tank?

Ans
✗ 1. 125 minutes
✓ 2. 135 minutes
✗ 3. 140 minutes
✗ 4. 130 minutes

Question ID : **63068056871**
Status : **Answered**
Chosen Option : **2**

Q.10 The sales of an item (in Thousands) in different days of a week is given.



Which three days of the week will have a combined angle of more than 180° on the pie chart?

Ans
✗ 1. Wednesday, Tuesday, Monday
✗ 2. Tuesday, Thursday, Friday
✓ 3. Wednesday, Monday, Thursday
✗ 4. Friday, Monday, Thursday

Question ID : **63068094974**
Status : **Answered**
Chosen Option : **3**

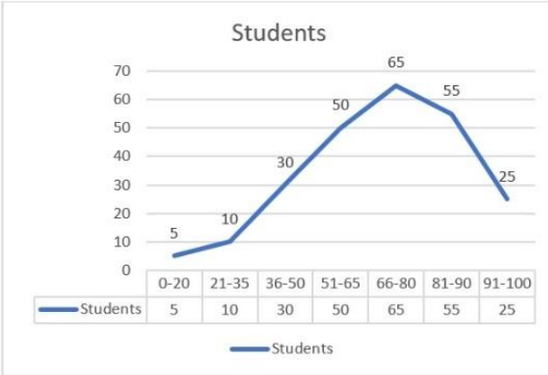
Q.11 **Rohit purchased an item whose price was ₹625. He paid ₹225 as down payment and ₹418 after 6 months to settle all dues. What was the rate of simple interest charged per annum?**

Ans
✗ 1. $4\frac{1}{2}\%$
✓ 2. 9%
✗ 3. 8%
✗ 4. 10%

Question ID : **63068051379**
Status : **Answered**
Chosen Option : **1**

Q.12 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 the mean marks is _____.

Ans
✗ 1. 74.25%
✗ 2. 75%
✓ 3. 81.25%
✗ 4. 77%

Question ID : **63068094371**
Status : **Answered**
Chosen Option : **3**

Q.13 **Find the ratio of curved surface area to total surface area of a cylinder, given that its radius is 2 and its height is 8.**

Ans
✗ 1. $\frac{19}{20}$
✗ 2. $\frac{5}{4}$
✗ 3. $\frac{9}{10}$
✓ 4. $\frac{4}{5}$

Question ID : **63068058514**
Status : **Answered**
Chosen Option : **4**

Q.14 **A person spends 30% on food, 25% on rent, 10% on other expenses and he saves the remaining ₹700. Find his income.**

Ans
✗ 1. ₹1,500
✗ 2. ₹1,000
✓ 3. ₹2,000
✗ 4. ₹1,800

Question ID : **63068051621**
Status : **Answered**
Chosen Option : **3**

Q.15 A and B can do a piece of work in 45 and 40 days, respectively. They began the work together but A left after some days and B finished the remaining work in 23 days. After how many days did A leave?

Ans
✗ 1. 10 days
✗ 2. 12 days
✓ 3. 9 days
✗ 4. 11 days

Question ID : **63068051316**
Status : **Answered**
Chosen Option : **3**

Section : **General Knowledge or Awareness**

Q.1 Which of the following is a tributary that joins the river Godavari ?

Ans
✗ 1. Tungabhadra
✓ 2. Manjira
✗ 3. Bhima
✗ 4. Koyna

Question ID : **63068049557**
Status : **Answered**
Chosen Option : **3**

Q.2 Who among the following scientists first demonstrated interference from light waves with a double slit?

Ans
✗ 1. Robert Hooke
✓ 2. Thomas Young
✗ 3. Christiaan Huygens
✗ 4. Niels Bohr

Question ID : **63068051574**
Status : **Answered**
Chosen Option : **2**

Q.3 India is endowed with a rich coastline of around _____ km.

Ans
✗ 1. 9500
✓ 2. 7500
✗ 3. 8500
✗ 4. 6500

Question ID : **63068050618**
Status : **Answered**
Chosen Option : **3**

Q.4 The construction of Charminar in Hyderabad was completed in which year?

Ans
✔ 1. 1591 AD
✘ 2. 1491 AD
✘ 3. 1691 AD
✘ 4. 1391 AD

Question ID : **63068059880**
Status : **Answered**
Chosen Option : **2**

Q.5 Copper sulphate and caustic soda are used to test the presence of which of the following?

Ans
✘ 1. Fats
✘ 2. Vitamins
✘ 3. Starch
✔ 4. Proteins

Question ID : **63068052834**
Status : **Answered**
Chosen Option : **4**

Q.6 To whom is the Maulana Abul Kalam Azad Trophy awarded in India?

Ans
✔ 1. University
✘ 2. Sports Club
✘ 3. College
✘ 4. Association

Question ID : **63068051053**
Status : **Answered**
Chosen Option : **2**

Q.7 Who founded the Bharat Sevak Samaj in 1905?

Ans
✘ 1. Jawaharlal Nehru
✘ 2. Gulzarilal Nanda
✘ 3. Mahatma Gandhi
✔ 4. Gopal Krishna Gokhale

Question ID : **63068087067**
Status : **Answered**
Chosen Option : **4**

Q.8 The McMahon line is a demarcation that separates

Ans
✔ 1. India and China
✘ 2. India and Pakistan
✘ 3. India and Bhutan
✘ 4. India and Afghanistan

Question ID : **63068053173**
Status : **Answered**
Chosen Option : **1**

Q.9 Who is the Head of the State and also the First Citizen of the Indian State?

Ans
✗ 1. Vice-President
✗ 2. Parliament
✗ 3. Prime Minister
✓ 4. President

Question ID : **63068054909**
Status : **Answered**
Chosen Option : **4**

Q.10 In consumer theory, which of the following stays constant along an indifference curve?

Ans
✗ 1. Supply
✓ 2. Utility
✗ 3. Price
✗ 4. Demand

Question ID : **63068068713**
Status : **Answered**
Chosen Option : **4**

Section : **Discipline related**

Q.1 Find the area under the curve $y = 3x^2 - 2x$ from $x = 2$ to $x = 4$.

Ans
✗ 1. 49
✗ 2. 24
✓ 3. 44
✗ 4. 40

Question ID : **63068099948**
Status : **Answered**
Chosen Option : **3**

Q.2 The energy equivalent of mass associated with the rest mass of an electron is nearly:

Ans
✗ 1. 5.111 MeV
✗ 2. 51.111 MeV
✗ 3. 1.511 MeV
✓ 4. 0.511 MeV

Question ID : **630680100058**
Status : **Answered**
Chosen Option : **4**

Q.3 If a line makes an angle of 60°, 135°, 120° with the positive x, y, z-axis, respectively, then find the direction cosines.

Ans

✔ 1. $l = 1/2, m = -1/\sqrt{2}, n = -1/2$

✘ 2. $l = -1/2, m = 1/\sqrt{2}, n = -1/2$

✘ 3. $l = -1/2, m = -1/\sqrt{2}, n = -1/2$

✘ 4. $l = 1/2, m = 1/\sqrt{2}, n = -1/2$

Question ID : **63068099977**
Status : **Answered**
Chosen Option : **1**

Q.4 If $g(x) = \int_0^x \sqrt{1-t^2}\,dt$, then the domain of $g'(x)$ is:

Ans

✔ 1. $[-1,1]$

✘ 2. $(-1,1)$

✘ 3. $(-\infty,1) \cup (1,\infty)$

✘ 4. $(-\infty,\infty)$

Question ID : **63068099922**
Status : **Answered**
Chosen Option : **1**

Q.5 Packing fraction and binding energy both decide the stability. Which of the following statements supports it?

Ans

✘ 1. Lower packing fraction, lower binding energy

✔ 2. Lower packing fraction, higher binding energy

✘ 3. Same packing fraction and binding energy

✘ 4. Higher packing fraction, lower binding energy

Question ID : **630680100056**
Status : **Answered**
Chosen Option : **4**

Q.6 Find the area of the region bounded above by $y = e^x$, bounded below by $y = x$, and bounded on the sides by $x = 0\_0$ and $x = 1$.

Ans

✔ 1. $e - \frac{3}{2}$

✘ 2. $e - \frac{1}{2}$

✘ 3. $e - \frac{3}{4}$

✘ 4. $e - 1$

Question ID : **63068099898**
Status : **Answered**
Chosen Option : **1**

Q.7 Given that P is a square matrix of order 3 and $|P| = -4$. Then $|\text{adj } P|$ is equal to:

Ans
1. ✗ 4
2. ✓ 16
3. ✗ -16
4. ✗ -4

Question ID : **63068099941**
Status : **Answered**
Chosen Option : **2**

Q.8 Set P has 4 elements and set Q has 5 elements. How many numbers of injections are defined from P to Q?

Ans
1. ✗ 24
2. ✓ 120
3. ✗ 96
4. ✗ 480

Question ID : **63068099959**
Status : **Marked For Review**
Chosen Option : **1**

Q.9 A rectangular area of sides 4.0 cm and 5.0 cm is placed in an electric field $E = (4.0 \times 10^2 \ \frac{N}{C})\ i$ such that the normal unit vector for the area is $[(\frac{1}{2})\ i + (\frac{\sqrt{3}}{2})\ j]$. The electric flux through the rectangle is:

Ans
1. ✗ $0.35\ N\ m^2/C$
2. ✗ $0.20\ N\ m^2/C$
3. ✓ $0.40\ N\ m^2/C$
4. ✗ $0.69\ N\ m^2/C$

Question ID : **63068099982**
Status : **Answered**
Chosen Option : **3**

Q.10 In an LC circuit, the values of L and C are 5.0×10^{-2} H and 5.0×10^{-6} F, respectively. At t=0 all of the energy is stored in the capacitor. Then the angular frequency of the LC oscillations in the circuit (in radians/s) is:

Ans
1. ✗ 1.5×10^3
2. ✓ 2.0×10^3
3. ✗ 2.5×10^3
4. ✗ 3.0×10^3

Question ID : **630680100073**
Status : **Marked For Review**
Chosen Option : **2**

Q.11 The local minimum value of the function $f(x) = x^3 - 6x^2 + 9x + 15$ is:

Ans
1. 15
2. 1
3. 27
4. 3

Question ID : **63068099919**
Status : **Answered**
Chosen Option : **1**

Q.12 The energy required to build up a current I in a coil of self-inductance L is:

Ans
1. LI^2
2. $\left(\frac{1}{2}\right) LI^2$
3. $\left(\frac{1}{2}\right) LI$
4. LI

Question ID : **630680100027**
Status : **Answered**
Chosen Option : **2**

Q.13 For two vectors

$\vec{A} = 2\hat{\imath} + 2\hat{\jmath} + 3\hat{k}$ and

$\vec{B} = 5\hat{\imath} + 2\hat{\jmath} + 7\hat{k}$, find $\vec{A} \cdot \vec{B}$.

Ans
1. 27
2. 37
3. 53
4. 35

Question ID : **63068099951**
Status : **Answered**
Chosen Option : **4**

Q.14 Consider the magnitude of electric field E at a point at distance r due to an infinitely long straight wire charged with a uniform charge density λ. Then for a given λ:

Ans

✔ 1. $E \propto \frac{1}{r}$

✘ 2. $E \propto \frac{1}{r^3}$

✘ 3. $E \propto \frac{1}{r^2}$

✘ 4. $E \propto r$

Question ID : **63068099981**
Status : **Answered**
Chosen Option : **3**

Q.15 Two spherical mirrors, mirror A concave and mirror B convex, are made out of the same spherical ball of glass of radius 20 cm. Following New Cartesian sign convention, the focal lengths of A and B are _____ and _____, respectively.

Ans

✘ 1. 10 cm, 10 cm

✔ 2. −10 cm, 10 cm

✘ 3. 10 cm, −10 cm

✘ 4. −10 cm, −10 cm

Question ID : **63068099996**
Status : **Answered**
Chosen Option : **2**

Q.16 A series LCR circuit (R= 30 Ω, X_L =40 Ω, X_C =80 Ω) is connected to an AC source of 200 V and 50 Hz. The power dissipated in the circuit is:

Ans

✔ 1. 480 W

✘ 2. 240 W

✘ 3. 48 W

✘ 4. 24 W

Question ID : **630680100030**
Status : **Marked For Review**
Chosen Option : **2**

Q.17 A teacher has 6 red balls, 7 blue balls, 8 purple balls, and 4 black balls in a basket. A student reaches into the basket and randomly selects a ball. What is the probability that the ball will be either blue or black?

Ans

1. $\frac{9}{25}$ ✗
2. $\frac{3}{25}$ ✗
3. $\frac{11}{25}$ ✓
4. $\frac{6}{25}$ ✗

Question ID : **63068099978**
Status : **Answered**
Chosen Option : **3**

Q.18 Consider an electron moving in orbit n=2 in Bohr model of hydrogen atom. The magnitude of magnetic dipole moment associated with this electron is close to

(Take $(\frac{e}{m})$ =1.76 × 10^{11} C/kg, for electron and $(\frac{h}{2\pi})$=1.05 × 10^{-34} J.s):

Ans

1. $9.25 \times 10^{-23}\ \mathrm{A\,m^2}$ ✗
2. $7.40 \times 10^{-24}\ \mathrm{A\,m^2}$ ✗
3. $3.70 \times 10^{-24}\ \mathrm{A\,m^2}$ ✗
4. $1.85 \times 10^{-23}\ \mathrm{A\,m^2}$ ✓

Question ID : **630680100015**
Status : **Marked For Review**
Chosen Option : **2**

Q.19 Find the angle between the planes $x+y+z=1$ and $x-2y+3z=1$.

Ans

1. $cos^{-1}\left(\sqrt{\frac{1}{42}}\right)$ ✗
2. $cos^{-1}\left(\sqrt{\frac{2}{21}}\right)$ ✓
3. $cos^{-1}\left(\sqrt{\frac{2}{42}}\right)$ ✗
4. $cos^{-1}\left(\sqrt{\frac{1}{7}}\right)$ ✗

Question ID : **63068099904**
Status : **Answered**
Chosen Option : **2**

Q.20 A pure Si crystal has 6×10^{28} atoms m^{-3}. It is doped by 1 ppm concentration of pentavalent As. Then the number of electrons and holes are:

(Given that $n_i = 1.5 \times 10^{16}\ m^{-3}$)

Ans

1. ✗ $6 \times 10^{25} m^{-3}$ and $3.75 \times 10^{19}\ m^{-3}$
2. ✓ $6 \times 10^{22} m^{-3}$ and $3.75 \times 10^{9}\ m^{-3}$
3. ✗ $6 \times 10^{28} m^{-3}$ and $3.75 \times 10^{9}\ m^{-3}$
4. ✗ $6 \times 10^{22} m^{-3}$ and $3.75 \times 10^{19}\ m^{-3}$

Question ID : **630680100060**
Status : **Answered**
Chosen Option : **2**

Q.21 Evaluate the integral $\int_0^{\frac{3\sqrt{3}}{2}} \frac{x^3}{(4x^2+9)^{\frac{3}{2}}}\,dx.$

Ans

1. ✓ $\frac{3}{32}$
2. ✗ $\frac{2}{23}$
3. ✗ $\frac{4}{15}$
4. ✗ $\frac{1}{29}$

Question ID : **63068099896**
Status : **Marked For Review**
Chosen Option : **2**

Q.22 Let the sets A and B have 3 and 4 elements, respectively. The total number of possible relations from A to B is____.

Ans

1. ✗ 2^4
2. ✓ 2^{12}
3. ✗ 2^7
4. ✗ 2^3

Question ID : **63068099907**
Status : **Answered**
Chosen Option : **2**

Q.23 Suppose three equal charges, each equal to +q, are placed at the vertices of an equilateral triangle of side l, then the force exerted on a charge Q (with the same sign as q) placed at the centroid of the triangle is:

Ans

✔ 1. 0

✗ 2. $-\frac{3qQ}{4\pi\epsilon_0 l^2}\hat{r}$

✗ 3. $\frac{3qQ}{4\pi\epsilon_0 l^2}\hat{r}$

✗ 4. $-\frac{6qQ}{4\pi\epsilon_0 l^2}\hat{r}$

Question ID : **630680100038**
Status : **Answered**
Chosen Option : **1**

Q.24 Suppose you mention the resistivity of an alloy as R_{alloy} which is made of two metals, A and B, and the resistivity of the constituent metals are denoted by R_A and R_B. Which of the following relations is true?

Ans

✗ 1. $R_{alloy} < R_A; R_{alloy} < R_B$

✔ 2. $R_{alloy} > R_A; R_{alloy} > R_B$

✗ 3. $R_{alloy} < R_A; R_{alloy} > R_B$

✗ 4. $R_{alloy} > R_A; R_{alloy} < R_B$

Question ID : **630680100067**
Status : **Answered**
Chosen Option : **2**

Q.25 A current of 4.0 A is maintained in a coil of self-inductance 8.0 mH. The energy stored in the coil is:

Ans

✗ 1. 32 mJ

✗ 2. 128 mJ

✔ 3. 64 mJ

✗ 4. 16 mJ

Question ID : **630680100001**
Status : **Answered**
Chosen Option : **3**

Q.26 If two identical coherent waves of intensity I undergo constructive interference at a point, the resultant intensity at this point will be:

Ans

✗ 1. 2I

✗ 2. 3I

✔ 3. 4I

✗ 4. 6I

Question ID : **630680100079**
Status : **Answered**
Chosen Option : **3**

Q.27 Simplify $\frac{\cos x}{1-\sin x}$ using trigonometric identities:

Ans
1. $\sec x + \tan x$ ✓
2. $\sec x - \tan x$ ✗
3. $\frac{1-\sin x}{\cos x}$ ✗
4. $\frac{1-\cos x}{\sin x}$ ✗

Question ID : **63068099912**
Status : **Answered**
Chosen Option : **1**

Q.28 If $\begin{vmatrix} 1 & 1 & 0 \\ x^2+2x+2 & 1 & 0 \\ 2 & 1 & 1 \end{vmatrix} = 0$, then the value of x is

Ans
1. 2 ✗
2. -2 ✗
3. 1 ✗
4. -1 ✓

Question ID : **63068099913**
Status : **Answered**
Chosen Option : **4**

Q.29 According to Bohr model the energy of the emitted photon due to transition from 3rd excited state to ground state is

Ans
1. 8.79 eV ✗
2. 4.89 eV ✗
3. 12.75 eV ✓
4. 10.79 eV ✗

Question ID : **630680100085**
Status : **Answered**
Chosen Option : **4**

Q.30 The coordinates of a point dividing the line segment joining (3,4,5) and (1,3,6) externally in the ratio 3 : 1 are:

Ans

✗ 1. $(0, -\frac{5}{2}, \frac{13}{2})$

✗ 2. $(0, \frac{5}{2}, -\frac{13}{2})$

✗ 3. $(0, \frac{-5}{2}, \frac{-13}{2})$

✓ 4. $(0, \frac{5}{2}, \frac{13}{2})$

Question ID : **63068099976**
Status : **Answered**
Chosen Option : **4**

Q.31 In a Young's double slit experiment, slit width is d and light of wavelength λ is used to observe interference pattern at a screen placed at a distance D from the plane of the slits. The fringe width is given by:

Ans

✗ 1. $\frac{\lambda D}{2d}$

✓ 2. $\frac{\lambda D}{d}$

✗ 3. $\frac{\lambda d}{2D}$

✗ 4. $\frac{\lambda d}{D}$

Question ID : **630680100052**
Status : **Answered**
Chosen Option : **2**

Q.32 If the function f is differentiable at x=c and is one-one in some neighbourhood of c, g is inverse function of f, then $g'\{f(c)\}$ is:

Ans

✗ 1. $g(c)f'(c) + g'(c)f(c)$

✓ 2. $\frac{1}{f'(c)}$, where $f'(c) \neq 0$

✗ 3. $f'(c)$

✗ 4. $\frac{f(c)}{f'(c)}$ where $f'(c) \neq 0$

Question ID : **63068099943**
Status : **Answered**
Chosen Option : **2**

Q.33 Let matrix A order (pxq) and matrix Q order (rxs). The product AB exists when:

Ans
1. q=s ✗
2. q=r ✓
3. r=s ✗
4. p=r ✗

Question ID : **63068099938**
Status : **Answered**
Chosen Option : **2**

Q.34 The value of $\cos(45 + \theta) - \sin(45° + \theta)$ is:

Ans
1. $-\sqrt{2}\ sin\theta$ ✓
2. $\sqrt{2sin\theta}$ ✗
3. $\cos\theta$ ✗
4. $\sin\theta$ ✗

Question ID : **63068099961**
Status : **Answered**
Chosen Option : **1**

Q.35 Suppose that an alpha particle of 4.50 MeV approaches head-on a uranium nucleus (Z=92). Assuming that the uranium nucleus remains at rest and the alpha particle momentarily comes to rest and reverses its direction at a distance much more than the radius of the uranium nucleus, the distance of its closest approach is close to:

Ans
1. 26 fm ✗
2. 59 fm ✓
3. 45 fm ✗
4. 38 fm ✗

Question ID : **630680100006**
Status : **Answered**
Chosen Option : **2**

Q.36 An object that is 3.0 cm in height is placed at a distance of 9.0 cm in front of a convex mirror of focal length 18.0 cm. Following New Cartesian Sign Convention, the image is formed at v = _____ and its height h_i = _____.

Ans
1. 18 cm,1.5 cm ✗
2. 6.0 cm, 4.5 cm ✗
3. 18 cm, 6.0 cm ✗
4. 6 cm, 2.0 cm ✓

Question ID : **630680100024**
Status : **Answered**
Chosen Option : **3**

Q.37 Two resistors R_1 and R_2 have their resistance values in the ratio of 3:5. When they are combined in series, their equivalent resistance is 24 Ω. The individual resistances R_1 and R_2, respectively, are:

Ans
1. ✗ 6 Ω and 18 Ω
2. ✗ 15 Ω and 9 Ω
3. ✓ 9 Ω and 15 Ω
4. ✗ 18 Ω and 6 Ω

Question ID : **630680100040**
Status : **Answered**
Chosen Option : **3**

Q.38 Zener diode is a _____ doped PN junction diode and connected in _____ bias in the circuit.

Ans
1. ✗ lightly, forward
2. ✗ lightly, reversed
3. ✗ heavily, forward
4. ✓ heavily, reversed

Question ID : **630680100059**
Status : **Answered**
Chosen Option : **3**

Q.39 Two charges, A (− 0.144 nC) and B (0.256 nC), are located at (−16 cm, 0 cm) and (0 cm,12 cm), respectively. The magnitude of electric field at point (−16 cm,12 cm) due to these two charges is close to:

Ans
1. ✗ 360 N/C
2. ✗ 254 N/C
3. ✗ 180 N/C
4. ✓ 127 N/C

Question ID : **630680100010**
Status : **Answered**
Chosen Option : **3**

Q.40 Rutherford scattering proved the:

Ans
1. ✗ existence of atom
2. ✗ presence of electron
3. ✗ existence of mass of nucleus
4. ✓ presence of nucleus

Question ID : **630680100061**
Status : **Answered**
Chosen Option : **4**

Q.41 The point (a,b,0) lie on:

Ans
1. X-axis
2. XY-plane
3. YZ-plane
4. XZ-plane

Question ID : **63068099952**
Status : **Answered**
Chosen Option : **2**

Q.42 Event "P or Q" is represented by:

Ans
1. P'∩Q
2. P∩Q'
3. P∩Q
4. PUQ

Question ID : **63068099956**
Status : **Answered**
Chosen Option : **4**

Q.43 Which of the following statements is/are correct?

(a) Infrared waves are produced by hot bodies.

(b) Sun is an important source of ultraviolet light.

Ans
1. Only (b)
2. Neither (a) nor (b)
3. Only (a)
4. Both (a) and (b)

Question ID : **63068099994**
Status : **Answered**
Chosen Option : **4**

Q.44 If θ is the angle between any two vectors

$\vec{a}$ and $\vec{b}$, then $|\vec{a} \times \vec{b}| = |\vec{a} \cdot \vec{b}|$ when θ is:

Ans

✗ 1. $\frac{\pi}{2}$

✓ 2. $\frac{\pi}{4}$

✗ 3. π

✗ 4. 0

Question ID : **63068099975**
Status : **Answered**
Chosen Option : **1**

Q.45 A current element of length 0.8 cm carrying a current of 5 A towards +×−direction is placed symmetrically at the origin along the x-axis. The magnetic field at a point (0, 5 cm) is:

(i, j and k are unit vectors along the x-axis, y-axis and z-axis, respectively.)

Ans

✗ 1. $-1.6\ \mu\ T\ k$

✗ 2. $-0.8\ \mu\ T\ k$

✓ 3. $1.6\ \mu\ T\ k$

✗ 4. $0.8\ \mu\ T\ k$

Question ID : **630680100045**
Status : **Answered**
Chosen Option : **2**

Q.46 If the radioactive decay constant of a radioactive substance is 0.00693 per year, what is the half-life of the substance?

(ln2 = 0.693)

Ans

✗ 1. 1000 years

✗ 2. 50 years

✓ 3. 100 years

✗ 4. 10 years

Question ID : **630680100057**
Status : **Answered**
Chosen Option : **3**

Q.47 Find the maximum value of $f(x) = x^3 - 6x^2 + 9x + 15$.

Ans
✗ 1. 15
✗ 2. 23
✗ 3. 17
✓ 4. 19

Question ID : **63068099945**
Status : **Answered**
Chosen Option : **4**

Q.48 Which of the following statements is/are correct?

(a) Electromagnetic waves have different speeds in different mediums.

(b) Sounds have different speeds in different mediums.

Ans
✓ 1. Both (a) and (b)
✗ 2. (b) only
✗ 3. Neither (a) nor (b)
✗ 4. (a) only

Question ID : **63068099993**
Status : **Answered**
Chosen Option : **1**

Q.49 The value of tan 315° is the same as the value of:

Ans
✗ 1. sin 180°
✗ 2. sin 90°
✗ 3. cos 0°
✓ 4. tan 135°

Question ID : **63068099960**
Status : **Answered**
Chosen Option : **4**

Q.50 Consider a potentiometer set-up where a cell of emf 2.25 V gives a balance point at 63.0 cm length of the wire. Now the cell is replaced by another cell and the balance point shifts to 21.0 cm. Then the emf of the second cell is:

Ans
✓ 1. 0.75 V
✗ 2. 1.75 V
✗ 3. 1.25 V
✗ 4. 0.35 V

Question ID : **630680100068**
Status : **Answered**
Chosen Option : **2**

Q.51 Consider a solenoid of 5.0 cm length and radius 0.40 cm. It consists of 500 turns of wire and carries a current of 3.0 A.

The magnitude of magnetic field at the centre of the solenoid is close to $[(\frac{\mu_0}{4\pi}) = 10^{-7}$ Tm/A]:

Ans

✔ 1. 38 mT

✘ 2. 19 mT

✘ 3. 57 mT

✘ 4. 76 mT

Question ID : **63068099990**
Status : **Answered**
Chosen Option : **3**

Q.52 Express the matrix $A = \begin{pmatrix} 4 & 2 & -3 \\ 1 & 3 & -6 \\ -5 & 0 & -7 \end{pmatrix}$ as the sum of a symmetric and a skew-symmetric matrix.

Ans

✘ 1. $\begin{pmatrix} 4 & 1.5 & -4 \\ 1.5 & 1 & -3 \\ -4 & -3 & -7 \end{pmatrix} + \begin{pmatrix} 0 & 0.5 & 1 \\ -0.5 & 0 & -3 \\ -1 & 3 & 0 \end{pmatrix}$

✔ 2. $\begin{pmatrix} 4 & 1.5 & -4 \\ 1.5 & 3 & -3 \\ -4 & -3 & -7 \end{pmatrix} + \begin{pmatrix} 0 & 0.5 & 1 \\ -0.5 & 0 & -3 \\ -1 & 3 & 0 \end{pmatrix}$

✘ 3. $\begin{pmatrix} 4 & 1.5 & -4 \\ 1.5 & 3 & -3 \\ -4 & -3 & -7 \end{pmatrix} + \begin{pmatrix} 2 & 0.5 & 1 \\ -0.5 & 0 & -3 \\ -1 & 3 & 0 \end{pmatrix}$

✘ 4. $\begin{pmatrix} 4 & 1.5 & -4 \\ 1.5 & 3 & -3 \\ -4 & -3 & -7 \end{pmatrix} + \begin{pmatrix} 0 & 0.5 & 1 \\ -0.5 & 2 & -3 \\ -1 & 3 & 0 \end{pmatrix}$

Question ID : **63068099892**
Status : **Answered**
Chosen Option : **2**

Q.53 If two dice are thrown simultaneously, then what are total number of possible outcomes?

Ans

✘ 1. 12

✘ 2. 18

✔ 3. 36

✘ 4. 6

Question ID : **63068099979**
Status : **Answered**
Chosen Option : **3**

Q.54 Consider two cells of emf ε_1 and ε_2 with internal resistances r_1 and r_2, respectively. The two cells are connected in parallel by connecting their positive terminals together and connecting their negative terminals together. The combination is equivalent to a single cell with emf given by:

Ans

1. $(\varepsilon_1 r_1 + \varepsilon_2 r_2)/(r_1 + r_2)$
2. $(\varepsilon_1 r_2 + \varepsilon_2 r_1)/(r_1 + r_2)$
3. $(\varepsilon_2 r_1)/(r_1 + r_2)$
4. $(\varepsilon_1 r_2)/(r_1 + r_2)$

Question ID : **630680100042**
Status : **Answered**
Chosen Option : **1**

Q.55 Let a binary operation '*' be defined on a set P. The operation will be commutative if _____.

Ans

1. x*y=y*x
2. x*y=x
3. (x*y)*z=x*(y*z)
4. (y o z)*x=(y*x) o (z*x)

Question ID : **63068099933**
Status : **Answered**
Chosen Option : **3**

Q.56 The number of commutative binary operation on the set $A = \{1, 2\}$ is_____.

Ans

1. 32
2. 8
3. 16
4. 64

Question ID : **63068099909**
Status : **Answered**
Chosen Option : **2**

Q.57 Find $\frac{dy}{dx}$ given the following implicit equation: $x^2 + y^2 = a^2$

Ans
1. −y/x ✗
2. −x/y ✓
3. y/x ✗
4. x/y ✗

Question ID : **630680101701**
Status : **Answered**
Chosen Option : **2**

Q.58 In a triangle ABC, sec A (sin B cos C + cos B sin C) equals:

Ans
1. 1 ✗
2. tanA ✓
3. cotA ✗
4. c/a ✗

Question ID : **63068099963**
Status : **Answered**
Chosen Option : **1**

Q.59 What is the condition for two vectors to be Collinear?

Ans
1. The vectors should have the same initial point. ✗
2. The vectors should have the magnitude 1 and 0, respectively. ✗
3. The vectors should have the same magnitude. ✗
4. The vectors should be parallel to the same line. ✓

Question ID : **63068099949**
Status : **Answered**
Chosen Option : **4**

Q.60 Which of the following electromagnetic waves/rays has minimum wavelength?

Gamma rays, Infrared waves, Ultraviolet rays, Visible rays

Ans
1. Gamma rays ✓
2. Ultraviolet rays ✗
3. Visible rays ✗
4. Infrared waves ✗

Question ID : **630680100018**
Status : **Answered**
Chosen Option : **1**