DELHI PUBLIC SCHOOL JAMMU
Revision Sheet for Cycle Test 1 (2018-19)

Class-XI **Subject – Mathematics**

TOPICS:

1. **Sets**
2. **Relation and function**
3. **Trigonometric functions**

SECTION A (VERY SHORT TYPE QUESTIONS)

Q1. If a Set A has n elements then the number of Proper subsets of A is _____

Q2. If A & B are two sets and A is the subset of B, then prove that C-B is subset of C-A

Q3. Find the domain and range of the relation

$$R = \left\{(x, y) : y = x + \frac{6}{x} \text{ where } x, y \in N \text{ and } x < 6\right\}$$

Q4. Prove that $\tan(x + y) = \frac{tanx + tany}{1 - tanx\ tany}$

SECTION B (SHORT TYPE QUESTIONS)

Q5. Find the value of

$\sin 1^0 \sin 2^0 \sin 3^0 \sin 4^0 \ldots\ldots\ldots\ldots \sin 179^0$

Q6. Prove that :

$$cos\left(\frac{\pi}{4} + x\right) + cos\left(\frac{\pi}{4} - x\right) = \sqrt{2}cosx$$

Q7. Using properties of Set Prove that for all Sets A and B

(AUB) – B = A – B

Q8. Find the Domain of the given real function $f(x) = \sqrt{9 - x^2}$

SECTION C (LONG TYPE QUESTIONS)

Q9. Let $f(x) = \sqrt{x}$ and g (x) = 2x+1 be two functions defined over the set of non-negative real numbers find i) (fg) x ii)$\left(\frac{f}{g}\right)(x)$

Q10. Find the domain for which the function $f(x) = 4x^2 + 3$ and $g(x) = 1 - 6x^2$ are equal.

Q11. State and prove De Morgan's Law

Q12. In a class of 70 students 35 play football and 20 students play basketball and 10 students play both the games. Find the no. of students who play neither.

SECTION D (VERY LONG TYPE QUESTIONS)

Q13. Prove that

$\text{Cos } 6x = 32 \cos^6 x - 48 \cos^4 x + 18 \text{Cos}^2 x - 1$

Q14. Find the value of (1) $\text{Sin } 36^0$ ii) $\text{Cos } (-1410)^0$

Q15. In a group of 50 students, 36 take tea 19 take coffee and 8 take neither of the two. How many take both tea and coffee?

Q16. Given three Sets A, B and C draw appropriate Venn diagram for each of the following

$i) \acute{B} \cap \acute{C}$ $i) A \cup (B \cup C)$ $iii)\ A\ \cup\ B$

$iv)\ (A \cup B) \cap (A \cup C)$ $v)\ (A \cup B)'$