

DISCRETE MATHEMATICS (DBM2033)

Session December 2017

SELF-EXERCISE 4

Instructions

- Answer ALL questions. Write your answers in the spaces provided.
- Show your working. You may use a non-programmable scientific calculator.

1. If $U = \{a, b, c, d, e, f\}$, find the complement of the following.

- (a) $A = \{ \}$
- (b) $B = \{c, d, f\}$
- (c) $D = \{a, b, c, d, e, f\}$
- (d) $C = \{a, b, d\}$
- (e) $E = \{b, c\}$
- (f) $F = \{a, c, f\}$

2. If $U = \{1, 2, 3, 4, 5, 6\}$ and $A = \{2, 3, 6\}$, find

- (a) $A \cup A'$
- (b) $\emptyset \cap A$
- (c) $A \cap A'$
- (d) $U' \cap A$

3. Given $U = \{1, 2, 3, 4, 5, 6\}$, $S = \{2, 4, 6\}$, $T = \{1, 2, 4\}$, $V = \{4, 5, 6\}$. Find

- (a) $S \cup (T \cap V)$
- (b) $(S \cup T)'$
- (c) $S \cap (V \cap T')$
- (d) $(S' \cup V') \cap T$
- (e) $(V \cap T)' \cup S$
- (f) $(S \cup T) \cap V$
- (g) $(V \cup S)'$
- (h) $(S' \cup V') \cup T$
- (i) $S' \cup T \cap V'$
- (j) $T \cup V' \cap S'$
- (k) $V \cup (S \cap T)'$