If A = {y: y is a multiple of 3, $y \leq 20$ } and B = {z: z is a factor of 18}, list the elements of sets: A and B, then find the following sets:

i) $A \cap B$ ii) $A \cup B$ iii) $A - B$ iv) $B - A$

Solution:

Here, A = {y: y is a multiple of 3, $y \leq 20$ }
= {3, , , , , }

and B = {z: z is a factor of 18}
= {1, , 3, , , }

i) $A \cap B$ = {3, 6, 9, 12, 15, 18} ∩ {1, 2, 3, 6, 9, 18}
= {3, , 9, }

ii) $A \cup B$ = {3, 6, 9, 12, 15, 18} ∪ {1, 2, 3, 6, 9, 18}
= {1, , , 6, , 12, , }

iii) $A - B$ = {3, 6, 9, 12, 15, 18} – {1, 2, 3, 6, 9, 18}
= { , }

iv) $B - A$ = {1, 2, 3, 6, 9, 18} – {3, 6, 9, 12, 15, 18}
= { , }