Date	Name	Grade / Score
		/15

1. Draw a Venn diagram for three non-empty sets A, B and C so that (4 marks)

(a) $A \subset B, C \subset B$ and $A \cap C = \varnothing$.

(b) $A \subset B, C \not\subset B$ and $A \cap C \neq \varnothing$.

(c) $A \subset C, A \neq C$ and $B \cap C = \varnothing$.

(d) $A \subset (B \cap C), B \subset C, C \neq B$ and $A \neq C$.

2. Let A, B and C be finite sets. Let $n(A)$ denote the number of elements of A. (11 marks)

(a) (i) With the aids of the Venn Diagrams, verify $n(A \cup B) = n(A) + n(B) - n(A \cap B)$.

(ii) Of 150 students, 90 plays table-tennis, 65 play badminton and 40 play neither. How many play table-tennis only and how many play both games?

(b) (i) With the aids of the Venn Diagrams, find an expression for $n(A \cup B \cup C)$.

(ii) In a survey of 116 students taking secondary school business, the following enrolments were observed. There are 52 of them taking Accounting, 52 taking Economics and 59 taking Business Studies. In addition, it was found that 23 taking both Accounting and Economics, 24 taking both Accounting and Business Studies, and 25 taking both Economics and Business Studies. 11 of them took all these three subjects. How many students taking none of these subjects?