NATIONAL TALENT SEARCH EXAMINATION
(NTSE 2021) STAGE - 1

STATE : RAJASTHAN **PAPER : MAT**
Date : 13/12/2020

Max. Marks : 100 **SOLUTIONS** Time : 120 mins.

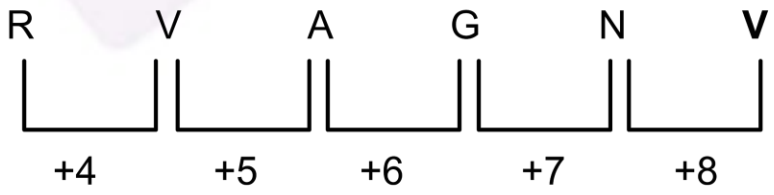
Questions (1 – 8)
Instruction: In each of the Question Nos. 1 to 8 a letter series is given with one term missing shown by question mark (?). This term is one of the four alternatives given under it. Find the correct alternative.

Question 1. R, V, A, G, N, __?

a. U
b. V
c. W
d. X

Answer: (b)

Solution:



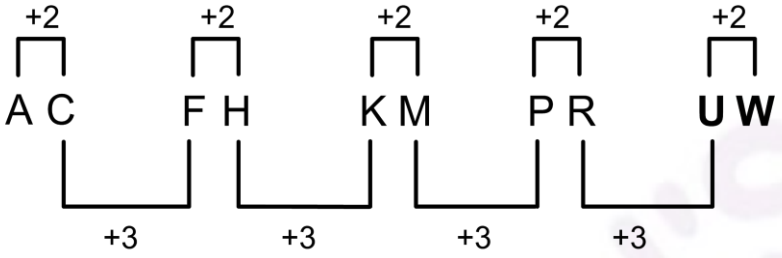
Question 2. AC, FH, KM, PR, __?

a. UX

b. TV
c. UW
d. VW

Answer: (c)

Solution:

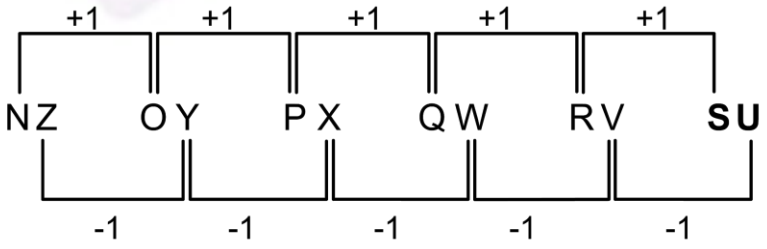


Question 3. NZ, OY, PX, QW, RV, __?

a. FS
b. UF
c. TU
d. SU

Answer: (d)

Solution:



Question 4. AEI, EIO, IOU, OUA, _____?

a. UXB
b. UAE
c. EUA
d. AOU

Answer: (b)

Solution:

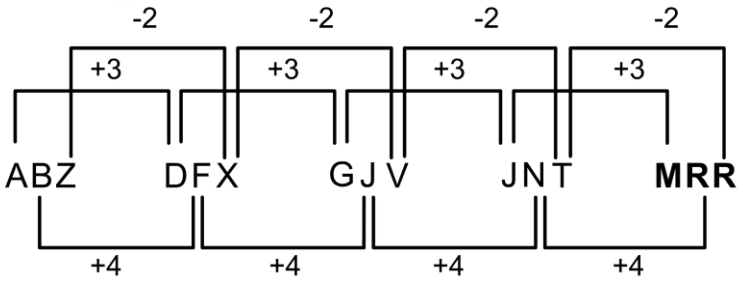
Pattern based on the cyclicity of the vowels AEIOU.

Question 5. ABZ, DFX, GJV, JNT, ____?

a. MRR
b. QRQ
c. MRQ
d. QVR

Answer: (a)

Solution:



Question 6. COVIDNINETEEN, VIDNINETEENCO, DNINETEENCOVI, _____?

a. IDNINETEENCOV
b. NINETEENCOVID
c. INETEENCOVIDI
d. INETEENCOVIDN

Answer: (d)

Solution:

The first two letters of a term are shifted to the last to form the next term of the series.
So after, **DN**INETEENCOVI, the next term will be INETEENCOVI**DN**.

Question 7. RADIUS, RADSIU, RADSUI, RADUIS, ____?

a. RASDIU
b. RDAIUS
c. RADUSI
d. RAIDUS

Answer: (c)

Solution:

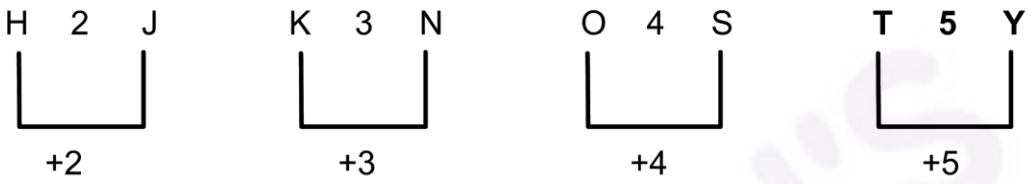
RADIUS, RADSIU, RADSUI, RADUIS, **RADUSI**
123 312 321 213 231

Question 8. H2J, K3N, O4S, ____?

a. T5Y
b. T5Z
c. T5X
d. T5A

Answer: (a)

Solution:



Questions (9 – 16)
Instruction: In each of the Question Nos. 9 to 16 a number series is given with one term missing shown by question mark (?) This term is one of the four alternatives given under it. Find the correct alternative.

Question 9. 2, 3, 5, 8, 13, __?, 34

a. 23
b. 21
c. 20
d. 22

Answer: (b)

Solution:

The given series is a Fibonacci series starting from 2.
So, the series is 2, (2 + 1), (3 + 2), (5 + 3), (8 + 5), **(13 + 8)**, (21 + 13)
i.e. 2, 3, 5, 8, 13, **21,** 34.

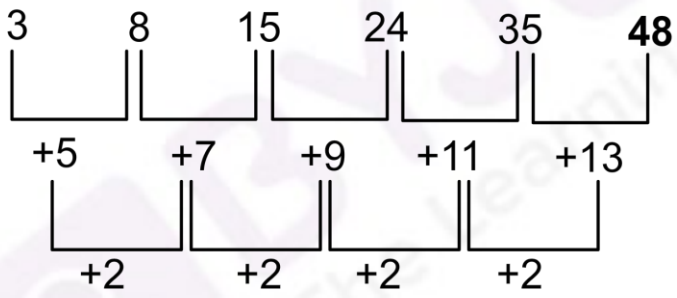
Question 10. 3, 8, 15, 24, 35, __?

a. 52
b. 50
c. 48
d. 46

Answer: (c)

Solution:

The series is 3, (3 + 5), (8 + 7), (15 + 9), (24 + 11), (35 + 13)
So, the missing term is 35 + 13, i.e. 48.



Question 11. 8, 24, 28, 140, 146, 1022, 1030, __?

a. 1040
b. 8240
c. 10300
d. 9270

Answer: (d)

Solution:

The pattern is ×3, +4, ×5, +6, ×7, +8, ×9.
So, 1030 × 9 = 9270.

Question 12. 2, 9, 3, 28, 4, 65, 5, __?

a. 137
b. 126
c. 118
d. 115

Answer: (b)

Solution:

The series has two alternate series in it.
One series: 2, 2 + 1, 3 + 1, 4 + 1,...
Another Series: $2^3 + 1$, $3^3 + 1$, $4^3 + 1$, $5^3 + 1$,...
So the missing term is $5^3 + 1$, i.e. 126.

Question 13. 4, 17, 290, __?

a. 84100
b. 84101
c. 84102
d. 84103

Answer: (b)

Solution:

$4^2 + 1 = 17$
$17^2 + 1 = 290$
$290^2 + 1 = 84101$

Question 14. 3, 3, 4.5, 9, 22.5, __?

a. 27.3
b. 48
c. 55
d. 67.5

Answer: (d)

Solution:
The pattern is ×1, ×1.5, ×2, ×2.5, ×3,...
So, 22.5 × 3 = 67.5

Question 15. 4, 5, 12, 39, 160, __?

a. 225
b. 695
c. 805
d. 790

Answer: (c)

Solution:
The pattern is ×1+1, ×2+2, ×3+3, ×4+4, ×5+5,...
So, (160 × 5) + 5 = 805.

Question 16. 2, 3, 7, 16, 32, __?

a. 57
b. 39
c. 56
d. 55

Answer: (a)

Solution:

The pattern is $+1^2, +2^2, +3^2, +4^2, +5^2,...$

So, $32 + 5^2 = 57$.

Questions (17 – 19)

Instruction: Question Nos. 17 to 19 has a statement and two conclusions I and II. You have to assume the given statements as true even if they seem to vary from commonly known facts. Read all the conclusions carefully and decide which of the given conclusions logically follow(s) the given statement even disregarding commonly known facts.

Question 17. Statement: Unemployment is one of the main reasons for the poverty of the country.

Conclusions:

(I) To end poverty, it is required to create employment opportunities.

(II) All the people in the country are unemployed.

a. Only conclusion I follows.
b. Only conclusion II follows.
c. Both conclusions I and II follows.
d. Neither conclusion I nor II follows.

Answer: (a)

Solution:

From the given statement on unemployment, it can be concluded that, to end poverty more employment opportunities need to be created.

But the statement doesn't convey that all people in the country are unemployed.

So, the conclusion (I) follows but conclusion (II) doesn't follow.

Question 18. Statement: Morning walk is good for health.

Conclusions:

(I) All healthy people go for morning walk.
(II) Evening walk is harmful.

a. Only conclusion I follows.
b. Only conclusion II follows.
c. Both conclusions I and II follows.
d. Neither conclusion I nor II follows.

Answer: (d)

Solution:

The statement does not convey anything about all healthy people. Some healthy people might not go for morning walks.

The statement does not convey anything on evening walks. So it cannot be concluded that evening walk is harmful.

Question 19. Statement: Animals live on Oxygen.

Conclusions:
(I) Plants do not live on Oxygen.
(II) Anything that needs Oxygen is bound to be animal.

a. Only conclusion I follows.
b. Only conclusion II follows.
c. Both conclusions I and II follows.

d. Neither conclusion I nor II follows.

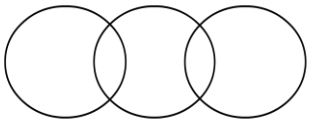
Answer: (d)

Solution:

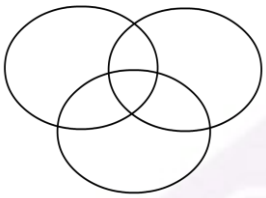
The statement doesn’t convey anything regarding plants. Also, it doesn't convey that only animals live on oxygen. So, both conclusions do not follow.

Question 20. Which one of the following Venn-diagrams correctly represents the relation between currency, Rupee and Dollar?

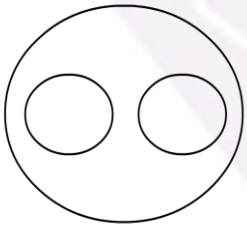
a.



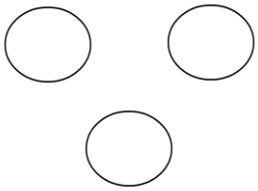
b.



c.



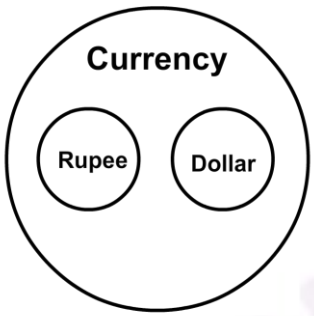
d.



Answer: (c)

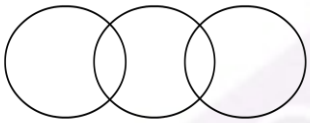
Solution:

Rupee and Dollar are currencies for different countries. They do not have anything in common.

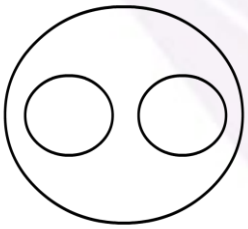


Question 21. Which one of the following Venn-diagrams correctly represents the relation between Mumbai, Madhya Pradesh and Bhopal?

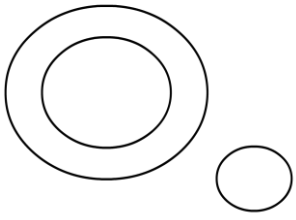
a.

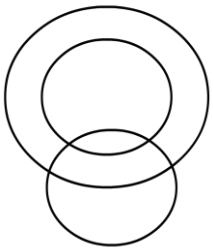


b.



c.

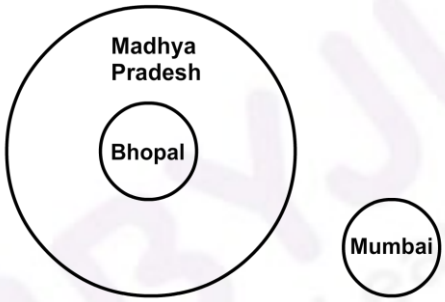


d. 

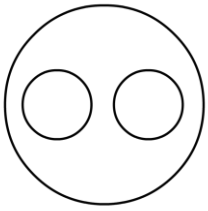
Answer: (c)

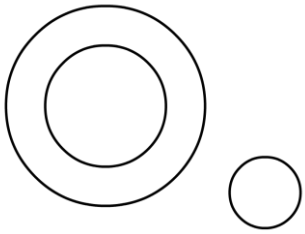
Solution:

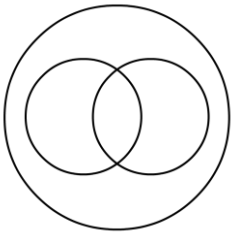
Bhopal is in Madhya Pradesh but Mumbai is not.

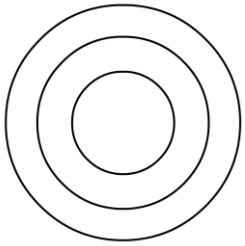


Question 22. Which one of the following Venn-diagrams correctly represents the relation between Herbivorous, Lions and Animals?

a. 

b. 

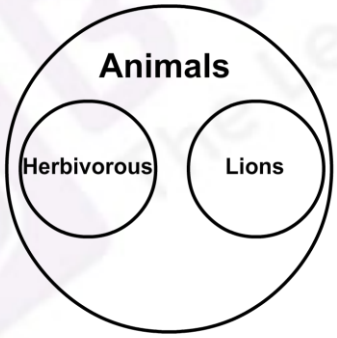
c. 

d. 

Answer: (a)

Solution:

Lions belong to animals but are not herbivorous animals.



Question 23. In a coded language, ONLINE is written as LNOENI and SILENT is written as LISTNE; then in the same coded language, LISTEN will be written as.

a. ILSNET
b. SILENT
c. SILNET

d. SILETN

Answer: (c)

Solution:

Word is divided into two halves and each half is reversed.
ONLINE: Reverse of ONL and INE are LNO and ENI respectively. So, we get LNOENI.
SILENT: Reverse of SIL and ENT are LIS and TNE respectively. So, we get LISTNE.
LISTEN: Reverse of LIS and TEN are SIL and NET respectively. So, we get SILNET.

Question 24. In a coded language, AVOID is written as 73564 and CHINA is written as 28617; then in the same coded language, COVID will be written as

a. 53246
b. 25364
c. 25346
d. 25634

Answer: (b)

Solution:
Decoding AVOID = 73564 letter by letter we get,
A=7, V=3, O=5, I=6, D=4
Similarly, In CHINA = 28617; C=2, H=8, I=6, N=1, A=7.
So, the code for COVID: C=2, O=5, V=3, I=6, D=4
i.e., COVID = 25364.

Questions (25 – 27)
Instruction: Read the following information carefully and answer question number 25 to 27 based upon it.

In a coded language, 461 means WHERE ARE YOU; 169 means 'YOU ARE GOOD' and 8652 means 'EXAMS ARE NOT BAD'.

//Decoding the language for Q25-27:

4 - WHERE

6 - ARE

1 - YOU

9 - GOOD

8 - EXAMS

5 - NOT

2 - BAD**//**

Question 25. What is the code for 'NOT'?

a. 6

b. 9

c. 5

d. 1

Answer: (c)

Solution:

NOT is 5.

Question 26. What is the code for 'GOOD'?

a. 9

b. 4

c. 6

d. 1

Answer: (a)

Solution:

Good is 9.

Question 27. How will 'WHERE ARE GOOD EXAMS' will be written in coded language?

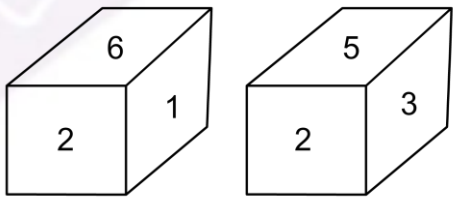
a. 1654
b. 4619
c. 1945
d. 4698

Answer: (d)

Solution:

From the digits corresponding to the words, the code for WHERE ARE GOOD EXAMS is 4698.

Question 28. The two positions of a single dice are given below. Which digit will be at the face opposite to the face having digit 2.



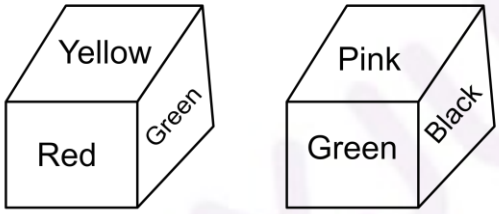
a. 3
b. 4
c. 5
d. 6

Answer: (b)

Solution:

There are 6 numbers 1 to 6 on the faces of a dice. All numbers are visible except 4, which must be on the face opposite of 2.

Question 29. The two positions of a single cube are shown below. The six faces of this cube are colored with Green, Yellow, Red, Black, Pink and White. If the Green colored face is at top then what will be the color at bottom's face?

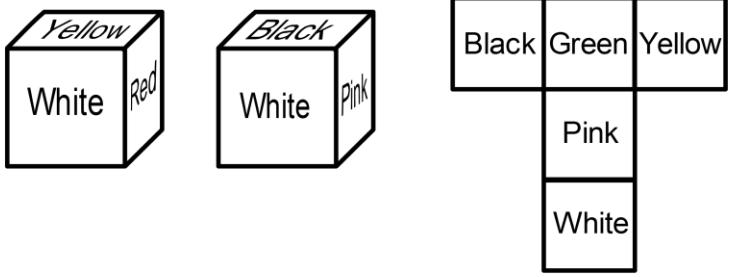


a. White
b. Green
c. Yellow
d. Red

Answer: (a)

Solution:

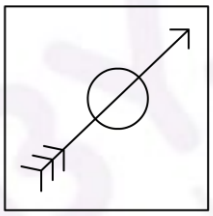
The colors adjacent to Green are Yellow, Red, Pink and Black. The only color remaining is White which will be on the opposite face to Green.

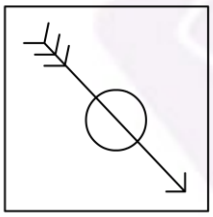


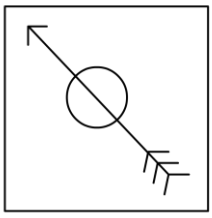
Questions (30 – 33)

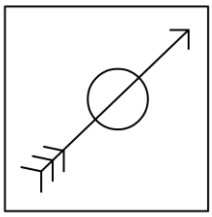
Instruction: In Question numbers 30 to 33, find the correct mirror image of the given figure, when the mirror is placed on the right side of the figure.

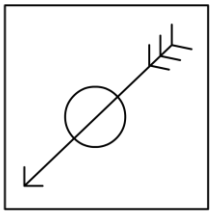
Question 30.



a. 

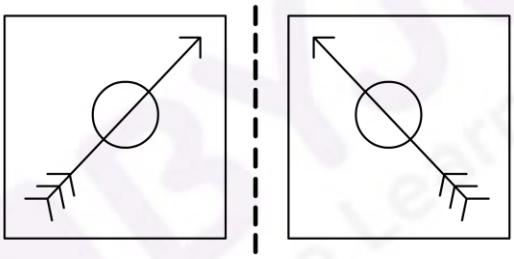
b. 

c. 

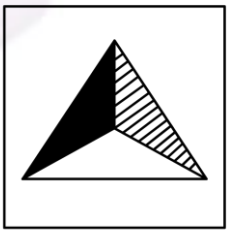
d. 

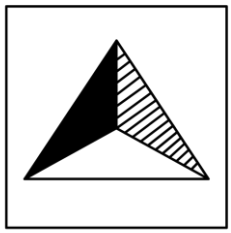
Answer: (b)

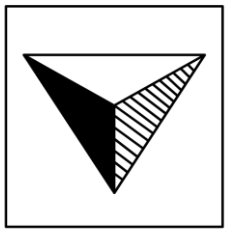
Solution:

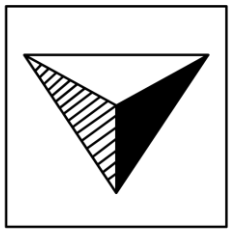


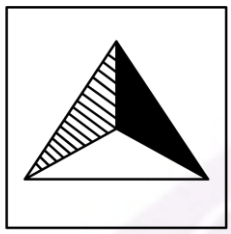
Question 31. Question Image



a. 

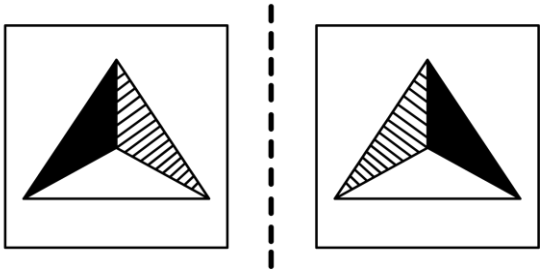
b. 

c. 

d. 

Answer: (d)

Solution:

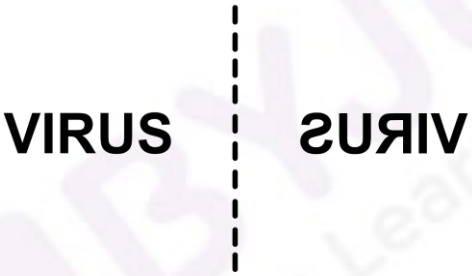


Question 32. VIRUS

a. SURIV
b. VIRUS
c. SURIV
d. SURIV

Answer: (c)

Solution:



Question 33.
53768

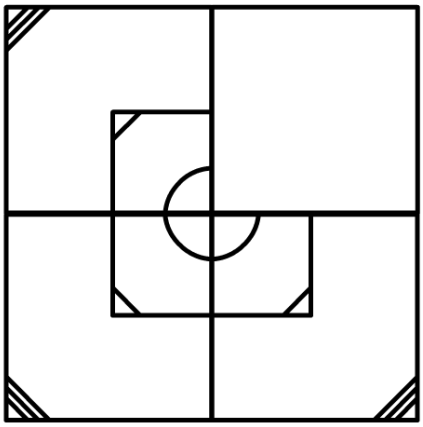
a. 53768
b. 86735
c. 86375
d. 53768

Answer: (d)

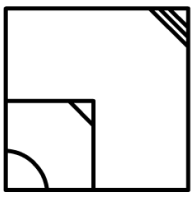
Solution:

53768 | 8ϑ7Ɛ5

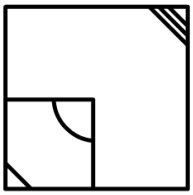
Question 34. Which of the answer figures will complete the matrix figure?



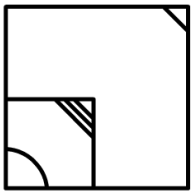
a.



b.



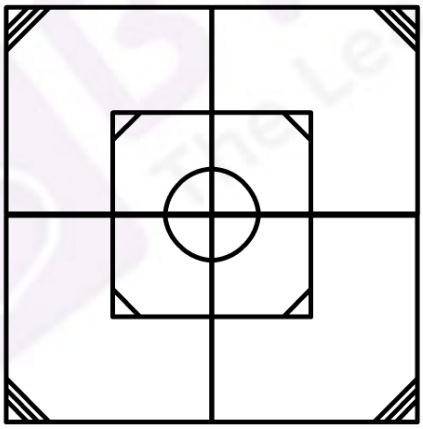
c.



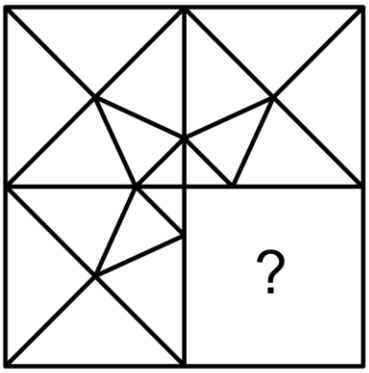
d.

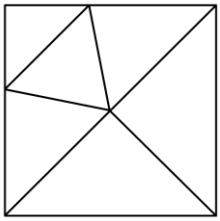
Answer: (b)

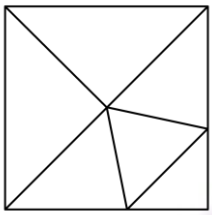
Solution: By observation it can be determined that the figure will be completed by the mirror image of the left side. So it is option (b)

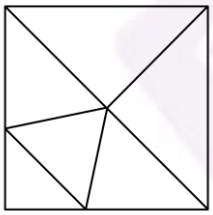


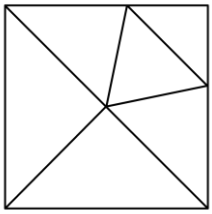
Question 35. Which of the answer-figures will complete the matrix-figure?



a. 

b. 

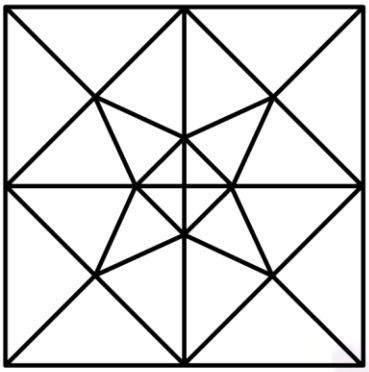
c. 

d. 

Answer: (a)

Solution:

By observation it can be determined that the figure will be completed by the mirror image of the left side. So it is option (a).



Question 36. If it was Tuesday on 24th March, 2020 then what was the day on 24th August, 2020.

a. Wednesday
b. Tuesday
c. Monday
d. Sunday

Answer: (c)

Solution:

Months between March and August are April (30 days), May (31 days), June (30 days), July (31 days).
Total Days in these months = 30 + 31 + 30 + 31 = 122
Number of Days from 24th March to 31st March = 7
Number of Days from 1st August to 24th August = 24

Total number of days = 122 + 7 + 24 = 153 days
153 = (21 × 7) + 6
There are 21 weeks and 6 odd days from 24th March to 24th August. So 24th August is Monday (Tuesday + 6 odd days).

Question 37. How many numbers from 10 to 200 are there which are divisible by 2 as well 7?

a. 13
b. 14
c. 15
d. 16

Answer: (b)

Solution:

For a number to be divisible by both 2 and 7 it should be divisible by 14.

$$\frac{200}{14} = 14.28$$

So the number of multiples of 14 between 10 and 200 are 14. Hence 14 numbers between 10 and 200 are divisible by both 2 and 7.

Instruction: In each of the Question numbers 38 to 43, three alternatives are alike in a certain way but the rest one is different. Select the odd one.

Question 38.

a. Chalk
b. Pen
c. Pencil
d. Map

Answer: (d)

Solution:

Except for Map, all others are used for writing.

Question 39.

a. Taxi
b. Bus
c. Car
d. Tanker

Answer: (d)

Solution:

Taxi, Bus and Car carry passengers but Tankers do not.

Question 40.

a. June
b. August
c. April
d. November

Answer: (b)

Solution:

Only August of the given options has 31 days in the month.

Question 41.

a. Africa
b. Europe
c. Australia
d. England

Answer: (d)

Solution:

England is a country whereas all others are continents.

Question 42.

a. Hand
b. Leg
c. Ear
d. Neck

Answer: (d)

Solution:

Except Neck all other body parts given are in pairs.

Question 43.

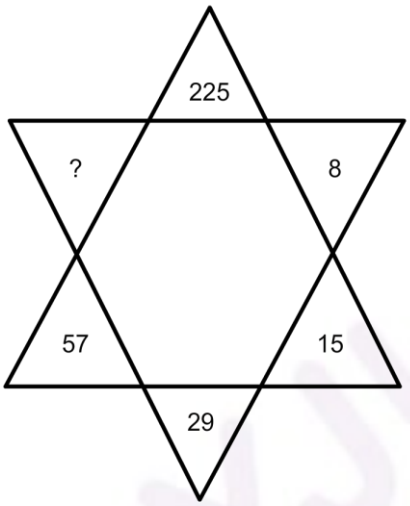
a. Cone
b. Triangle
c. Rectangle
d. Circle

Answer: (a)

Solution:

Except for Cone, all the other options given are 2D figures.

Question 44. Identify the missing term (?) in the following figure.



a. 114
b. 113
c. 123
d. 124

Answer: (b)

Solution:

(8 × 2) - 1 = 15
(15 × 2) - 1 = 29
(29 × 2) - 1 = 57
(57 × 2) - 1 = 113
(113 × 2) - 1 = 225

So, 113 is the missing number.

Question 45. Identify the missing term (?) in the following table.

11	12	13
14	15	16
2	3	4
39	57	?

a. 87
b. 85
c. 77
d. 75

Answer: (c) or (d)

Solution:

11 + (14 × 2) = 39
12 + (15 × 3) = 57
13 + (16 × 4) = 77
The missing number in the table will be 77.

Or

$\frac{11 + 13}{2} = 12$

$$\frac{14 + 16}{2} = 15$$

$\frac{39 + a}{2} = 57$, So a = 75.

Here, the missing number in the table will be 75.

Question 46. Ishant is taller than Sanjay, Ashok is taller than Ishant, Sachin is not as tall as Ashok but taller than Ishant. Who is shortest in height?

a. Sanjay
b. Sachin
c. Ishant
d. Can't be determined

Answer: (a)

Solution:

From the question, the heights can be compared as follows.
Ashok > Sachin > Ishant > Sanjay

Question 47. In a class of 39 students, Mukesh's rank is 7 more than Gautam's rank. If Gautam's rank from end is 17^{th}, then what will be the rank of Mukesh from beginning?

a. 13^{th}
b. 14^{th}
c. 15^{th}
d. 16^{th}

Answer: (d)

Solution:

Since Gautm's rank is 17th from the last there are 16 students after him.
Gautam's actual rank from the 1st rank = 39 - 16 = 23rd rank
Mukesh's rank = 23 - 7 = 16th rank.

Question 48. From 14 December, 2020, morning 4 O' clock to 15 December, 2020, morning 4 O' clock. How many times, the minute hand & hour hand of a clock will overlap.

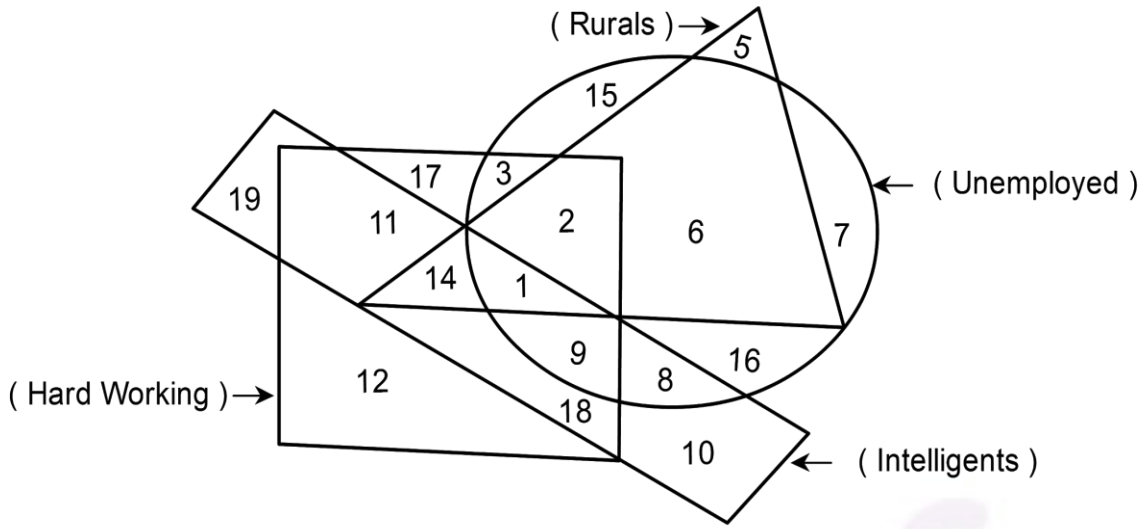
a. 21
b. 22
c. 23
d. 24

Answer: (b)

Solution:

Hours between 4.00 AM, 14 December 2020 to 4.00 AM, 15 December 2020 = 24
In 12 hours the hands of a clock overlap 11 times.
In 24 hours, the hands of the clock would have overlapped 22 times.

Question (49 – 53)
Instruction: The following questions are based on the diagram given below, Study the diagram carefully and answer the questions based upon it.
In the diagram
(I) Circle represent unemployed
(II) Square represent Hard working
(III) Triangle represent Rurals
(IV) Rectangle represents intelligents.



Question 49. The rurals which are Hard-working and intelligent but not unemployed are represented in the diagram by.

a. 14
b. 1
c. 9
d. 8

Answer: (a)

Solution:

The number in the intersection of triangle (Rural), square (Hardworking), and rectangle (Intelligents), but not in the circle (unemployed), i.e. 14.

Question 50. The Rurals, which are neither Hard-working nor Intelligent but unemployed are represented by

a. 1
b. 2
c. 3

d. 6

Answer: (d)

Solution:

The number in the intersection of triangle(Rural) and circle(Unemployed), but not covered by square (Hardworking), and rectangle (Intelligents), but not in the circle (unemployed), i.e. 6.

Question 51. The unemployed, which are intelligent but neither Rurals nor Hard working are represented by

a. 1
b. 8
c. 9
d. 11

Answer: (b)

Solution:

The number in the intersection of and circle(Unemployed) and rectangle (Intelligents), but not covered by triangle(Rural) and square (Hardworking), i.e. 8.

Question 52. Those who are Rurals, Hard-working and unemployed and also intelligent, are represented by

a. 14
b. 9
c. 8

d. 1

Answer: (d)

Solution:

The number in the intersection of circle(Unemployed), rectangle (Intelligents), triangle(Rural) and square (Hardworking), i.e. 1.

Question 53. Those persons who are neither rurals, nor unemployed and nor intelligent but Hard working, are represented by

a. 5 and 7
b. 12 and 17
c. 10 and 19
d. 15 and 16

Answer: (b)

Solution:

The numbers in the square (Hardworking) but not covered by circle (Unemployed), rectangle (Intelligents), triangle (Rural), i.e. 12 and 17.

Question 54. As clay is related to pottery in the same way gold is related to which of the following.

a. Woman
b. Goldsmith
c. Ornaments
d. Metal

Answer: (c)

Solution:

Clay is used to make pottery.
Gold is used to make ornaments.

Question 55. As bird is related to kite, in the same way fish is related to which of the following.

a. Crow
b. Submarine
c. Boy
d. Thread

Answer: (b)

Solution:

Birds and kites fly in the sky.
Fish and submarines are in seas.

Question 56. As 'gram' is related to 'mass' in the same way, 'Centimeter' is related to

a. Area
b. Volume
c. Density
d. Length

Answer: (d)

Solution:

Gram is a unit of mass.
Centimeter is a unit of length.

Questions (57 – 61)
Instruction: Study the information given below carefully and answer the questions based on it.
All the faces of a solid cube are coloured with red colour and then cut it into 64 small equal cubes.

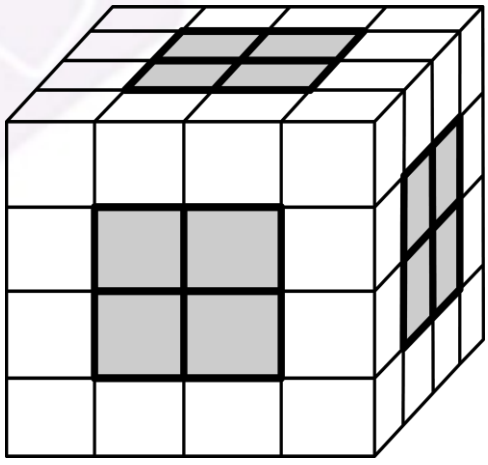
Question 57. How many cubes are such with only one face is coloured?

a. 12
b. 24
c. 30
d. 36

Answer: (b)

Solution:

A cube cut into 64 small cubes looks like the figure below.



The small cubes are arranged in a 4 × 4 × 4 matrix.

On each face of the big cube there are 4 small cubes that have only one of its face coloured red as highlighted in the figure.
The total number of small cubes with only one face coloured is 6 × 4, i.e. 24.

Question 58. How many cubes are such with two opposite faces are red coloured?

a. 0
b. 4
c. 6
d. 8

Answer: (a)

Solution:

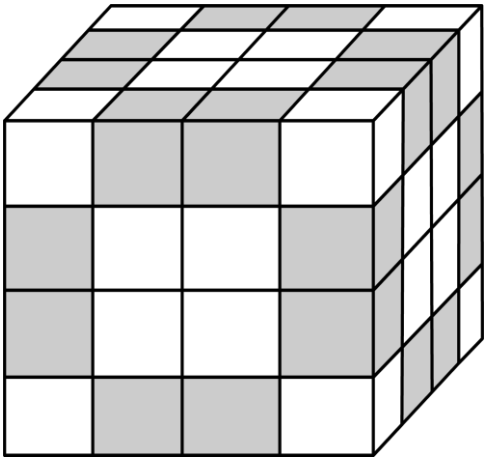
There can be no cube whose opposite faces are coloured. The faces opposite to painted faces of each painted small cube are hidden in the interior side of the bigger cube.

Question 59. How many cubes are such that two adjacent faces are red coloured and the remaining faces are not coloured?

a. 8
b. 12
c. 16
d. 24

Answer: (d)

Solution:



As highlighted in the image, on each edge of the big cube there are 2 edge cubes that have only 2 adjacent faces painted. The big cube has 12 edges. So total number of edge cubes = 2 x 12 = 24.

Question 60. How many cubes are such with three faces red coloured?

a. 0
b. 6
c. 8
d. 12

Answer: (c)

Solution:

The small cubes at the 8 vertices of the bigger cube have 3 painted faces.

Question 61. How many cubes are such that any of the face is not coloured?

a. 6
b. 8
c. 10
d. 12

Answer: (b)

Solution:

The 64 cubes obtained by cutting the big cube are arranged in a 4 × 4 × 4 matrix. If the outer layer of small cubes are left, there will be 2 × 2 × 2 small cubes that are left. So the total number of small cubes that have no painted face is 8 (2 × 2 × 2).

Question 62. In numbers 5 8 1 3 2 7 6 4, how many digits are such with at the same distance from the beginning as if arranged in descending order?

a. Three
b. Two
c. One
d. None

Answer: (d)

Solution:

Original order : 5 8 1 3 2 7 6 4
Descending order : 8 7 6 5 4 3 2 1
From the arrangement of numbers it can be seen that there is no such digit.

Questions (63 – 65)
Instruction: Question Nos. 63 to 65, Each based upon the following five, three-digit numbers.
386, 752, 961, 573, 839

Question 63. If the unit place and hundreds place digit of every number is interchanged then what will be the sum of the unit place digit and Tens place digit of greatest number?

a. 7
b. 11
c. 12
d. 14

Answer: (b)

Solution:

The numbers after interchanging unit place and hundreds place digit of every number are 683, 257, 169, 375, 938.
The greatest number is 938.
The sum of units place digit and tens place digit = 3 + 8 = 11

Question 64. If the unit place digit and tens place digit of every number is interchanged then what will be the second greatest number?

a. 893
b. 863
c. 961
d. 725

Answer: (a)

Solution:

The numbers are 368, 725, 916, 537, 893.
The second greatest number is 893.

Question 65. If the digits of every number are rearranged in such a way that if form the smallest possible number by the digits then what will be the biggest number out of them?

a. 368
b. 527
c. 691
d. 389

Answer: (d)

Solution:

The numbers are 368, 257, 169, 357, 389.
The greatest of them is 389.

Question 66. In the arithmetic expression given below, if the digit 4 and 3 are interchanged then what will be the solution?

$$\mathbf{4 \times 2 + 8 - 3 \div 2}$$

a. 10
b. 10/3
c. 18
d. 12

Answer: (d)

Solution:

The expression becomes $3 \times 2 + 8 - 4 \div 2 = 6 + 8 - 2 = 12$

Question 67. In the arithmetic expression given below, if the sign $\times$ and $\div$ are interchanged then what will be the solution?

$$\mathbf{8 \times 3 - 2 + 3 \div 3}$$

a. $\frac{29}{3}$
b. 9
c. 23
d. $\frac{23}{3}$

Answer: (a)

Solution:

$$\mathbf{8 \div 3 - 2 + 3 \times 3} = \frac{8}{3} - 2 + 9 = \frac{8}{3} + 7 = \frac{29}{3}$$

Question 68. After interchanging the sign $+$ and $\div$ and also interchanging the digits 2 and 3, which of the following is given with the correct solution?

a. $4 \times 3 + 8 - 3 \div 2 = 17$
b. $4 + 3 \times 8 - 3 \div 2 = 17$
c. $4 + 3 \times 8 \div 2 \times 3 = 17$
d. $4 + 3 \times 8 + 2 - 3 = 17$

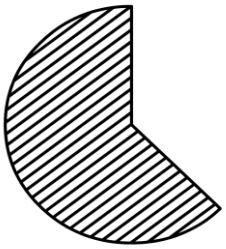
Answer: (b)

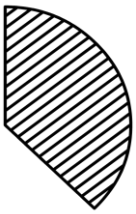
Solution:

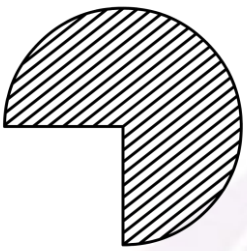
Rewriting the options by interchanging operators + and ÷ and digits 2 and 3 in the options:

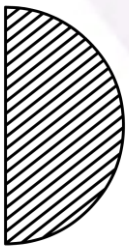
a. $4 \times 2 \div 8 - 3 + 2 = 4 \times 0.25 - 3 + 2 = 0$
b. $4 \div 2 \times 8 - 2 + 3 = 2 \times 8 - 2 + 3 = 16 + 1 = 17$
c. $4 \div 2 \times 8 + 3 \times 2 = 2 \times 8 + 6 = 22$
d. $4 \div 2 \times 8 \div 3 - 2 = 2 \times \frac{8}{3} - 2 = \frac{10}{3}$

Question 69. If 50% books in a library are in English language and $\frac{7^{th}}{10}$ of the rest in Hindi language which of the following shaded parts approximately represent books in Hindi language.

a. 

b. 

c. 

d. 

Answer: (b)

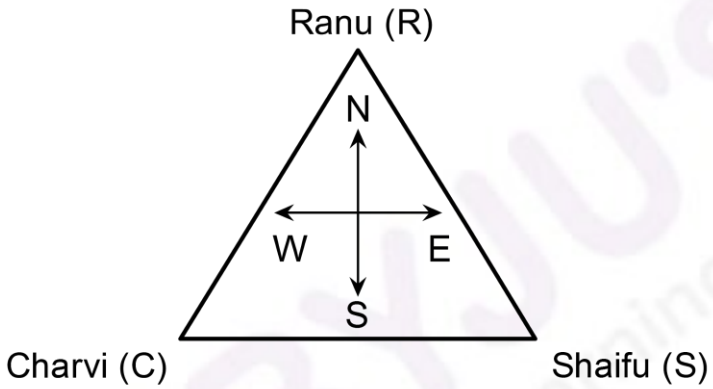
Solution:

Let us say that the total number of books are a.

Number of English books = 0.5a
Number of Hindi books = 7/10 (a - 0.5a) = 0.7 × 0.5a = 0.35a
The shaded portion, that represents the number of books in hindi, should be more than quarter and less than half, i.e. the option (b).

Question (70 – 72)

Instruction: In an open ground Ranu, Shaifu and Charvi are standing at the corner of an equilateral triangle. Study the questions 70 to 72 carefully which are based on the following diagram and select the correct answer.



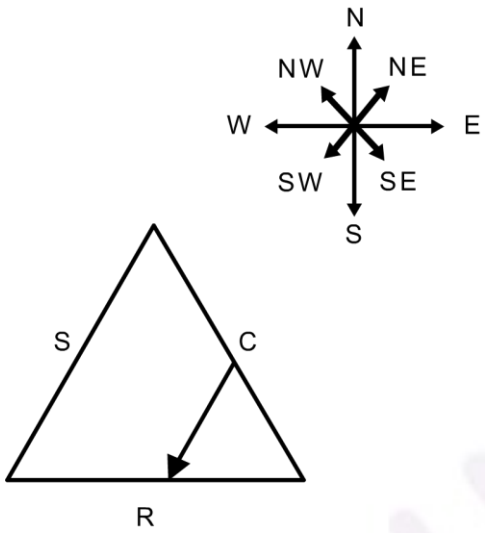
Question 70. From the positions shown in above figure, Ranu, Shaifu and Charvi run along the sides of equilateral triangle in clockwise direction for $1\frac{1}{2}$sides of triangle. Now which of the following statements is true?

a. Charvi is in West of Shaifu.
b. Ranu is in South-West of Charvi.
c. Ranu is in South-West of Shaifu.
d. Shaifu is in North-East of Ranu.

Answer: (b)

Solution:

After they have run along 1.5 sides of the triangle in clockwise direction their positions are as shown.



From the figure it can be clearly seen that Ranu is South-West of Charvi.

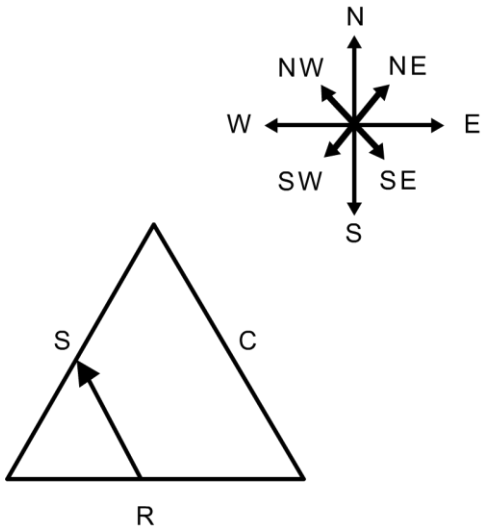
Question 71. From the positions shown in above figure, Ranu, Shaifu and Charvi run along the sides of equilateral triangle in anti-clockwise direction for $1\frac{1}{2}$ sides of triangle. Now Shaifu is in which direction of Ranu?

a. In East
b. In South
c. In North-West
d. In North-East

Answer: (c)

Solution:

After they have run along 1.5 sides of the triangle in an anti-clockwise direction their positions are as shown.



From figure it can be clearly seen that Shaifu is in the North-West of Ranu

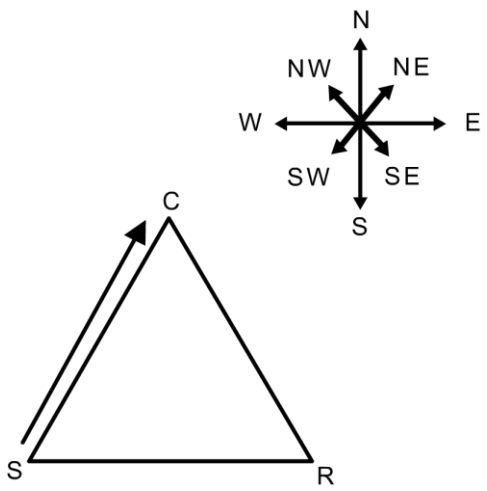
Question 72. From the position shown in above figure, Ranu, Shaifu and Charvi run along the sides of the equilateral triangle in clockwise direction for 1 side of the triangle. Now Charvi is in which direction of Shaifu?

a. South-West
b. South-East
c. North-West
d. North-East

Answer: (d)

Solution:

After they have run along 1 side of the triangle in clockwise direction their positions are as shown.



From the figure it can be clearly seen that Charvi is in the North-East of Shaifu.

Question 73. In this question, *'Δ'* means "Greater than" *'□'* means "Less than", *'Φ'* means "equal to" *'⊕'* means "not equal to".
If $C \Delta A$, $A \square B$, $D \Phi B$ and $B \oplus C$, then choose the correct option in the following.

a. $A \square C$
b. $D \Delta C$
c. $A \Delta C$
d. $B \oplus D$

Answer: BONUS

Solution:

The decoded relations as given are: C > A, A < B, D = B and B ≠ C.
The decoded options are:
D < C , D > C - Relationship between C and D is not defined. So these options cannot be concluded.

A > C - From the given, A cannot be greater than C.

B ≠ D - From the given, B is equal to D and so this option cannot be true.
None of the options is correct.

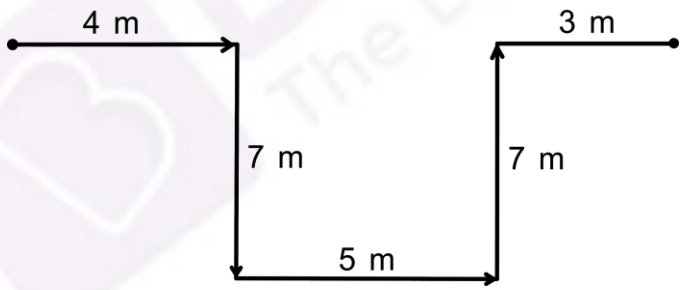
Question 74. Darshan walked 4 meters in East, then he turned right and walked 7 meters, then he turned left and walked 5 meters again he turned left and walked 7 meters. Then finally before stopping he turned right and walked 3 meters. How far is Darshan from his initial point?

a. 10 meter
b. 11 meter
c. 12 meter
d. 13 meter

Answer: (c)

Solution:

The image shows the path walked by Darshan.



So, distance from the initial point to final point = 4 + 5 + 3 = 12 m.

Questions (75 – 77)
Instruction: The following table shows the record of surgery done in a hospital. This record shows the data from January to July. Study the table carefully and answer the following questions.

Month	Total Successful Surgery	Total unsuccessful Surgery
January	5	3
February	4	4
March	5	2
April	6	3
May	4	2
June	3	3
July	2	4

Question 75. As per the above table, what is the percentage of successful surgery?

a. 32%
b. 29%
c. 58%
d. 21%

Answer: (c)

Solution:

Total successful surgeries = 5 + 4 + 5 + 6 + 4 + 3 + 2 = 29
Total unsuccessful surgeries = 3 + 4 + 2 + 3 + 2 + 3 + 4 = 21
Total number of surgeries = 21 + 29 = 50
Percentage of successful surgeries = 100 x 29/50 = 58%

Question 76. In which month the percentage of successful surgery was highest in the hospital?

a. January

b. April
c. July
d. March

Answer: (d)

Solution:

Month	Total Successful Surgery	Total Unsuccessful Surgery	Total Surgeries every month	Percentage of Successful Surgeries
Jan	5	3	8	5/8 x 100 = 62.5%
Feb	4	4	8	4/8 x 100 = 50%
March	5	2	7	5/7 x 100 = 71.4%
April	6	3	9	6/9 x 100 = 66.6%
May	4	2	6	4/6 x 100 = 66.6%
June	3	3	6	3/6 x 100 = 50%
July	2	4	6	2/6 x 100 = 33.3%

The percentage of successful surgery is highest in the month of March.

Question 77. In which month the percentage of unsuccessful surgery was highest in the hospital?

a. July
b. June
c. February
d. March

Answer: (a)

Solution:

The percentage of unsuccessful surgeries is highest in the month in which the percentage of successful surgeries is at the lowest, i.e. July.

Question 78. If a and b are natural numbers. If $a + b = 2020$ then what will be the value of $(-1)^a + (-1)^b$?

a. 1 or -1
b. 2020 or -2020
c. 1010 or -1010
d. 2 or -2

Answer: (d)

Solution:

When a + b = 2020

2020 is an even number. So, if a is even, b is also even (to make the sum even). Similarly, if a is odd, b is also odd to make the sum even.
When a and b are even, $(-1)^a + (-1)^b = 2$
When a and b are odd, $(-1)^a + (-1)^b = -2$

Question 79. How many integers are in between 1 and 100 which satisfying all the following conditions?

(i) After divided by 3, remainder is 1

(ii) After divided by 5, remainder is 1

(iii) After divided by 7, remainder is 0

a. 0
b. 1
c. 2
d. 3

Answer: (b)

Solution:

The 7 multiples that leave a remainder of 1 when divided by 3 and 5 are to be counted.
In other words, the 7 multiples that leave a remainder of 1 when divided by 15 are to be counted.

Between 1 and 100:
7 multiples are 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91 and 98.
15 multiples between 1 and 100 are 15, 30, 45, 60, 75, 90.
(Multiples of 15) +1 are, 16, 31, 46, 61, 76, 91.
91 is the only multiple of 7 which is 1 more than a multiple of 3 and 5.

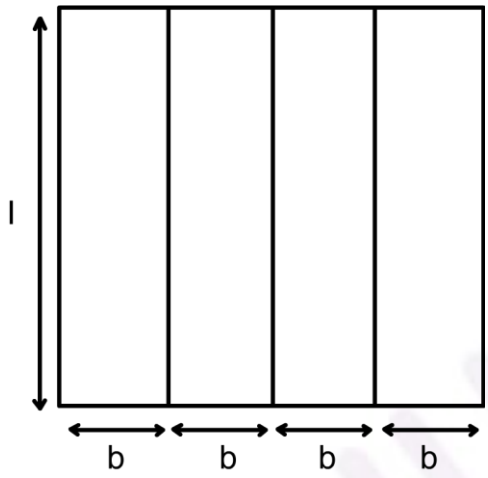
Question 80. A square is divided into four identical rectangles. The perimeter of each of these rectangles is 20 cm. What is the perimeter of the square?

a. 80 cm
b. 50 cm
c. 48 cm
d. 32 cm

Answer: (d)

Solution:

Let l and b be the sides of the rectangle.



2(l + b) = 20 cm
l + b = 10 cm
From the image, l = 4b
So, 2(4b + b) = 20
b = 2 cm
l = 8 cm
Perimeter of the square = 4l = 32 cm

Question 81. What is the difference between the biggest 3-digit number having 8 as tens place and divisible by 4 and smallest 3-digit number having 8 as tens place and divisible by 4?

a. 888
b. 808
c. 708
d. 788

Answer: (b)

Solution:

The greatest 3 digit number having 8 in tens place and divisible by 4 is 988.
The smallest 3 digit number having 8 in tens place and divisible by 4 is 180.
So, the difference is 808.

Questions (82 -86)

Instruction: In each of the following questions, there is a certain relationship between two given numbers on left side of sign (::) and one number is given on the right side of sign (::) while another number is to be found from the given alternatives having the same relationship with the number as the numbers of the given pair bear. Choose the correct alternatives.

Question 82. 20 : 11 : : 102 :?

a. 49
b. 52
c. 61
d. 96

Answer: (b)

Solution:

(20 + 2)/2 = 11
(102+2)/2 = 52

Question 83. 6 : 35 : : 7 : ?

a. 48
b. 42
c. 34
d. 13

Answer: (a)

Solution:

$6^2 - 1 = 35$
$7^2 - 1 = 48$

Question 84. 9 : 162 : : 8 : ?

a. 96
b. 112
c. 128
d. 162

Answer: (c)

Solution:

$2 \times 9^2 = 162$
$2 \times 8^2 = 128$

Question 85. 64 : 100 :: 144 :?

a. 121
b. 169
c. 180

d. 196

Answer: (d)

Solution:

$64 = 8^2$
$100 = 10^2$
$144 = 12^2$:
So, the missing number = $14^2 = 196$

Question 86. 0.01 : 0.0001:: 0.05 :?

a. 0.00025
b. 0.0025
c. 0.025
d. 0.25

Answer: (b)

Solution:

$0.01^2 = 0.0001$
$0.05^2 = 0.0025$

Question 87. Arrange the following in a meaningful sequence:
(1) Crop (2) Root (3) Stem (4) Seed (5) Flower

a. 4, 1, 2, 3, 5
b. 2, 4, 3, 5, 1

c. 2, 3, 4, 5, 1
d. 4, 2, 3, 5, 1

Answer: (d)

Solution:

The sequence is based on the growth of a crop from a seed.
The sequence will be: Seed, Root, Stem, Flower, Crop, i.e. 4, 2, 3, 5, 1.

Question 88. Arrange the following in a meaningful sequence:
(1) Rain (2) Cloud (3) Ocean (4) River (5) Monsoon

a. 5, 2, 1, 4, 3
b. 3, 1, 2, 4, 5
c. 1, 5, 2, 4, 5
d. 2, 5, 1, 4, 3

Answer: (a)

Solution:

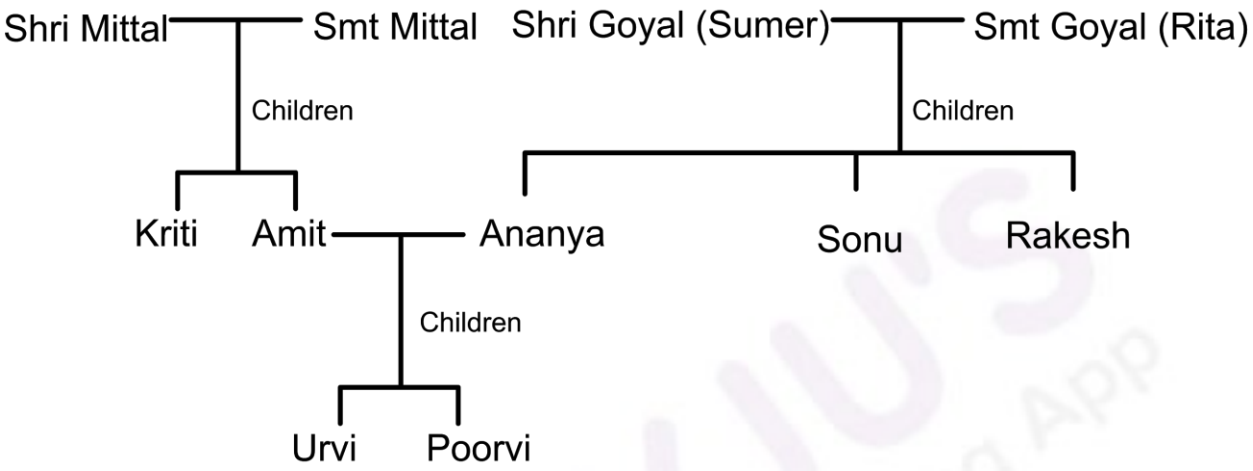
In the monsoon season, the clouds rain and the water flows from the river and finally enters the ocean. So, the sequence is Monsoon, Cloud, Rain, River, Ocean, i.e. 5, 2, 1, 4, 3.

Question (89 -92)

Instruction: Read the information given below and answer the question numbers 89 to 92 based on it.

Kriti and Amit are two children of Smt and Shri Mittal. Amit, married to Ananya, who is daughter of Smt. Goyal. Shri Goyal had married to Rita. Sonu and Rakesh are children of Sumer and Rita. Urvi and Poorvi are daughters of Ananya and Amit.

Family tree based on the directions given:



Question 89. What is the surname of Rakesh?

a. Goyal
b. Mittal
c. Amit
d. Kriti

Answer: (a)

Solution:

From the family tree, Surname of Rakesh is Goyal

Question 90. What is the relation of Sumer with Poorvi?

a. Brother
b. Uncle
c. Maternal Grand Father
d. Father

Answer: (c)

Solution:

From the family tree, Sumer is the maternal grandfather of Poorvi.

91. What is the relation of Urvi with Kriti?

a. Sister
b. Niece
c. Aunty
d. Daughter

Answer: (b)

Solution:

From the family tree, Urvi is the niece of Kriti.

Question 92. What is the relation of Sonu with Shri Goyal?

a. Sister
b. Brother
c. Son/Daughter
d. Father

Answer: (c)

Solution:

From the family tree, Sonu is the son/daughter of Shri Sumer Goyal.

Questions (93 -95) Instruction: Read the sequence given below and answer question number 93 to 95.
7, 6, 3, 2, 3, 5, 4, 3, 5, 2, 7, 6, 4, 5, 2, 3, 6, 2, 7, 5, 2, 5, 2, 3, 6, 5, 2, 6, 3, 7, 4, 2, 5

Question 93. How many times 5 is followed by 2 but 4 does not occur just before it?

a. 1
b. 2
c. 4
d. 5

Answer: (c)

Solution:

7, 6, 3, 2, 3, 5, 4, **3, 5, 2**, 7, 6, 4, 5, 2, 3, 6, 2, **7, 5, 2, 5, 2**, 3, **6, 5, 2**, 6, 3, 7, 4, 2, 5
There are four such instances.

Question 94. How many times 2 is followed by odd numbers?

a. 4
b. 5
c. 6

d. 7

Answer: (d)

Solution:

7, 6, 3, **2, 3**, 5, 4, 3, 5, **2, 7**, 6, 4, 5, **2, 3**, 6, **2, 7**, 5, **2, 5**, **2, 3**, 6, 5, 2, 6, 3, 7, 4, **2, 5**
There are seven instances of 2 being followed by an odd digit.

Question 95. How many times has number 5 been used just before or after 4?

a. 1
b. 2
c. 3
d. 5

Answer: (b)

Solution:

7, 6, 3, 2, 3, **5, 4**, 3, 5, 2, 7, 6, **4, 5**, 2, 3, 6, 2, 7, 5, 2, 5, 2, 3, 6, 5, 2, 6, 3, 7, 4, 2, 5
There are two instances of 5 being followed or preceded by 4.

Question 96. What will be angle between minute hand and hour hand of a watch at 12:30?

a. 180^0
b. 150^0
c. 175^0
d. 165^0

Answer: (d)

Solution:

The angle between two divisions in a clock is 30°.
At 12.30 the hour hand would be 15° away from 12.
So, the angle between minute hand and hour hand at 12:30 is 180° - 15°, i.e. 165^0.

Question (97 – 100)

Instruction: Read the information given below carefully and answer the questions that follow:

A, B, C, D, E, F and G are seven students of a school, who are studying in seven different Classes V, VI, VII, VIII, IX, X and XI. Every one of them likes a particular subject viz. English, Hindi, Physics, Chemistry, Mathematics, History and Geography. Students, Classes and subjects can always be in different order as given.

B likes History and does not study in Class VII. The one who likes English studies in Class IX. The one who studies in Class V, likes Chemistry. F likes Physics. C is studying in Class VI and doesn't like Geography. E is studying in Class X and likes Mathematics. D likes Chemistry. G doesn't like English and G is not in Class VII or VIII. F is not in Class VIII

Table based on the instructions given:

Student	Subject	Class
B	History	VIII
A	English	IX
D	Chemistry	V
F	Physics	VII
C	Hindi	VI
E	Maths	X
G	Geography	XI

Direction on How the table was filled for the cells for which the information is not given directly:
D likes chemistry, so he is in class V.
The information on who is studying in VII, VIII, IX and XI is not given directly.

G is not in VIII and VII. Since he doesn't like English, he is not in IX. So, G is in XI. Now grades of B and F are to be determined and VII and VIII are the only grades left without students mapped. So B is in VIII (Since it's given that B is not in VII) and F is in VII.

A is the remaining one without a grade mapped and so he is in class IX.
C doesn't like geography, so, G likes geography and C likes Hindi.

Question 97. F is in which Class?

a. VII
b. IX
c. XI
d. Data inadequate

Answer: (a)

Solution:

As can be seen from the table, F is in VII class.

Question 98. G is in which Class?

a. VI
b. VII
c. XI
d. IX

Answer: (c)

Solution:

As can be seen from the table, G is in XI class.

Question 99. Which subject does A like?

a. Hindi
b. Geography
c. English
d. Chemistry

Answer: (c)

Solution:

As can be seen from the table, A likes English.

Question 100. Who studies in Class - 8?

a. B
b. C
c. A
d. E

Answer: (a)

Solution:

As can be seen from the table, B is in VIII class.

NATIONAL TALENT SEARCH EXAMINATION
(NTSE 2021) STAGE - 1

STATE : RAJASTHAN **PAPER : SAT**

Date : 13/12/2020

Max. Marks : 100 **SOLUTIONS** Time : 120 mins.

PHYSICS

Question 1. Group of vector quantities are:

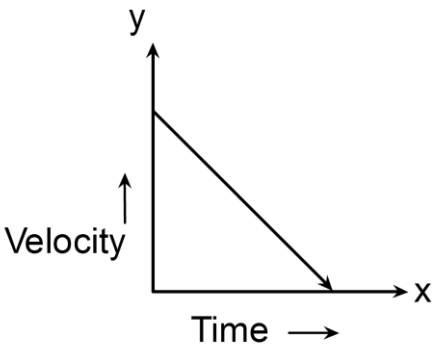
a. Displacement, velocity, time
b. Area, density, mass
c. Speed, length, impulse
d. Velocity, acceleration, force

Answer: (d)

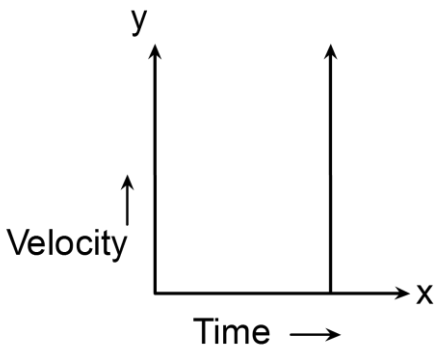
Solution:

The quantities which have both magnitude and direction are known as vector quantities. Displacement, velocity, acceleration, force and impulse has both magnitude and direction and are the vector quantities. Whereas, time, area, density, mass and length has only magnitude and no direction. Thus, these are scalar quantities.

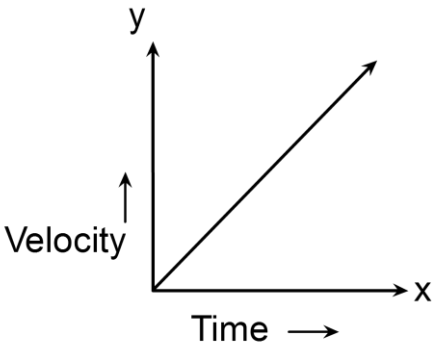
Question 2. The velocity-time graph of an object moving with uniform velocity is



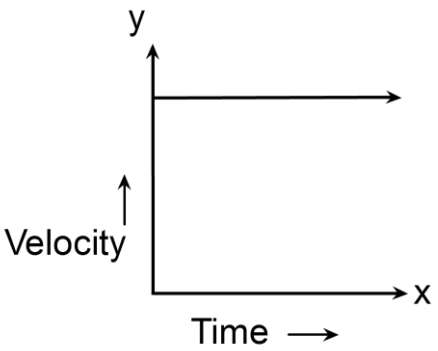
a.



b.



c.



d.

Answer: (d)

Solution:

A straight line parallel to the x(time) axis in V-T graph represents uniform velocity.

Question 3. If force, momentum and displacement are represented by A, B and C respectively, then the term $(\frac{AC}{B})$ will represent :

a. Momentum
b. Acceleration
c. Velocity
d. Displacement

Answer: (c)

Solution:

Given,
A - Force = ma
B - Momentum = mv
C - Displacement = vt
Then, $\frac{AC}{B} = \frac{(m \times a \times s)}{(m \times v)}$

$= \frac{v \times s}{t \times v}$ (Since $a = \frac{velocity}{time}$]

$= \frac{s}{t}$

= Velocity

Question 4. The mass of a person on earth surface is 60 kg then his mass on moon will be

a. 60 kg
b. 360 kg
c. 20 kg
d. 10 kg

Answer: (a)

Solution:

Mass is the amount of matter in an object. It remains unchanged under any circumstances. Thus, when the mass of a person on earth is 60 kg, his mass on the moon will remain the same.

Question 5. On halved the distance between two masses, the gravitational force between them will be

a. Half
b. One-fourth
c. Four times
d. Double

Answer: (c)

Solution:

The gravitational force is:

$$F = G\left(\frac{m_1 \times m_2}{r^2}\right)$$

The gravitational force is inversely proportional to the square of the distance between two masses. Thus, if the distance between masses is halved, the gravitational force increases by four times.

Question 6. If the speed of wave is 250 m/s and its wavelength is 50 cm then the frequency will be

a. 5 Hz
b. 500 Hz
c. 50 Hz
d. 12500 Hz

Answer: (b)

Solution:

Speed of sound v = 250 m/s
Wavelength λ = 50 cm = 0.5 m
Frequency γ = ?

$$v = \gamma \times \lambda$$
$$250 = \gamma \times 0.5$$
$$\gamma = 500\ Hz$$

Question 7. An object of mass 10 gm is moving with an acceleration of *10* $\frac{m}{s^2}$. Force acting on the object will be

a. 1 N
b. 0.1 N
c. 1000 N
d. 100 N

Answer: (b)

Solution:

Given,
Mass m = 10 g = 0.01 kg
Acceleration a = 10 m/s^2
Force = mass acceleration
Force = 0.01×10
Force = $0.1\ N$

Question 8. Lens formula is

a. $\frac{1}{v}+\frac{1}{u}=\frac{1}{f}$
b. $\frac{1}{v}+\frac{1}{2u}=\frac{1}{f}$
c. $\frac{1}{v}-\frac{1}{u}=\frac{1}{f}$
d. $\frac{1}{v}-\frac{1}{2u}=\frac{1}{f}$

Answer: (c)

Solution:

The lens formula is: $\frac{1}{v}-\frac{1}{u}=\frac{1}{f}$

Question 9. Focal length of a lens is 50 cm. In dioptre power of lens will be

a. 0.02
b. 2
c. 0.2
d. 50

Answer: (b)

Solution:

Given,

Focal length, f = 50 cm = 0.5 m

Power of lens, $P = \frac{1}{f}$

$$P = \frac{1}{0.5}$$
$$P = 2$$

Question 10. Correct relation between radius of curvature (R) and Focal length (F) of spherical mirror is

a. $R = \frac{F}{2}$
b. R = F
c. R = 2F
d. R = $(F)^2$

Answer: (c)

Solution:

For a spherical mirror, the focal length is half of the radius.

$$F = \frac{R}{2}$$
$$R = 2F$$

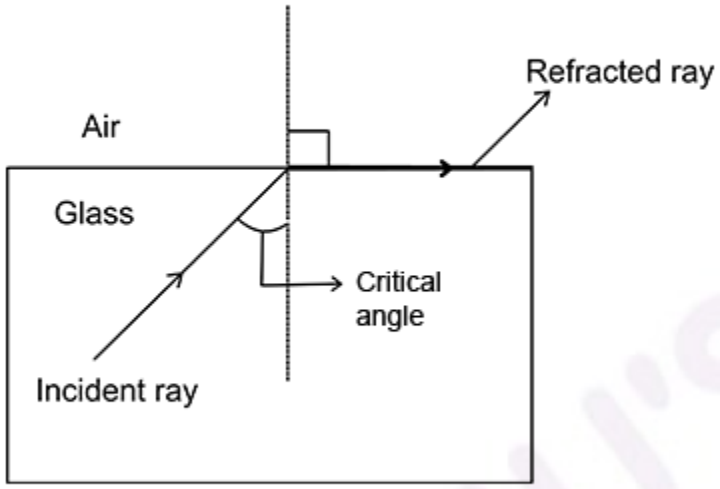
Question 11. Refraction from denser to rarer medium for a light ray, the value of angle of refraction at the condition of critical angle is

a. 0^o
b. 180^o
c. 45^o
d. 90^o

Answer: (d)

Solution:

The critical angle is the angle of incident in an optically denser medium for which the angle of refraction is 90°.



Question 12. The resistance of a bulb marked '220V, 10W' is

a. 242Ω
b. 4840 Ω
c. 121 Ω
d. Zero

Answer: (b)

Solution:

Given,
Voltage V = 220 v
Power P = 10 W
Resistance $R = \frac{V^2}{P}$

$= = \frac{220 \times 220}{10} = \frac{48400}{10}$

= 4840 Ω

Question 13. A person of mass 100 kg reaches a height of 5 meters in 10 seconds. Find the power used by the person $(g = 10\, ms^{-2})$

a. 500 watt
b. 250 watt
c. 5000 watt
d. 50 watt

Answer: (a)

Solution:

Mass, m = 100 kg
Height, h = 5 m
Time, t = 10 s
g = 10 ms^{-2}

Power, $P = \frac{mgh}{t}$

$= \frac{(100 \times 10 \times 5)}{10}$

$= 500\, watt$

CHEMISTRY

Question 14. Correct order of compressibility is -

a. Solid > Liquid > Gas
b. Solid > Gas > Liquid
c. Gas > Liquid > Solid
d. Gas > Solid > Liquid

Answer: (c)

Solution:

The increasing order of intermolecular spaces in the three states of matter is:

Gas > Liquid > Solid

The greater the intermolecular space, the greater a substance can be compressed. Hence, gases are more compressible than liquids and solids.

Question 15. Number of molecules present in 0.25 moles of water are -

a. 3.011×10^{23}
b. 30.11×10^{23}
c. 1.5055×10^{23}
d. 15.055×10^{23}

Answer: (c)

Solution:

One mole of a substance contains 6.023×10^{23} molecules.

Therefore, for 0.25 moles of water:

Number of molecules = $0.25 \times (6.023 \times 10^{23}) = 1.5055 \times 10^{23}$ molecules

Question 16. Substance having equivalent number of molecules as in 9g of water is -

a. 12 g of Magnesium
b. 12 g of Carbon
c. 17 g of Ammonia
d. 11 g of Carbon Dioxide

Answer: (a)

Solution:

Moles of water = $\frac{9}{18} = \frac{1}{2}$

Number of molecules of water = 0.5 N_A

Therefore, from the options, it can be seen that, Moles of Magnesium = $\frac{12}{24} = \frac{1}{2}$.

Number of molecules of magnesium = 0.5 N_A

Question 17. Atomic number of element having symbol Unt is -

a. 101
b. 102
c. 103
d. 104

Answer: (c)

Solution:

For elements having atomic numbers greater than 100, the names and symbols are directly derived from their numerical roots. The symbol consists of initial letters of numerical roots. Hence for the element having the symbol Unt, the atomic number would be:

U = un = 1

n = nil = 0

t = tri = 3

Therefore, the symbol is 103.

Question 18. Atomic radius of chlorine is 99 pm. Distance between nuclei of its two atoms in molecule will be -

a. 1.98 pm
b. 49.5 pm
c. 99 pm
d. 198 pm

Answer: (d)

Solution:

The atomic radius of chlorine is 99 pm. Since chlorine is a diatomic element, the distance between the nuclei of two chlorine atoms would be 99 $\times$ 2 = 198 pm.

Question 19. Molecular formula of chloride of a metal 'M' is MCl_2. Molecular formula of oxide of 'M' will be -

a. MO
b. M_2O
c. MO_2
d. M_2O_3

Answer: (a)

Solution:

Since the formula of metal chloride is MCl_2, we can understand that M is divalent. Hence it becomes M^{2+} and oxide being divalent becomes O^{2-}. On combining, the metal oxide becomes electrically neutral and the formula can be written as MO.

Question 20. Suitable method for separation of pure naphthalene from sandy naphthalene is -

a. Filtration
b. Crystallisation
c. Sublimation
d. Distillation

Answer: (c)

Solution:

Pure naphthalene can be separated from sandy naphthalene by the process of sublimation as naphthalene sublimes on heating.

Question 21. pH of the solution having hydrogen ion concentration $[H^+] = 1 \times 10^{-4}$mol/L will be -

a) 3
b) 4
c) 7
d) 10

Answer: (b)

Solution:

$$[H^+] = 1 \times 10^{-4}$$

pH = - log[H^+]
= - log[1×10^{-4}]
= - [- 4 log 10]
= 4

Hence, the pH of the solution is 4.

Question 22. Conjugate acid - base pair is

a) HCO_3^-, CO_3^{2-}
b) NH_4^+, NH_2^-
c) OH^-, H_2O_2
d) NO_2^-, NO_3^-

Answer: (a)

Solution:

Conjugate acids have one proton more than their conjugate base. Therefore,
Conjugate acid → Conjugate base + H^+

$$HCO_3^- \rightarrow CO_3^{2-} + H^+$$

Question 23. Gas used for precipitation of pure common salt (NaCl) from saturated solution of common salt is -

a. H_2
b. Cl_2
c. HCl
d. CO_2

Answer: (c)

Solution:

HCl is passed through a solution of NaCl causing precipitation of pure common salt.

Question 24. $CuSO_4 + Zn \rightarrow ZnSO_4 + Cu$
Correct statement related to the above reaction is -

a. Zn is less reactive as compared to Cu
b. Zn is more reactive as compared to Cu
c. Reactivity of Cu and Zn is equal
d. Zn is displaced by Cu

Answer: (b)

Solution:

Zinc when added to Copper sulphate ($CuSO_4$) solution, displaces copper, and forms Zinc
sulphate ($ZnSO_4$). This is because zinc is more reactive than copper. This type of reaction is called a displacement reaction.

Question 25. Useful substance in preparation of freezing mixture is -

a. $NaOH$
b. $NaCl$

c. $NaHCO_3$
d. $CaSO_4.2H_2O$

Answer: (b)

Solution:

When sodium chloride (NaCl) is added to ice, the temperature of the mixture decreases, indicating a decrease in the freezing point of ice. This mixture of sodium chloride and ice is called a freezing mixture.

Question 26. Correct increasing order of reactivity of elements is -

a. Au, Cu, K, H
b. Au, Cu, H, K
c. Cu, Au, K, H
d. Cu, Au, H, K

Answer: (b)

Solution:

According to the reactivity series of metals, the order of increasing reactivity would be:

Au < Cu < H < K

BIOLOGY

Question 27. In which of the plant group chitineous cell wall is found.

a. Algae
b. Fungi
c. Thallophyta
d. Bryophyta

Answer: (b)

Solution:

A cell wall is defined as the non-living component, covering the outermost layer of a cell. Fungi possess cell walls made up of chitin, a derivative of glucose.

Question 28. The light reaction occurs in which part of the chloroplast.

a. Stroma
b. Outer wall
c. Grana
d. None of above

Answer: (c)

Solution:

The light reaction takes place in the presence of light. It takes place in the grana of chloroplasts.

Question 29. Lack of which element occurs when Algal Bloom is formed in a waterbody.

a. Oxygen
b. Nitrogen
c. Hydrogen
d. Calcium

Answer: (a)

Solution:

An algal bloom is caused by the enrichment of nutrients in water bodies such as lakes due to natural factors or man's activities. This results in a depletion of oxygen in water bodies leading to the death of aquatic life.

Question 30. The plant group called "pollution indicator" is.

a. Bryophyta
b. Lichen
c. Gymnosperm
d. Pteridophyta

Answer: (b)

Solution:

Lichens are regarded as pollution indicators because they are sensitive to sulphur dioxide and do not grow in polluted areas. Their presence indicates the absence of pollution in an area, and their absence indicates that the area is polluted.

Question 31. Genotypic ratio of F_2 generation in monohybrid cross is :

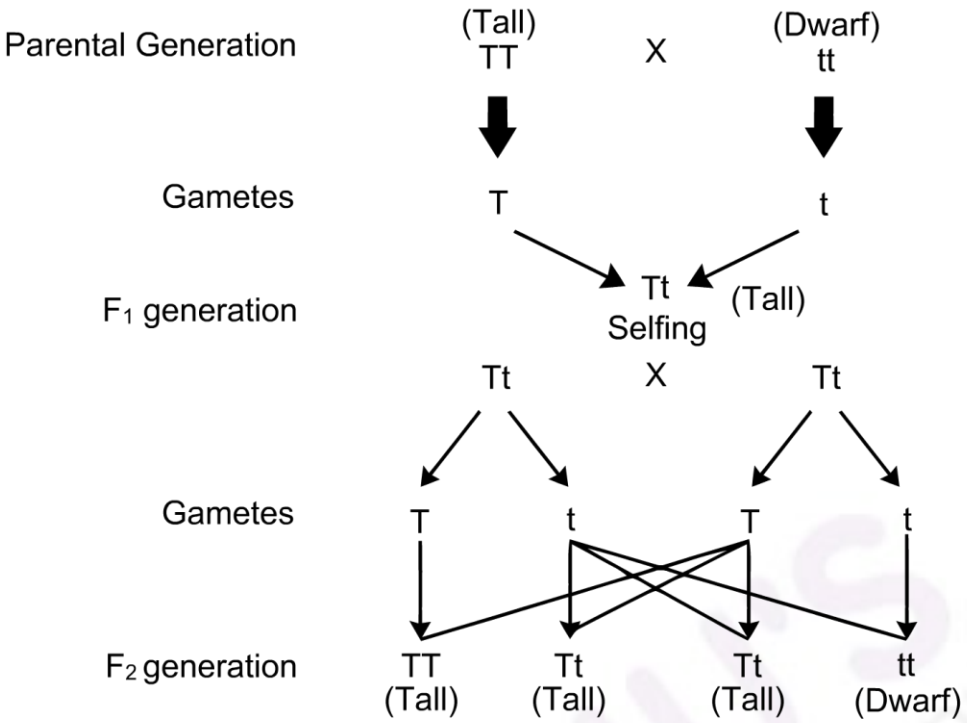
a. 3 : 1
b. 9 : 3 : 3 : 1
c. 1 : 2 : 1
d. 1 : 3

Answer: (c)

Solution:

A monohybrid cross is the hybrid of two individuals with homozygous genotypes which result in the opposite phenotype for a certain genetic trait.

Consider, pure breed tall (TT) and dwarf (tt) homozygous plants were crossed.



The genotype is used to refer to the genetic composition of an individual consisting of heritable genes.
The genotypic ratio of F_2 generation in monohybrid cross is 1:2:1 (1TT : 2Tt : 1tt).

Question 32. Rabi Crop is :

a. Oryza sativa
b. Triticum aestivum
c. Pennisetum typhoides
d. Zea mays

Answer: (b)

Solution:

Rabi crops are also called winter crops and are grown from November to March. Triticum aestivum (wheat) is a rabi crop. Whereas Oryza sativa (rice), Pennisetum typhoides (pearl millet), Zea mays (corn) are kharif crops which are grown during the monsoon or rainy season (June to October).

Question 33. Kevla Devi National Park is situated at -

a. Karnataka
b. Madhya Pradesh
c. Rajasthan
d. Gujarat

Answer: (c)

Solution:

Kevla devi national park, also known as Bharatpur bird sanctuary is located in Rajasthan.

Question 34. Disease caused by Virus, is

a. Malaria
b. Diphtheria
c. Chicken pox
d. Leprosy

Answer: (c)

Solution:

Chickenpox is caused by varicella zoster virus. It is characterized by itchy rashes and fluid-filled blisters. Diphtheria and leprosy is caused by bacteria and malaria is caused by protozoa.

Question 35. Which of the following is not a member of phylum Arthropoda?

a. House-fly
b. Earthworm
c. Shrimp
d. Cockroach

Answer: (b)

Solution:

Earthworms belong to the phylum Annelida. House-fly, shrimp, and cockroach belong to the phylum Arthropoda.

Question 36. DNA synthesis occurs, in which stage of cell cycle.

a. G-I phase
b. G-II phase
c. M-phase
d. S-phase

Answer: (d)

Solution:

The cell cycle consists of four phases - G1, S, G2, and M. DNA synthesis and replication occurs in the S phase.

Question 37. Example of Fat digesting enzyme is

a. Amylase
b. Pepsin
c. Lipase
d. Nucleases

Answer: (c)

Solution:

Lipase aids in the digestion of fat by breaking down fat into fatty acids and glycerol.

Amylase aids in the breaking down of starch in the mouth. Pepsin breaks down proteins into smaller peptides. Nucleases break nucleic acids into nucleotides.

Question 38. Indian scientist known for research on cosmic rays and nuclear energy.

a. Dr. Prafullachandra Roy
b. Chandra Shekhara Venkat Raman
c. Dr. Panchanan Maheshwari
d. Dr. Homi Jahangir Bhabha

Answer: (d)

Solution:

Dr. Homi Jahangir Bhabha was a nuclear physicist who contributed to quantum theory and cosmic radiation. He is known as the "father of the Indian nuclear program."

Question 39. Tal chhapar wild life sanctuary is located at

a. Alwar
b. Jaipur
c. Churu
d. Kota

Answer: (c)

Solution:

Tal chappar is located in Churu district of Rajasthan and is known for sheltering blackbucks and a wide variety of birds.

Question 40. Disease caused by deficiency of vitamin - C is

a. Scurvy
b. Night blindness

c. Beri-beri
d. Rickets

Answer: (a)

Solution:

Deficiency of vitamin C causes scurvy. Symptoms of scurvy include fatigue, soreness of limbs, and bleeding of gums. Night blindness is caused due to vitamin A deficiency, beri-beri is caused due to vitamin B1 deficiency and rickets is caused by vitamin D deficiency.

MATHEMATICS

Question 41. If polynomials $3x^3 + x^2 - 4x + P$ and $2x^3 + Px^2 + 3x - 3$ are divided by $(x - 2)$ then get the same remainder. What will be the value of P.

a. $+3$
b. $\frac{1}{3}$
c. $-\frac{1}{3}$
d. -3

Answer: (b)

Solution:

$f(x) = 3x^3 + x^2 - 4x + P$
$p(x) = 2x^3 + Px^2 + 3x - 3$

Using remainder theorem
$f(2) = p(2)$
$3 \times 8 + 4 - 8 + P = 16 + 4P + 6 - 3$
$3P = 1$
$P = \frac{1}{3}$

Question 42. Numerator of a fraction is 3 less than its denominator. If 4 is added to the numerator and 2 is subtracted from the denominator then the numerator becomes 2 times of the denominator. What will be the fraction?

a. $\frac{5}{2}$
b. $\frac{4}{5}$
c. $\frac{2}{5}$
d. $\frac{5}{4}$

Answer: (c)

Solution:

Let the denominator be D.
Numerator = D - 3
Fraction is (D - 3)/D
New fraction: (D - 3 + 4)/(D - 2) = 2/1
D + 1 = 2D - 4
D = 5
Numerator = 5 - 3 = 2
Fraction = $\frac{2}{5}$

Question 43. If each interior angle of a regular polygon is *165*^{o} then the number of sides will be -

a. 24
b. 72
c. 26
d. 12

Answer: (a)

Solution:

A regular polygon's interior angles are 165^0, then each of its exterior angles = 180 - 165 = 15^0.

The sum of all exterior angles = 360^0 for any closed polygon.

Hence, Number of sides of the polygon = $\frac{360}{15}$= 24.

Question 44. The measures of Three angles of a triangle are in ratio 3 : 4 : 5, then the measure of its greatest angle is -

a. 55^o
b. 65^o
c. 80^o
d. 75^o

Answer: (d)

Solution:

Let the angles be 3x, 4x and 5x.

Sum of angles of a triangle = 180^0

$3x + 4x + 5x = 180^0$

$x = 15^0$

$5x = 75^0$

Question 45. If area of an equilateral triangle is $64\sqrt{3}\ cm^2$. Then its perimeter will be -

a. 24 cm
b. 48 cm
c. 64 cm
d. 32 cm

Answer: (b)

Solution:

Area of equilateral triangle = $\frac{\sqrt{3}}{4}(side)^2 = 64\sqrt{3}\ cm^2$

Side = 16 cm

Perimeter of triangle = 3 × 16 cm = 48 cm

Question 46. Each face of a cube is 144 cm^2. If cube is cut by a plane, parallel to its base in two equal parts, then the total surface area of both the parts will be -

a. 1152 cm^2
b. 1052 cm^2
c. 288 cm^2
d. 576 cm^2

Answer: (a)

Solution:

Each face area = 144 cm^2
Each side = $\sqrt{144}$ = 12 cm
If it is cut in two equal halves, there are two new surfaces each of 144 cm^2 area.
The total surface area = 6 × 144 + 2 × 144 = 8 × 144 = 1152 cm^2

Question 47. The time does the minute hand of a watch take to describe an angle of $\frac{3}{4}\pi$radians is -

a. 45 minutes 30 seconds
b. 45 minutes
c. 22 minutes 30 seconds
d. 22 minutes

Answer: (c)

Solution:

2π radians takes 60 minutes.
$\frac{3\pi}{4}$radians takes = $\frac{3\pi}{4} \times \frac{60}{2\pi}$ = 22.5 minutes = 22 minutes 30 seconds

Question 48. If $cosec\ A = 2$, then the value of $tan\ A + \frac{cos\ A}{1 + sin\ A}$ will be

a. $\frac{1}{2\sqrt{3}}$
b. $\frac{2}{\sqrt{3}}$
c. $\frac{1}{\sqrt{3}}$
d. $2\sqrt{3}$

Answer: (b)

Solution:

Given: $cosec\ A = 2$, So $sin\ A = \frac{1}{2}$

$$A = 30^\circ$$

$$tan\ A + \frac{cos\ A}{1 + sin\ A} = tan\ 30^\circ + \frac{cos\ 30^\circ}{1 + sin\ 30^\circ}$$

$$= \frac{1}{\sqrt{3}} + \frac{\frac{\sqrt{3}}{2}}{1 + \frac{1}{2}}$$

$$= \frac{1}{\sqrt{3}} + \frac{\sqrt{3}}{3}$$

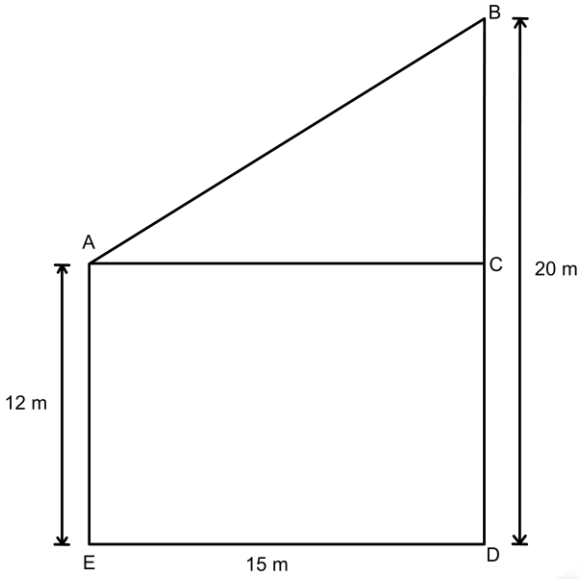
$$= \frac{6}{3\sqrt{3}} = \frac{2}{\sqrt{3}}$$

Question 49. **Two poles of height 12 meters and 20 meters are standing on a plane ground. If distance between their feet is 15 meters, then the distance between upper ends of poles will be** -

a. 15 meters
b. 16 meters
c. 17 meters
d. 18 meters

Answer: (c)

Solution:



ED = AC = 15 m

And, BC = 20 - 12 = 8 m

$AB^2 = 15^2 + 8^2 = 225 + 64 = 289$

AB = 17 m

Question 50. Following are the points obtained by a Kabaddi team in various matches.

17, 2, 7, 27, 15, 5, 14, 19, 10, 24, 9, 8, 6, 18, 28

The median of the points obtained by the team will be -

a. 14
b. 16
c. 15
d. 17

Answer: (a)

Solution:

Arranging the points in ascending order: 2, 5, 6, 7, 8, 9, 10, 14, 15, 17, 18, 19, 24, 27, 28

Total number of terms = 15

Median term = $\frac{15+1}{2}$ = 8^{th} term is the median

Here the 8th term is 14.

Question 51. Vaibhav takes 24 minutes to complete one round of a circular path of a sports field. While Rohan takes 18 minutes for the same. Suppose both of them start from the same point and at the same time and go in the same direction. After how much time will they meet again at the starting point?

a. 48 minutes
b. 24 minutes
c. 72 minutes
d. 36 minutes

Answer: (c)

Solution:

Vaibhav takes 24 minutes and Rohan takes 18 minutes to complete one circular round.

For them to meet again at the starting point, we need to take the LCM of the times they take to complete one round.

LCM of 18 and 24 = 72.

Question 52. Discriminant of the quadratic equation $3\sqrt{3}x^2 + 7x + \sqrt{3} = 0$ will be

a. 49
b. 13
c. 36
d. 62

Answer: (b)

Solution:

Discriminant of a quadratic equation = b^2 - 4ac

Discriminant of the given quadratic equation = $7^2 - 4(\sqrt{3})(3\sqrt{3}) = 13$

Question 53. If seventh term of an arithmetic progression is 20 and 22nd term is 50, then 30th term will be -

a. 66
b. 68
c. 64
d. 62

Answer: (a)

Solution:

$t_7 = a + 6d = 20$

$t_{22} = a + 21d = 50$

$t_{22} - t_7 = 15d = 30$

$d = 2$

$a + 6 \times 2 = 20$

$a = 8$

$t_{30} = a + 29d = 8 + 29 \times 2 = 66$

Question 54. If tan3P = sin45° cos45° + sin 30°, the value of P will be (P < 90degrees)

a. 15^o and 45^o
b. 15^o and 60^o
c. 15^o and 75^o
d. 45^o and 60^o

Answer: (c)

Solution:

$\tan 3P = \sin 45^o \cos 45^o + \sin 30^o = \frac{1}{2} + \frac{1}{2} = 1$

tan3P = 1

$3P = 45^0$ or 225^0

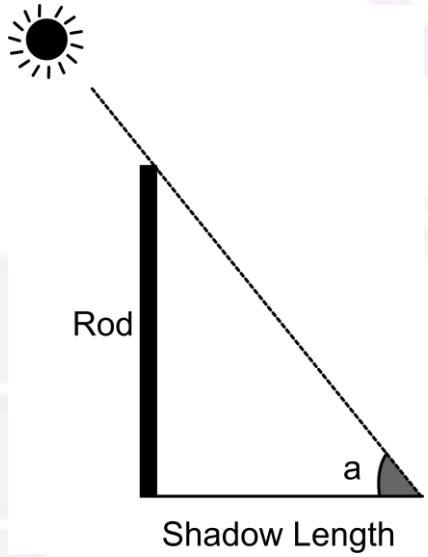
$P = 15^0$ or 75^0

Question 55. If ratio of length of a vertical rod and length of its shadow is $\sqrt{3}$: *1*, then the angle of elevation of sun will be -

a. 30^o
b. 45^o
c. 60^o
d. 90^o

Answer: (c)

Solution:



$$\frac{Rod}{Shadow\ length} = \frac{\sqrt{3}}{1}$$

$$Tan\ a = \frac{\sqrt{3}}{1}$$

$a = 60^\circ$

Question 56. Triangle formed by the vertices (2, -2), (-2, 1) and (5, 2) will be

a. Scalene triangle
b. Equilateral triangle
c. Isosceles triangle
d. Right-angle triangle

Answer: (c), (d)

Solution:

Let the vertices be A(2,-2), B(-2,1) and C(5,2).

AB = $\sqrt{(2-(-2))^2+(-2-1)^2} = 5$

BC = $\sqrt{(-2-5)^2+(1-2)^2} = \sqrt{50} = 5\sqrt{2}$

CA = $\sqrt{(5-2)^2+(2-(-2))^2} = 5$

Also, $AB^2 + AC^2 = BC^2$

The given triangle is a right-angled isosceles triangle.

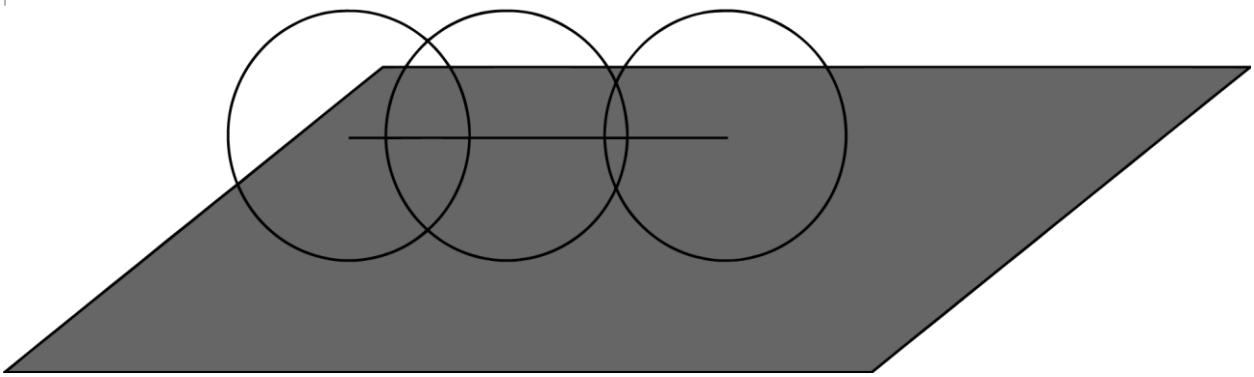
Question 57. Locus of the centre of rolling circle in a plane will be -

a. Circle
b. Line parallel to the plane
c. Curve
d. Line perpendicular to the plane

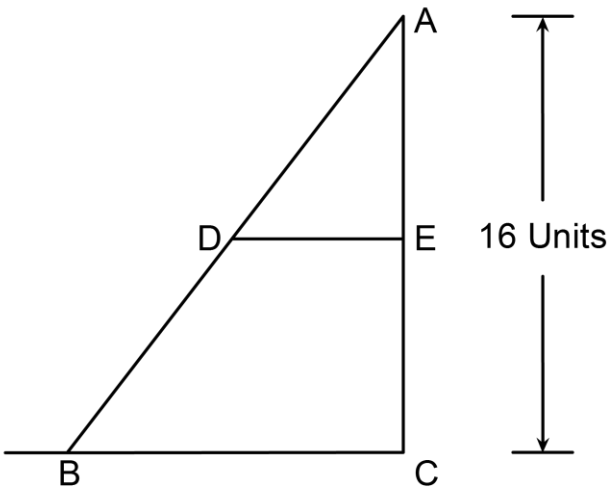
Answer: (b)

Solution:

If a circle is rolling in a plane, the centre moves in a linear manner parallel to the plane as shown.



Question 58. In the given figure DE||BC and $\frac{AD}{DB} = \frac{3}{5}$ if AC = 16 units then the value of AE will be -



a. 4 units
b. 5 units
c. 6 units
d. 8 units

Answer: (c)

Solution:

DE ‖ BC.

AD lies on AB and AE lies on AC. Hence ΔADE is a similar triangle to ΔABC.

$$\frac{AB}{AD} = \frac{AD + DB}{AD} = 1 + \frac{5}{3} = \frac{8}{3} = \frac{AC}{AE}$$

$$AE = \frac{16 \times 3}{8} = 6\,units$$

Question 59. The length of a minute hand of a clock is 6 cm. What will be the area (approximate) of the sector swept by this minute hand within 45 minutes.

a. 85.84cm^2
b. 14.12 cm^2
c. 84.85 cm^2
d. 12.14 cm^2

Answer: (c)

Solution:

The angle between two major divisions of a clock is $\frac{360^\circ}{12}$, i.e. 30°.

The angle swept by the minute hand in 45 minutes = 270°

The area of the sector swept by the minute hand in 45 minutes = $\pi r^2 \times \frac{270^\circ}{360^\circ}$

Here, the radius of the sector is the length of the minute hand, i.e 6 cm

So, the area of the sector swept by the minute hand in 45 minutes = $\pi(6)^2 \times \frac{270^\circ}{360^\circ}$

= $36\pi \times \frac{3}{4}$

= 84.85 cm^2

Question 60. In a single throw of two dice, what will be the probability of getting a total of 8.

a. $\frac{1}{36}$

b. $\frac{5}{6}$
c. $\frac{1}{6}$
d. $\frac{5}{36}$

Answer: (d)

Solution:

Total number of outcomes = 36
Total number of favourable outcomes = 5
[(2,6), (3,5), (4,4), (5,3), (6,2)]
Probability = $\frac{5}{36}$

SOCIAL SCIENCE

Question 61. Which period is known as 'Arab spring'?

a. 2010-2013
b. 2007-2010
c. 2006-2016
d. 2012-2015

Answer: (a)

Solution:

Arab Spring was a wave of protests and uprisings in the Middle East and North Africa. The protests began in 2010 and continued till 2013. These uprisings were pro-democracy and challenged the authoritarian regimes of the region.

Question 62. Arrange the following events in chronological order and select the correct answer from the codes given below :

1. Korea War
2. Swej Crisis

3. Congo Crisis
4. Somalia Crisis

Codes :
a. 1, 3, 2 ,4
b. 1, 2, 3, 4
c. 3, 2, 4,1
d. 2,1, 4,3

Answer: (b)

Solution:

The Korean War took place in 1950, followed by the Swej Crisis in 1956, followed by the Congo Crisis in 1961 and the Somalia Crisis in 1989. The Somalia Crisis is an ongoing one.

Question 63. Which one of the following is not correctly matched?

Folk God		Birth Place
a. Jambhoji	-	Nagaur
b. Jasnathji	-	Bikaner
c. Ramcharanji	-	Alwar
d. Dadu Dayal	-	Ahmedabad

Answer: (c)

Solution:

Jambhoji, Jasnathji, Ramcharanji and Dadu Dayal were born in Nagaur, Bikaner, Sodha and Ahmedabad respectively. They were important social reformers and are also revered as Folk Gods.

Question 64. Which one of the following was not included among the Axis nations during the First World War?

a. Italy

b. Germany
c. Hungary
d. Turkey

Answer: (a)

Solution:

The First World War had two major powers- the Central Powers and the Allied Powers. The Allied Powers consisted mainly of Britain, France, Russia, Italy and from 1917, the United States of America. The Central Powers consisted of Germany, Austria-Hungary and Turkey.

Question 65. Who was the writer of 'Ananda Math'?

a. Bal Gangadhar Tilak
b. Bankim Chandra Chatterjee
c. Dayanand Saraswati
d. Raja Rammohan Roy

Answer: (b)

Solution:

'Ananda Math' was written by Bankim Chandra Chatterjee. The Sanyasi Rebellion inspires the novel.

Question 66. Which one of the following is not correctly matched with reference to the revolution of 1857?

a. Bhimrao - Karnataka
b. Sultan Baksh - Madras
c. Mulgabal Swami - Poona
d. Vijay Kudarat - Kerala

Answer: (c)

Solution:

There was a widespread uprising across India against the British in 1857. Bhim Rao of Karnataka, Sultan Baksh of Madras, Vijay Kudarat of Kerala and Mulgabal Swami of Coimbatore were some of the leaders who led the struggle in southern India.

Question 67. Dhapi Dadi is related to which village of Sikar peasant movement?

a. Kudan
b. Palthana
c. Katrathal
d. Ghassu

Answer: (a)

Solution:

The Sikar Peasant Movement was a farmers' movement against increased land revenue. Dhapi Dadi was an elderly woman of Kudan village. On her provocation, the farmers of Kudan refused to pay the unjust land tax to revenue officers.

Question 68. Which newspaper compared the Neemuchana massacre to the Jallianwala Bagh massacre?

a. Rajputana
b. Riyasat
c. Rajasthan
d. Kisan

Answer: (b)

Solution:

The Neemuchana Massacre took place on 14th May 1925. The newspaper named 'Riyasat' compared this incident to the Jallianwala Bagh massacre.

Question 69. Which of the following was first invented?

a. Flying Shuttle Loom
b. Water Frame
c. Spinning Jenny
d. Powerloom

Answer: (a)

Solution:

John Kay invented the Flying Shuttle Loom in 1773 CE. This invention became an essential step towards automatic weaving.

Question 70. Which one of the following places did not Swai Jaisingh build the observatory?

a. Agra
b. Banaras
c. Mathura
d. Ujjain

Answer: (a)

Solution:

Swai Jai Singh built observatories in Delhi, Jaipur, Banaras, Mathura and Ujjain. Agra does not have an observatory.

Question 71. Which of the following rulers tombs is situated in the middle of the lake?

a. Babar
b. Sher Shah
c. Akbar
d. Jahangir

Answer: (b)

Solution:
Sher Shah Suri's tomb is situated in the middle of an artificial lake in Sasaram, Bihar. Mughal emperors Babur, Akbar and Jahangir are buried in Kabul, Agra and Lahore respectively.

Question 72. Which lake is located in Rajsamand district?

a. Tal chhapar
b. Nauchouki
c. Tordisagar
d. Navlekha

Answer: (b)

Solution:

Nauchouki lake is located in Rajsamand district of Rajasthan. Nau Chouki, or nine pavilions refers to the white marble structure across the whole southern bank of the lake. It was constructed by Maharaja Raj Singh in 1660 AD.

Question 73. Which one of the following is a food crop?

a. Sugarcane
b. Tobacco
c. Barley
d. Tea

Answer: (c)

Solution:

Food crops form an essential part of the human diet. Crops like corn, wheat, rice are such food crops. Barley, a grain crop is also one of the important food crops.

Question 74. Match List - I with List - II and select the correct answer using the codes given below:

List - I (Mineral)	List - II (Producing Regions)
A. Copper	i) Zawar
B. Lead - Zinc	ii) Degana
C. Tungsten	iii) Ghotaru
D. Natural Gas	iv) Kho-Dariba

	A	B	C	D
a.	(iii)	(ii)	(iv)	(i)
b.	(ii)	(iii)	(i)	(iv)
c.	(i)	(iv)	(iii)	(ii)
d.	(iv)	(i)	(ii)	(iii)

Answer: (d)

Solution:

Mineral	Producing Regions
Copper	Kho-Dariba
Lead-Zinc	Zawar
Tungsten	Degana
Natural Gas	Ghotaru

Question 75. Which district in Rajasthan is called as cement city?

a. Chittorgarh
b. Kota
c. Bundi
d. Pratapgarh

Answer: (a)

Solution:

Rajasthan has a considerable number of cement factories. For example, Bundi, Kota, Chittorgarh, etc. Chittorgarh is known as the cement city.

Question 76. Which of the following is the highest Literacy-rate district of Rajasthan?

a. Ajmer
b. Jaipur
c. Kota
d. Udaipur

Answer: (c)

Solution:

According to the Census - 2011 data, the literacy rate of Rajasthan is 66.11%. Among the given options, Kota has the highest literacy rate, i.e. 76.56.

Question 77. Which of the following is a ferrous metallic mineral?

a. Tin
b. Cobalt
c. Gold
d. Bauxite

Answer: (b)

Solution:

Metallic minerals are divided into ferrous and non-ferrous types. Ferrous Metallic minerals have iron content in them. Examples include cobalt, chromium, etc.

Question 78. Which is the major source of rainwater storage in the Shekhawati region?

a. Khadin
b. Tanka
c. Nadi
d. Johad

Answer: (d)

Solution:

Shekhawati is a semi-arid region located in the northeast part of Rajasthan. The major source of rainwater storage in the Shekhawati region is Johad.

Question 79. Latitudinal extension of India is

a. $8^o 4'$ Northern latitude to $37^o 4'$ Northern latitude
b. $8^o 4'$ Northern latitude to $37^o 6'$ Northern latitude
c. $8^o 2'$ Northern latitude to $37^o 8'$ Northern latitude
d. $8^o 5'$ Northern latitude to $37^o 5'$ Northern latitude

Answer: (b)

Solution:

India's geographical territory extends over a vast area. Lying entirely in the Northern hemisphere, the main land extends between latitudes 8°4'N and 37°6'N and longitudes 68°7'E and 97°25'E.

Question 80. Which of the following rivers does not fall in the Bay of Bengal?

a. Kaveri
b. Mahanadi
c. Narmada
d. Godawari

Answer: (c)

Solution:

Narmada river rises near Amarkantak range of mountains in Madhya Pradesh and flows towards the west. It traverses through Madhya Pradesh, Maharashtra and Gujarat and meets the Arabian Sea.

Question 81. What is "Kall Vaishaki"?

a. Cyclones in the Arabian sea
b. Rainfall due to mediterranean cyclone in winter season
c. Rainfall on the Malabar coast in summer season
d. Dust storm in west Bengal region during summer season

Answer: (d)

Solution:

Kall Vaishaki or Nor'westers is the dust storm in the Gangetic plains of India. Kall Vaishaki originates over Bihar and Jharkhand area, moves eastwards and strikes West Bengal and Odisha.

Question 82. Who coined the slogan "Jo sir sante Roonkh rahe to bhi sasto Jaan?"

a. Smt. Amrita Devi
b. Smt. Jaana Bai
c. Smt. Sushila Devi
d. Smt. Harsha Devi

Answer: (a)

Solution:

Smt Amrita Devi coined the slogan “Jo sir sante Roonkh rahe to bhi sasto Jaan''. She sacrificed her life to protect the khejri trees. She protested against the soldiers of the Maharaja of Jodhpur and raised the slogan meaning: If a tree is saved even at the cost of one's head, it's worth it.

Question 83. When was the unification of Rajasthan completed?

a. 30th March, 1949
b. 15th May, 1948
c. 26th January, 1950
d. 1st November, 1956

Answer: (d)

Solution:

It took seven stages to form Rajasthan as seen today. The unification of Rajasthan was completed by 1st November 1956 under provisions of the State reorganisation act.

Question 84. From which district of Rajasthan, the modern three-tier of Panchayati Raj system was launched on October 2nd, 1959?

a. Ajmer
b. Nagaur
c. Jaipur
d. Bikaner

Answer: (b)

Solution:

Panchayati Raj was inaugurated by the Former Prime Minister of India Jawaharlal Nehru on 2nd October, 1959 at Nagaur in Rajasthan. The first elections under the Rajasthan Panchayat Samitis and Zilla Parishads Act, 1959 were held in September-October 1959.

Question 85. When was the constitution of India adopted, enacted and spirited?

a. 26th November, 1949
b. 26th October, 1948
c. 26th January, 1950
d. 26th January, 1949

Answer: (a)

Solution:

The Constitution of India was drafted by the Constituent Assembly and was adopted on 26th November, 1949. But the major part of it was brought into force from 26th January, 1950. India celebrates 26th January as Republic day.

Question 86. In which schedule of Indian constitution the functions of municipal councils were listed by the 74th constitutional amendment?

a. In 8th Schedule
b. In 12th Schedule
c. In 10th Schedule
d. In 9th Schedule

Answer: (b)

Solution:

The 12th Schedule of the Indian Constitution was added by the 74th Constitutional Amendment Act of 1992. It contains the powers, authority and responsibilities of Municipalities.

Question 87. Where did the 18th summit of 'SAARC' take place in November, 2014?

a. Nepal
b. New Delhi

c. Bhutan
d. Maldiv

Answer: (a)

Solution:

SAARC is an abbreviation of South Asian Association for Regional Cooperation. The 18th summit of SAARC was held in November, 2014 in Kathmandu, the capital of Nepal. The agenda of the 18th summit was deeper integration for peace and prosperity.

Question 88. Match List - I with List - II Related to Fundamental Rights and choose the correct from given codes.

List - I	List - II
A. Right to Equality	i) Article 19 to 22
B. Right against Exploitation	ii) Article 29 to 30
C. Right to Education and culture	iii) Article 14 to 18
D. Right to Freedom or Liberty	iv) Article 23 to 24

Codes :-

	A	B	C	D
a)	(ii)	(iii)	(iv)	(i)
b)	(iii)	(iv)	(ii)	(i)
c)	(i)	(ii)	(iii)	(iv)
d)	(iv)	(i)	(ii)	(iii)

Answer: (b)

Solution:

Following articles cover the corresponding rights according to the Constitution of India. Article 14 to 18 covers the Right to equality. Article 19 to 22 covers the

Right to Freedom or Liberty. Article 23 to 24 covers the Right against Exploitation. Article 29 to 30 covers the Right to Education and Culture.

Question 89. What can be maximum number of members of Rajya Sabha as per constitutional provision?

a. 245
b. 233
c. 250
d. 230

Answer: (c)

Solution:

As per the Constitution of India, there can be no more than 250 members in the Rajya Sabha. The Rajya Sabha is the upper house of the Parliament of India, also known as the Council of States.

Question 90. According to which article of Indian constitution 'Money Bills' can be proposed in Lok Sabha only?

a. 109
b. 107
c. 105
d. 103

Answer: (a)

Solution:

According to article 109 of the Indian Constitution 'Money Bills' can only be passed by the Lok Sabha and not the Rajya Sabha. Money Bill involves the taxation, borrowing and spending by the Government of India.

Question 91. Who has the right to casting vote if there are equal votes in favour and in against on a question in the state Legislative Assembly?

a. The Governor
b. The Chief Minister
c. The Speaker of State Legislative Assembly
d. The Deputy Speaker of State Legislative Assembly

Answer: (c)

Solution:

The Speaker of the State Legislative Assembly has the right to cast a vote in a situation where equal votes are cast either in favour or against a particular question in the state legislative assembly. He/She is also responsible for maintaining the overall discipline in the assembly.

Question 92. How many members can be maximum in the state cabinet according to 91st constitutional amendment?

a. 10% of total number of members of legislative assembly
b. 25% of total number of members of legislative assembly
c. 20% of total number of members of legislative assembly
d. 15% of total number of members of legislative assembly

Answer: (d)

Solution:

The 91st amendment of the Constitution of India restricted the maximum number of members in the state cabinet to 15% of the total number of members of the legislative assembly.

Question 93. Till what age can the Judges of high court hold his post?

a. 62 years

b. 60 years
c. 65 years
d. 68 years

Answer: (a)

Solution:

According to the 15th amendment to India's Constitution in 1963, the age limit to be a high court judge is kept at 62 years. Earlier the age limit was at 60 years. However, a high court judge shall send a resignation letter to the President of India if he/she is willing to resign from the respective position.

Question 94. The nation having a mixed economy is

a. China
b. India
c. Japan
d. France

Answer: (b)

Solution:

India follows a mixed economic system with both private and public sectors. The government directs economic activities in some socially important sectors of the economy.

Question 95. The Green revolution started in

a. 1966-67
b. 1970-71
c. 1988-89
d. 2001-02

Answer: (a)

Solution:

The Green Revolution in India was started during 1966-67 by introducing a high-yielding variety of seeds to increase food production.

Question 96. The Central bank of India is

a. State Bank
b. Indian Industrial Development Bank
c. Export - Import Bank
d. Reserve Bank of India

Answer: (d)

Solution:

The Reserve Bank of India (RBI) is the central bank of India whose primary function is to manage and govern the financial system of the country.

Question 97. The money is deposited for a fixed period of time in this account

a. Fixed deposit account
b. Saving bank account
c. Current account
d. Recurring deposit account

Answer: (a)

Solution:

A fixed deposit account is one where the money is deposited for a fixed period of time. It provides investors a higher rate of interest than a regular savings account

Question 98. When the benefits of development reach the people of all the sections of the society, it is called

a. Economic Development
b. Continuous Development
c. Assimilated Development
d. Human Development

Answer: (c)

Solution:

The word assimilate means to absorb and integrate. Development is to be assimilated when it reaches and is absorbed by all sections of the society.

Question 99. The process which increases the role of private sector in economy, is called

a. Liberalization
b. Privatization
c. Globalization
d. Swadeshi

Answer: (b)

Solution:

The process that increases the role of the private sector in the economy is privatization. Privatization is the transfer of publicly owned or publicly operated means of production to private ownership.

Question 100. The concept of Relative poverty is comparatively more relevant in these countries -

a. Undeveloped countries
b. Under-developed countries
c. Developing countries

d. Developed countries

Answer: (d)

Solution:

Relative poverty means poverty defined in comparison to other people's standing in the economy. Thus a person can be poor in the relative sense, even if she is not poor in the absolute sense. Therefore it is more relevant in developed countries.