



SECI1013: DISCRETE STRUCTURE
SEM 1 2023/2024

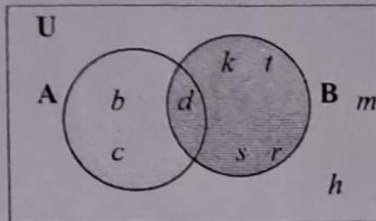
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Date : 1/11/2023

Marks
15
15

Question 1

[6 Marks]

Given the Venn Diagram, answer the following questions:



- a. List the elements of set A, B. $A = \{b, c, d\}$ $B = \{d, k, s, t, r\}$ (2 m)
- b. Find $|U|$ $|U| = 9$ (1 m)
- c. List ALL the subsets of A. Subsets of A = $\{\}, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}$ (3 m) 3

Question 2

[6 Marks]

- Given $U = \{x \in \mathbb{Z}, 0 < x \leq 10\}$, $A = \{1, 3, 5, 7, 9\}$, $B = \{2, 4, 6, 8\}$, $C = \{3, 6, 9\}$. Find:
- a. $(A \cup B) \cap C$ $\{3, 6, 9\}$ (1 m)
- b. $A' - B$ $\{10\}$ (1 m)
- c. $B' \cap (U \cap C')$ $\{1, 5, 7, 10\}$ $(U \cap C') = \{1, 2, 4, 5, 7, 8, 10\}$ (2 m)
- d. $(A \cap C) \times (C - A) \times \{a\}$ $= \{3, 9\} \times \{6\} \times \{a\}$ $(A \cap C) = \{3, 9\}$ $= \{(3, 6, a), (9, 6, a)\}$ (2 m)

Question 3

[3 Marks]

Given the following propositions, answer the following questions:

p: $(x+1)/3$
q: x is odd integer

- a. Write a compound proposition using logical connectives for the statement:

$(x+1)/3$ if and only if x is not odd integer $p \leftrightarrow \sim q$ (1 m)

- b. Construct the truth table for the compound proposition in (a)

(2 m)

p	q	$\sim q$	$p \leftrightarrow \sim q$
T	T	F	F
T	F	T	T
F	T	F	T
F	F	T	F