

**Topics : Sets & Relation, Sequence & Series**

<b>Type of Questions</b>		<b>M.M., Min.</b>
<b>Single choice Objective (no negative marking) Q.1,2,3,4,5,6,</b>	<b>(3 marks, 3 min.)</b>	<b>[18, 18]</b>
<b>Multiple choice objective (no negative marking) Q.7</b>	<b>(5 marks, 4 min.)</b>	<b>[5, 4]</b>

1. In a certain town 25% families own a phone and 15% own a car, 65% families own neither a phone nor a car. 2000 families own both a car and a phone. Consider the following statements in this regard :
  1. 10% families own both a car and a phone.
  2. 35% families own either a car or a phone.
  3. 40,000 families live in the town.
 Which of the above statements are correct ?  
 (A) 1 and 2                      (B) 1 and 3                      (C) 2 and 3                      (D) 1, 2 and 3
  
2.  $A \cap (B \cup A)'$  =  
 (A)  $\phi$                               (B) A                              (C) B                              (D)  $A \cap B$
  
3. In a school there are 20 teachers who teach mathematics or physics. Of these, 12 teach mathematics and 4 teach both physics and mathematics, the number of teachers who teach physics are-  
 (A) 12                              (B) 16                              (C) 8                              (D) 4
  
4. Sum of all the odd numbers between 1 and 1000 which are divisible by 3 is  
 (A) 83667                      (B) 167334                      (C) 82667                      (D) 166334
  
5. Let  $a_n$  be the  $n^{\text{th}}$  term of an A.P. If  $\sum_{r=1}^{100} a_{2r} = \alpha$  &  $\sum_{r=1}^{100} a_{2r-1} = \beta$ , then the common difference of the A.P. is  
 (A)  $\alpha - \beta$                       (B)  $\beta - \alpha$                       (C)  $\frac{\alpha - \beta}{2}$                       (D) none of these
  
6. The ratio of sums of  $n$ -terms of two arithmetic progressions is  $(3n - 13) : (5n + 21)$ . The ratio of 24<sup>th</sup> term of the two series is :  
 (A) 59 : 141                      (B) 7 : 17                      (C) 1 : 2                      (D) none of these
  
7. The sum of the first three consecutive terms of an A.P. is 9 and the sum of their squares is 35. Then sum to  $n$  terms of the series is :  
 (A)  $n(n + 1)$                       (B)  $n^2$                       (C)  $n(4 - n)$                       (D)  $n(6 - n)$



## Answers Key

1. (C)
2. (A)
3. (A)
4. (A)
5. (D)
6. (C)
7. (B)(D)

