

UpGrad

Sample Questions

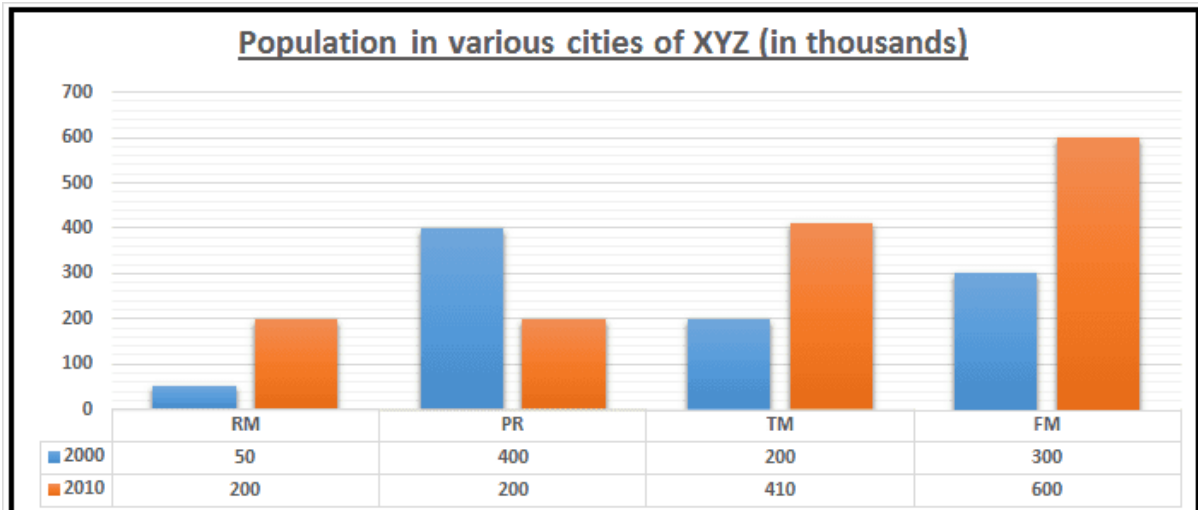
Quantitative/Mathematics

- Q 1 A card is drawn from a well-shuffled pack of playing cards. Find the probability that it is a King or a Queen of club.



- A. $1 / 26$
- B. $1 / 4$
- C. $2 / 13$
- D. $2 / 4$
- Q 2 A man has 4 notebooks and 3 pens in total. If he takes one notebook and one pen to his office at any day. How many unique combinations can he try?
- A. 12
- B. 64
- C. 81
- D. 7
- Q 3 How many litres of vinegar should be mixed in a mixture (vinegar + water) of 60 litres in which initial ratio of vinegar to water is 1:4 so that the resulting mixture contains 35% of vinegar in it?
- [Note: Select the closest integer value]
- A. 8 litres
- B. 6 litres
- C. 12 litres
- D. 14 litres

Passage: Study the bar chart given below and answer the questions that follows.



Q 4 Which of the following cities in XYZ had a population in 2000 that was approximately half that of its population in 2010?

- I. RM
- II. PR
- III. TM
- IV. FM

Choose the answer from the options given below.

- A. Only III
- B. Only II and IV
- C. Only III and IV
- D. Only I and III

Q 5 From 2000 to 2010, the total population in the four cities increased by approximately what percent?

- A. 22%
- B. 49%
- C. 113%
- D. 147%

Q 6 What will be the derivative of $3a^4 + 10a$ at $a = 2$?

(Note: The derivative of x is given by $\frac{d(x^n)}{dx} = n \cdot x^{n-1}$.)

- A. 106
- B. 42
- C. 68
- D. 64

Q 7 What will be the derivative of $\frac{3}{2x} + 4x^2$?

- A. $\frac{3}{x^2} + 8x$
- B. $-\frac{3}{x^2} + 8x$
- C. $\frac{3}{2x^2} + 8x$
- D. $-\frac{3}{2x^2} + 8x$

Q 8 A ball is thrown in the air, if its height at any time t can be expressed as:

$$h = 4t - 2t^2 + 3$$

The maximum height attained by the ball is:

- A. 5 units
- B. 3 units
- C. 1 units
- D. 7 units

Q 9 If the below given relation between two matrices is true, then calculate the value of $2a + 10b$.

$$2 \begin{bmatrix} a-2 & 2b \\ 4 & 1 \end{bmatrix} = \begin{bmatrix} a+4 & b+3 \\ 8 & a-6b \end{bmatrix}$$

- A. 26
- B. 6
- C. 4
- D. -8

Q 10 A sequence is defined recursively as:

$$F_0 = -1; f_1 = 1$$

$$F_n = f_{n-1} - f_{n-2}$$

What will be the value of f_4 ?

- A. -2
- B. -1
- C. 1
- D. 2

- Q 11. A four-digit number has to be formed (without repetition of digits) by using the digits **1, 5, 3, 9, and 7** only. How many such numbers can be formed?
- A. 120
 - B. 240
 - C. 60
 - D. 20

Programming and Logical Ability:

Q.1) What will be the output of the following pseudo code for input 7?

1. Input n
2. Set $m = 1$, $T = 0$
3. if ($m > n$)
4. Go to step 9
5. else
6. $T = T + m$
7. $m = m + 1$
8. Go to step 3
9. Print T

- A. 28
- B. 56
- C. 32
- D. 76

Q.2) What will be the output of the following code?

1. Input $a = 3$ and $b = 4$
2. Set result = 1
3. while($b > 0$)
4. result = result * a
5. $b = b - 1$
6. End while loop
7. Print result

- A. 81
- B. 64
- C. 12
- D. 24

Q.3) What will be the output of the following algorithm for beg = 6 and end = 9?

1. Input beg, end
2. Integer n
3. Set sum = 0
4. if (beg > end)
5. Print Error Message
6. else
7. for(n=beg; n<end; n=n+1)
8. sum = sum + n
9. End for loop
10. Print sum

- A. 21
- B. 61321
- C. 30
- D. 27

Q.4) What will be the output of the following code?

1. Input n = 123
2. Integer q, r and rn
3. Set q=n and rn = 0
4. while (q > 0)
5. r = q mod 10
6. rn= rn * 10 + r
7. q = q /10
8. End while loop
9. Print rn

*(Note: mod finds the remainder after division of one number by another.
For example, the expression "5 mod 2" would evaluate to 1 because 5 divided by 2 leaves
a quotient of 2 and a remainder of 1)*

- A. 123
- B. 321
- C. 50
- D. 150

Q.5) Consider the following fragment:

```
1. Integer x, y and z
2. if (x > y)
3.     if y > z
4.         s1;
5. else s2;
```

For which of the following conditions s2 will be executed?

- A. $y > z$
- B. $x \leq y$
- C. $y > z$ and $x > z$
- D. $x > y$ and $z < x$

Q6) What will be the output of the following pseudocode?

```
1. Declare variable f, g and i
2. Set f = 0 and g = 1
3. for i = 1 to 4
4.     print f
5.     f = f + g
6.     g = f + g
7. End for loop
```

- A. 0 1 3 8
- B. 0 1 1 2
- C. 0 2 5 8
- D. 0 1 1 8

Q7) Which of the statements given in the options is **correct** regarding the following pseudocode?

```
1. if (x > y)
2.     if (z > y)
3.         print ("one") ;
4.     else
5.         if (z == x)
6.             print ("two");
7.         else
8.             print ("three");
9. else print ("four");
```

- A. It will print one if $z > x > y$
- B. It will print two if $z < y$ and $y > x$
- C. It will print four if $z \geq y$
- D. It will print three if $x \geq y$

Q8) What will be the output of the following pseudocode?

1. Read the value of A = 6, B = 8
2. $A = A + B$
3. $B = A - B$
4. $A = A - B$
5. Print A and B

- A. A = 8, B = 6
- B. A = 6, B = 8
- C. A = 4, B = 6
- D. A = 6, B = 4

Q9) What will be the output of the following pseudo code for input **a = 3**?

1. function(input a)
2. {
3. if($a \neq 0$)
4. return $a + \text{function}(a - 1)$;
5. else
6. return 0;
7. }

- A.6
- B.5
- C.7
- D.8

Q10) What will be the output of the following pseudo code for input **n = 5**?

1. function(input n)
2. {
3. if ($n \geq 1$)
4. return $n * \text{function}(n - 1)$;
5. else
6. return 1;
7. }

- A. 100
- B. 120
- C. 125
- D. 115

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