INDIAN SCHOOL AL WADI AL KABIR
DEPARTMENT OF MATHEMATICS 2020 – 2021
Work Sheet –- Class XI

SETS - 1

	Very Short Answers/Short Answer Type Questions (1 Mark/2 Marks)
1	What is the number of elements in the power set of $A = \{1, 2, 3\}$
2	Write the power set of $\{0, \phi, \{\phi\}\}$.
3	Write all subsets of $\{\phi, 1\}$
4	Write the set $A = \{1, 4, 9, 16, 25,...\}$ in set builder form.
5	Find the number of subsets of set $A = \{1, 4, 5\}$.
6	If $U = \{1, 2, 3...., 10\}$, $A = \{1, 2, 3, 5\}$, $B = \{2, 4, 6, 7\}$, find $(A - B)'$.
7	Write the power set of $A = \{a, b, c\}$.
8	If $A = \{1, 2, 3, 4, 5\}$, $B = \{2, 4, 6, 8\}$, find $A - B$.
9	If $U = \{x : x \leq 10, x \in N\}$, $A = \{x : x \in N, x \text{ is prime}\}$, $B = \{x : x \in N, x \text{ is even}\}$, write $A \cap B'$ in roster form.
10	Write the set $\{x : x \text{ is prime number which is a divisor } 60\}$ in roster form
	Long Answer-I Type Questions (4 Marks)
11	A college awarded 38 medals in football, 15 in basketball and 20 in cricket. If these medals went to a total of 58 men and only three men got all the three sports. (*i*) how many received medals in one sport? (*ii*) how many received medals in exactly two sports?　　　　　　　[*NCT 2015*]
12	Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$, $A = \{1, 2, 3, 4\}$, $B = \{2, 4, 6, 8\}$ and $C = \{3, 4, 5, 6\}$. Find (*i*) B'　　　(*ii*) $(B - C)'$　　　(*iii*) $(A \cup C)'$　　　(*iv*) $(A')'$　　　[*NCT 2014*]
13	If $U = \{1, 2, 3, ..., 15\}$; $A = \{3, 5, 9, 12, 15\}$; $B = \{1, 2, 3, 4, 5\}$; $C = \{2, 4, 6, 8, 10, 12, 14\}$, then find. (*i*) A'　　　(*ii*) $A - B$　　　(*iii*) $A \cup B$　　　(*iv*) $B \cap C$　　　[*NCT 2013*]
14	Let $U = \{1, 2, 3, 4, 5, 6, 8\}$, $A = \{2, 3, 4\}$, $B = \{3, 4, 5\}$. Show that (*i*) $(A \cup B)' = A' \cap B'$ (*ii*) $(A \cap B)' = A' \cup B'$.

15	In an examination 80% students passed in Mathematics, 72% passed in Science and 13% failed in both the subjects. If 312 students passed in both the subjects, find the total number of students who appeared in the examination. [KVS 2009]
16	In a survey of 5000 people in a town, 2250 were listed as reading English newspaper, 1750 as reading Hindi newspaper and 875 were listed as reading both Hindi as well as English. Find how many people who do not read Hindi or English newspaper. Find how many read only English newspaper. [NCT 2008]

Long Answer-II Type Questions (6 Marks)

17	In a survey of 100 persons it was found that 28 read magazine A, 30 read magazines B, 42 read magazine C, 8 read magazines A and B, 10 read magazines A and C, 5 read magazines B and C, 3 read all the three magazines. Find how many read none of the three magazines and how many read magazine C only? [NCT 2010]
18	In a survey it was found that 21 people liked the product A, 26 liked the product B, and 29 people liked the product C. If 14 people liked the product A and B, 12 people liked the product C and A, 14 people liked the product B and C and 8 people liked all the products, find how many like (i) the product C only (ii) products A and C but not B, (iii) at least one of the products?
19	In a town of 10,000 families, it was found that 40% family buy the newspaper A, 20% family buy the newspaper B, 10% family buy the newspaper C, 5% family buy A and B, 3% family buy B and C, 4% family buy A and C. If 2% of the families buy all the newspapers, find the number of families which will buy (i) A only (ii) B only (iii) none of A, B, C.
20	In a class of 60 students, 23 play Hockey, 15 play Basketball and 20 play Cricket, 7 play Hockey and Basketball, 5 play Cricket and Basketball, 4 play Hockey and Cricket and 15 do not play any of the games. Find (i) How many play Hockey, Basketball and Cricket. (ii) How many play Hockey but not Cricket (iii) How many play Hockey and Cricket but not Basketball.
21	In a survey of 25 students, it was found that 15 had taken Mathematics, 12 had taken Physics and 11 had taken Chemistry, 5 had taken Mathematics and Chemistry, 9 had taken Mathematics and Physics, 4 had taken Physics and Chemistry and 3 had taken all the subjects. Find the number of students that had taken (i) only Chemistry (ii) only Mathematics (iii) only Physics (iv) Physics and Chemistry but not Mathematics (v) Mathematics and Physics but not Chemistry (vi) Only one of the subjects (vii) at least one of the three subjects (viii) none of the three subjects.