MATHEMATICS | **CLASS-XII**

FUNCTIONS

1. **(D)**
Sol. Formula Based

2. **(D)**
Sol. A = {1, 3, 5, B}, B = {2, 4}

A = {1, 3, 5, {2, 4}}

B $\not\subset$ A as {2, 4} are not the elements of A

None of these option is correct

3. **(C)**
Sol. A = {1, 2, 3, 4, 5}

Set A contains 5 elements, therefore it has 2^5 32 subsets

Proper subset of a set usually denotes a subset in which at least one elements of the orignal set is missing. So empty set containing non element have to the omitted

∴ No. of proper subset = 31

4. **(B)**
Sol. No. of subset of set A = 2^m

No. of subsets of set B = 2^n

$2^m - 2^n = 112$

$\Rightarrow$ $2^n(2^{m-n} - 1) = 2^4(2^3 - 1)$

∴ n = 4, m – n = 3

m = 7

5. **(D)**
Sol. No. of all onto function from the set {1, 2, 3, ...n} = n!

6. **(D)**
Sol. A = {1, 2, 3, 4, 5, 6, 7, 8, 9}

x R y $\Leftrightarrow$ y = 3x

{(1, 3), (2, 6), (3, 9)}

∴ None of these option is correct
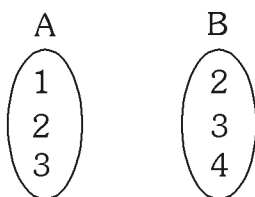
7. **(C)**
Sol. A = {1, 2, 3}

B = {1, 4, 6, 9}

R = {(2, 1), (3, 1)}

Range = {1}

8.   **(C)**

Sol.   A = {1, 2, 3}

B = {2, 3, 4}

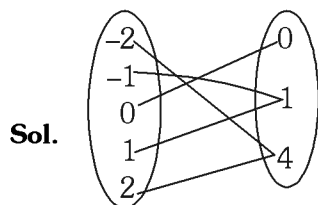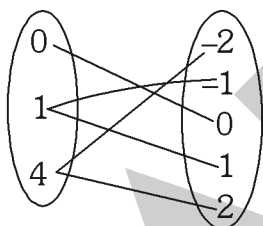A   B

1   2
2   3
3   4

Option (A) is not a function because element 1 have two image in B as 2 & 3. Option (B) is also not a function because element 3 ∈ A which is not have any image in set B.

Option (C) is a function

9.   **(B)**

Sol.

−2   0
−1
0   1
1
2   4

Option (A) is a function

0   −2
          −1
1   0
          1
4   2

Option (B) is not a function

10.   In the questions Option D must be {2, 3, 4, 5, 6}

Ans. **(D)**

Sol.   A = {2, 3, 4, 5}

B = {3, 6, 7, 10}

x R y ⇔ x is relatively prime to y

is x ∈ A and y ∈ B

R = {(2, 3), (2, 7) (2, 9), (3, 7), (3, 8), (3, 10), (4, 3), (4, 7), (4, 9), (5, 3), (5, 6), (5, 7), (5, 9), (6, 7)}

Domain of R = {2, 3, 4, 5, 6}

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