SETS

SECTION A: (1 MARK)   Answer

1. If $n(A)=8$, $n(B)=7$ and $n(A\cup B)=12$, find: (i)4
    (i) $n(B-A)$ (ii) $n[P(A)]$ (iii) $n[(A-B)\cup(B-A)]$ (ii)256
                                                                     (iii)9

2. Write the set $\left\{\dfrac{1}{2},\dfrac{2}{3},\dfrac{3}{4},\dfrac{4}{5},\dfrac{5}{6},\dfrac{6}{7}\right\}$ in set-builder form.

3. Write the subsets of the set $A=\{1,\{2,3\}\}$

4. If $n(A-B)=14+x$, $n(B-A)=3x$, $n(A\cap B)=x$ and $n(A\cup B)=74$. Find $n(A)$ and   38,48
    $n(B)$.

5. If A, B, C are three sets and U is the universal set such that $n(U)=700$,   300
    $n(A)=200$, $n(B)=300$ and $n(A\cap B)=100$. Find $n(A'\cap B')$.

SECTION B: (4 MARKS)

6. If $A=\{1,2,3,4,5,6\}$, $B=\{2,3,5,6\}$ and $A=\{1,3,5\}$, Prove that
    $A-(B\cup C)=(A-B)\cap(A-C)$

7. Verify De' Morgan's laws:
    $U=\{a,b,c,d,e,f,g,h,i,j,k\}$, $A=\{c,e,f,h,i,j\}$, $B=\{a,b,d,f,i\}$.

8. Using Venn diagram prove that $A\cap(B\cup C)=(A\cap B)\cup(A\cap C)$

SECTION C: (6 MARKS)

9. The following description gives the number of students studying one or more of the   (i)35
    subjects in a class: (ii)10
    Mathematics 24; Physics 18; Chemistry 23; Mathematics & Physics 11; Mathematics   (iii)11
    & Chemistry 13; Physics & Chemistry 12; Mathematics, Physics & Chemistry 6. Find: (iv)6
    (i) Total number of students in the class   (ii) How many opted Chemistry but not (v)5
    Mathematics?   (iii) How many opted exactly one of the three subjects?
    (iv) How many optedonly Mathematics?   (v) How many opted Mathematics &
    Physics but not Chemistry?

10. A school awarded 42 medals in hockey, 18 in basketball and 23 in cricket. If these   (i)10
    medals were bagged by a total of 65 students and only 4 students got medals in all (ii)51
    the three sports; find
    (i) How many students received medals in exactly two of the three sports?

(ii) How many students received medals in exactly one of the three sports?

11.	In a class of 35 students, 15 study Economics; 22 study Business studies and 14 study Accountancy. If 11 students study both Economics & Business studies; 8 study both Business studies & Accountancy and 5 study both Economics & Accountancy. If 5 students study none of these subjects, find the number of students who study (i) All the three subjects (ii) Exactly two subjects (iii) Only one subject.	(i)3 (ii)15 (iii)12
12.	The following information was observed during a survey of 100 television viewers: 18 watch programme P only; 23 watch programme P but not Q; 8 watch programme P and R; 26 watch programme P; 48 watch programme R; 8 watch programme Q and R; 14 watch none of these programmes. Find the number of people who watch (i) Exactly two programmes (ii) Only one programme (iii) Only programme Q	(i)10 (ii)73 (iii)20
13.	In a town of 10,000 families, it was found that 40% families buy newspaper A, 20% families buy newspaper B and 10% families buy newspaper C. 5% families buy A and B, 3% buy B and C, 4% buy A and C. If 2% families buy all the three newspapers, find the number of families which buy (i) A only (ii) B only (iii) none of A, B and C.	(i)3300 (ii)1400 (iii)4000
14.	In an examination, question A was attempted by 67 students, question B by 46 students and question C by 40 students. 28 students attempted both questions A & B, 8 attempted questions B & C, 26 attempted A & C, 2 students attempted all the three questions. Find how many attempted question A but not question B &C?	15
15.	In a class of 50 students, 27 study History, 27 study Civics, 25 study Economics, 15 study both History & Civics, 16 study both Civics & Economics, 14 study both History & Economics. 9 study all the three subjects. How many students do not study any of the three subjects?	7