Worksheet 2023-10ℰO-00004(1)

(1) The universal set S = {2 ; 3 ; 4 ; 5 ; 6 ; 7 ; 8} with subsets R = {2 ; 4 ; 6} and T = {5 ; 6 ; 7 ; 8}.

(a) Represent S, R and T as a Venn diagram.

(b) Write down the value of:

(i) n(S): _____ (ii) n(T): _____ (iii) n(R): _____

(iv) n(R′): _____ (v) n(T ∪ R): _____ (vi) n(T ∩ R): _____

(c) Are R and T disjointing sets? Motivate.

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(2) $S = \{12\ ;\ 13\ ;\ 14\ ;\ 15\ ;\ 16\ ;\ 17\ ;\ 18\ ;\ 19\ ;\ 20\ ;\ 21\ ;\ 22\ ;\ 23\ ;\ 24\}$

C is the set of multiples of 5 and D is the set of factors of 24.

C and D are subsets of S.

(a) Complete: $C = \{$_____ and $D = \{$ _____

(b) Represent S, C and D as a Venn diagram.

(c) Write down the value of:

(i) n(S): _____ (ii) n(C): _____ (iii) n(D): _____

(iv) $n(D')$: _____ (v) $n(C \cup D)$: _____ (vi) $n(D \cap C)$: _____

(d) Are C and D disjoint sets? Motivate.

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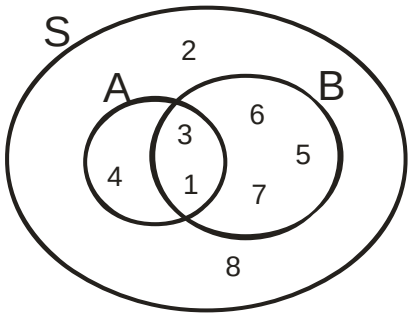
(3) (a) Write down the elements of the sample space:



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(b) Write down the value of:

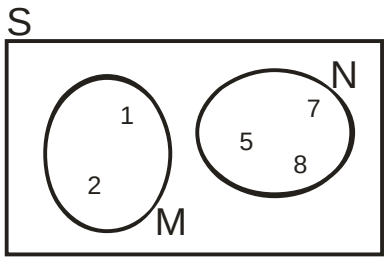
(i) $n(A \cap B) =$ _____ (ii) $n(A \cup B)' =$ _____

(c) Are the following statements true or false?

(i) $A \subset B$: _____ (ii) A and B are disjoint sets: _____

(iii) $n(S) = 8$: _____ (iv) $S \supset A$: _____

(4)



(a) Write down the value of:

(i) $n(M \cap N)$: _____ (ii) $n(M')$: _____

(b) Are M and N disjointing sets? Motivate.

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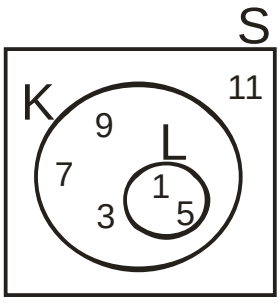
(5) (a) Write down the following sets:

(i) $K \cap L$: _____

(ii) L': _____



(b) Write down the value of:

(i) $n(K)$: _____ (ii) $n(K \cup L)$: _____

(c) Are the following statements true or false?

(i) $L \subset K$: _____ (ii) $K \cap L = \emptyset$: _____

(iii) $n(L') = 1$: _____ (iv) $K' = L$: _____