Std: VII                                                                    Marks:[80]

Date: 15.02.17                                                          Time: 1 ½ hrs

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## Question 1

    a. Let $\xi$= {5,6,7,8,9,10,11,12,13,14,15,16} be the universal set and let
       A={5,7,11,13}, B={6,8,10,12,14,16}, C={5,6,8,10,11,12}. Find the
       complement of these sets and write the cardinal number for it.    [3]

    b. The monthly income of Mr Goel is `30400. He saves 12.5% of his
       income and the rest he spends. How much does he spend every month?  [2]

    c. Find the cost price if 19% profit has been made on a sale of `22610.  [2]

    d. Find the simple interest and amount on principal `8400 for 4 years at
       8% per annum.    [3]

## Question 2

    a. Solve: $\dfrac{5x-3}{2}-\dfrac{3x-2}{3}=\dfrac{2}{3}$    [3]

    b. Find the mean and median of first 15 odd numbers.    [3]

    c. Write the quadrants for the given points    [2]

I     A(2,-1)     II     B(-2,-2)     III     C(4,0)     IV     D(-1,2)

    d. Write the coordinates of the image of the following points when reflected
       in X-axis and Y-axis: 1.    A(5,-6)     2.    B(-7,-4)    [2]

## Question3

    a. A square PQRS having its vertices at P(-3,-2), Q(3,-2), R(3,4) and S(-3,4).
       It is rotated $180^0$ about its origin. Construct new square with P'Q'R'S'
       (Use graph paper and two different colours to show the figures)    [3]

    b. Given below are the choices given by the students of class5 and class 6
       of their favourite cars. Represent the data in a double bar graph
       (use a graph paper and two different colours)    [4]

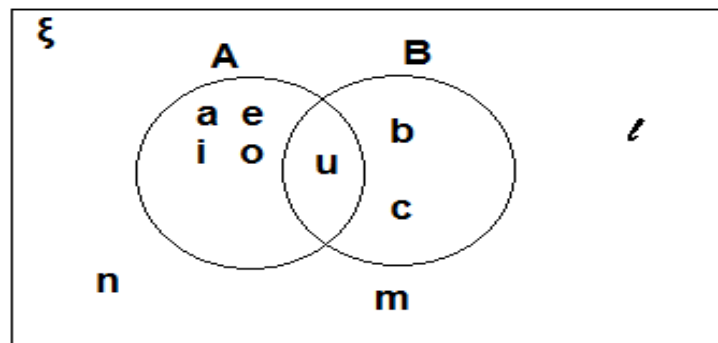| Cars | Class 5 | Class 6 |
|------|---------|---------|
| Ferrari | 80 | 90 |
| Mercedes | 30 | 25 |
| Honda | 40 | 50 |
| Toyota | 50 | 35 |

    c. Four fifth of a number is greater than three fourth of the number by 4.
       Find the number.    [3]

## Question 4

a. At what rate percent per annum simple interest will `66000 amount to `72720 in 2 years. [3]

b. Given the coordinates A(2,7) and B(0,0) rotate the line segment AB by $90^0$ in an anticlockwise direction about the origin and find the coordinates of the image of AB. [3]

c. Aman bought a computer for `24000 and its accessories pack worth for `1750. He sold it all for `26780. Find his gain percent. [2]

d. If $\frac{3}{4}$% of a number is 9. Find the number.

[2]

## Question 5

a. Observe the given diagram and find the following sets : A,B,ξ and n(A) [2]



b. Find the solution set of 2x-7<8, x ∈ N [3]

c. The simple interest of a sum of money for 5 years is $\frac{3}{5}$ of the sum. Find the rate percent per annum. [3]

d. A coin is tossed 500 times, we obtain a head 260 times. On tossing the coin at random, find the probability of getting: i) a head    ii) a tail [2]

## Question 6

a. The marks of 10 students in an English test are- 9,10,7,11,12,6,8,14,15,18. Find the range and the arithmetic mean. [2]

b. Identify the following in to finite, infinite, empty or singleton sets. [2]

i)    A={x/x=$2a^2$-1, 50<a<100 and a ∈ N}

ii)   B={m/2m+3=17, m ∈ N}

iii)  C={n/$\frac{1}{n}$=n, n∉1}

iv)   D={x/x=2a-1, a ∈ N}

c. Find the simple interest on `6400 lent at 10 percent per annum from March 3$^{rd}$ to July 27$^{th}$ of the same year. Also find the amount. [3]

d. At an election between two candidates 53 votes were declared invalid. The winning candidate secures 58%of the valid votes and wins by 588 votes. Find the total number of votes polled. [3]

## Question 7

a. A fruit seller buys oranges at the rate of 10 for `75 and sells them at 8 for `70. Find his gain or loss percent. [3]
b. Solve :    5-3x<17, x ∈ Z. Represent the solution set on the number line [3]
c. A sum of money invested at 9% per annum simple interest amount to `37760 in 2 years. What will it amount to in 3years at 10% per annum? [4]

## Question 8

a. A dice is rolled 50 times and the number 6 is obtained 8 times. Now if the dice is rolled at random, find the probability of getting number 6. [2]
b. Express 630g as percentage of 3.5kg [2]
c. A property dealer charges a commission of 2%on the first `25000 and 1.5%on the remainder. What commission does he charge for selling a plot of land for `130000 [3]
d. Given :    ξ ={1,2,3,4,5,6,7,8,9,10},   A={1,2,3,4,5,6}   B={3,4,6}
   Find:
         i)    Write the two subsets of set A
         ii)    Write the two supersets of set B
         iii)    Write the complement set of A and B [3]

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