UpGrad

Sample Questions

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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?

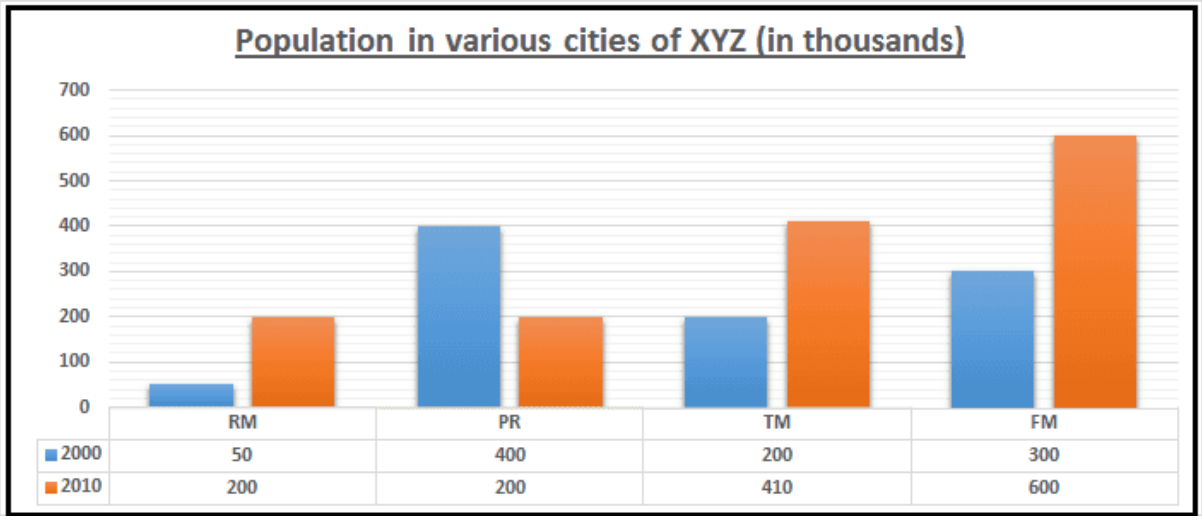
A. 8 litres

B. 6 litres

C. 12 litres

D. 5 litres

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



	RM	PR	TM	FM
2000	50	400	200	300
2010	200	200	410	600

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 $\frac{d(x^n)}{dx} = n.x^{n-1}$***.)***

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:

$$\boldsymbol{h = 4t - 2t^2 + 3}$$

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.

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

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 <= 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 ≥ y
D. It will print three if x ≥ 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 ≠ 0)
4.          return a + 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 >= 1)
4.          return n * function(n - 1);
5.  else
6.          return 1;
7. }
```

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

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