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UPSC CSAT DPP 07 - Reasoning

Q1 Terms of given series follow a certain pattern, by observing that pattern find the term which will replace "X" in the given series
8, 4, 6, 15, X, 236.25
(A) 46.5 (B) 48.5
(C) 50.5 (D) 52.5

Q2 Find the next term of given sequence
2, 16, 112, 672, 3360, 13440, ...
(A) 3430 (B) 3340
(C) 40320 (D) 43240

Q3 Find the value of X in the sequence
15, 33, 103, 417, 2091, X
(A) 12551 (B) 11542
(C) 14553 (D) 12553

Q4 What is the value of X in the series 12, 12, 15, 23, 38, X?
(A) 58 (B) 61
(C) 62 (D) 63

Q5 What is the missing term of the series 56, 8, 48, 9.6, ?, 12.8
(A) 38.6 (B) 38.4
(C) 38.2 (D) 38.8

Q6 Consider the following matrix:

4	7	9	2	?	1
12	42	72	2	30	0

What is the missing number in the matrix?
(A) 5 (B) 6
(C) 8 (D) 0

Q7 Consider the following matrix:

47	61	75
58	35	63
45	54	?

What is the missing number in the matrix?
(A) 42 (B) 35
(C) 27 (D) 12

Q8 Consider the following sequence given below:
5/12/11, 2/1/12, 30/1/12, 27/2/12 ...
What is the next term of the series?
(A) 24/3/12 (B) 25/3/12
(C) 26/3/12 (D) 27/3/12

Q9 Consider the following matrix:

15	34	99
1	15	?
4	7	13

What is the missing number in the matrix?
(A) 49 (B) 59
(C) 67 (D) 70

Q10 Find the correct term in place of "?" of the below given series
16G, 31D, 60F, 116H, ?
(A) 216N (B) 224H
(C) 188N (D) 224J

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Answer Key

Q1	(D)	Q6	(B)
Q2	(C)	Q7	(D)
Q3	(D)	Q8	(C)
Q4	(C)	Q9	(D)
Q5	(B)	Q10	(B)

Hints & Solutions

Q1 **Text Solution:**

Ans: (d)

Explanation:

The given series is 8, 4, 6, 15, X, 236.25

By observing the above series,

1^{st} term of the series $= a_1 = 8$

2^{nd} term of the series $= a_2 = 4 = 8 \times 0.5$

3^{rd} term of the series $= a_3 = 6 = 4 \times 1.5$

4^{th} term of the series $= a_4 = 15 = 6 \times 2.5$

5^{th} term of the series $= a_4 = X = 15 \times 3.5 = 52.5$

6^{th} term of the series $= a_6 = 236.25 = 52.5 \times 4.5$

So, the X = 52.5

Hence, option (d) is correct.

Q2 **Text Solution:**

Ans: (c)

Explanation:

The given sequence is 2, 16, 112, 672, 3360,13440...

We have to find the next term of given sequence

Let the next term be "X"

By observing the above series,

1^{st} term of the sequence $= a_1 = 2$

2^{nd} term of the sequence $= a_2 = 16 = 2 \times 8$

3^{rd} term of the sequence $= a_3 = 112 = 16 \times 7$

4^{th} term of the sequence $= a_4 = 672 = 112 \times 6$

5^{th} term of the sequence $= a_5 = 3360 = 672 \times 5$

6^{th} term of the sequence $= a_6 = 13440 = 3360 \times 4$

So, the next term of the given sequence should be

$a_7 = X = 13440 \times 3 = 40320$

Hence, option (c) is correct.

Q3 **Text Solution:**

Ans: (d)

Explanation:

The given series is: 15, 33, 103, 417, 2091, X

and we need to find the value of X

By observing the given sequence

1st term of sequence = a1 = 15

2nd term of sequence = a2 = 33 = 15 × 2 + 3

3rd term of sequence = a3 = 103 = 33 × 3 + 4

4th term of sequence = a4 = 417 = 103 × 4 + 5

5th term of sequence = a5 = 2091 = 417 × 5 + 6

So the next term of sequence should be a6 = 2091 × 6 + 7 = 12553

Hence, option (d) is correct.

Q4 **Text Solution:**

Ans: (c)

Explanation:

The given series is 12, 12, 15, 23, 38, X

By observing the above series,

1^{st} term of the series $= a_1 = 12$

2^{nd} term of the series $= a_2 = 12 = 12 + 0$

$= 12 + (1^2 - 1)$

3^{rd} term of the series $= a_3 = 15 = 12 + 3$

$= 12 + (2^2 - 1)$

4^{th} term of the series $= a_4 = 23 = 15 + 8$

$= 15 + (3^2 - 1)$

5^{th} term of the series $= a_5 = 38 = 23 + 15$

$= 23 + (4^2 - 1)$

So, the next term of the series

$= 38 + (5^2 - 1) = 38 + 24 = 62$

Hence, option (c) is correct.

Q5 **Text Solution:**

Ans: (b)

Explanation:

The given series is 56, 8, 48, 9.6, ?, 12.8

Let missing term be X.

By observing the above series,

$1^{st}\ term\ of\ the\ series = a_1 = 56$

$2^{nd}\ term\ of\ the\ series = a_2 = 8 = \frac{56}{7}$

$3^{rd}\ term\ of\ the\ series = a_3 = 48 = 8 \times 6$

$4^{th}\ term\ of\ the\ series = a_4 = 9.6 = \frac{48}{5}$

So, the 5^{th} term of the series

$X = a_5 = 9.6 \times 4 = 38.4$

6^{th} term of the series $= a_6 = 12.8 = \frac{38.4}{3}$

Therefore, the value of X in the series is 38.4

Hence, option (b) is correct.

Q6 Text Solution:

Ans: (b)

Explanation:

We can clearly observe the following pattern,

In Column 1: 4 × (4 – 1) = 12

In Column 2: 7 × (7 – 1) = 42

In Column 3: 9 × (9 – 1) = 72

In Column 4: 2 × (2 – 1) = 2

In column 6; 1 × (1 – 1) = 0

Let the missing number is x.

By following the same pattern in Column 5,

x × (x – 1) = 30 ⇒ 6 × 5 = 30

So, the missing number is 6.

Hence, option (b) is correct.

Q7 Text Solution:

Ans: (d)

Explanation:

We can clearly observe the following pattern.

In Column 1, 47 + 58 + 45 = 150

In Column 2, 61 + 35 + 54 = 150

The sum of the all three elements of each column is 150.

Let the missing number be x.

In Column 3,

75 + 63 + x = 150 ⇒ x = 150 – 138 ⇒ x = 12

So, the missing number is 12.

Hence, option (d) is correct.

Q8 Text Solution:

Ans: (c)

Explanation:

The given series is - 5/12/11, 2/1/12, 30/1/12, 27/2/12 ...

Number of days in December, January and March = 31

Also, 2012 is a leap year. So, number of days in February = 29

We can observe that,

2/1/12 – 5/12/11 = 28 days

30/1/12 – 2/1/12 = 28 days

27/2/12 – 30/1/12 = 28 days

So, the next term of the series would be 27/2/12 + 28 days = 26/3/12

Hence, option (c) is correct.

Q9 Text Solution:

Ans: (d)

Explanation:

We observe the following pattern,

In Column 1, 15 + 1 = 16 =

In Column 2, 34 + 15 = 49 =

Let the missing number is 'x'.

In Column 3, 99 + x = 13^2

Or, x = 169 – 99 = 70

So, the missing number is 70.

Hence, option (d) is correct.

Q10 Text Solution:

Ans: (b)

Explanation:

1^{st} consider the number series:

16, 31, 60, 116 we can observe that

$1^{st}\ term = 16$

$2^{nd}\ term = 16 \times 2 - 1 = 31$

$3^{rd}\ term = 31 \times 2 - 2 = 60$

$4^{th}\ term = 60 \times 2 - 4 = 116$

Hence 5^{th} term should be

$116 \times 2 - 8 = 224$

Now observe the alphabetical series:

G is at 7^{th} place in alphabets 7 = 1 + 6

D is at 4^{th} place in alphabets 4 = 3 + 1

Hence, we can observe that the sum of digits of no. associated with the alphabet is the place value of the alphabet.

Hence, alphabet associateld with 224 is 'H' because 2 + 2 + 4 = 8

And, the 8th letter of the English alphabet is H.

Hence, option (b) is correct.