Cambridge Assessment International Education

Cambridge International AS & A Level

COMPUTER SCIENCE **9618/32**
SETS DATA STRUCTURE

1 Set data type is a data type which allows set operations to be done on a number of elements. Sets A and B are used to perform these operations

- **(a)** Write the pseudocode to declare set A of elements (2,4,6,7,8). And to declare set B of elements (1,9,3,2,5,6,7).
- **(b)** State what should be the result of A union B. Write the pseudocode to find the union of A and B.
- **(c)** Write the pseudocode to find the intersection of A and B.
- **(d)** Write the pseudocode to find the difference of A - B (elements in A but not in B).
- **(e)** Write the pseudocode to check if B is a subset of A and output TRUE/FALSE.
- **(f)** The element 10 is missing from the Set A. Write the pseudocode to insert a the new element into A and display the updated set.
- **(g)** The Number 3 should be removed from Set A and added to Set B. Write the pseudocode to remove the element 3 from B, (ensuring the set does not allow duplicates) and add it to the set A

2 Sets X, Y, and Z are used to perform the following operations

- **(a)** Write the pseudocode to declare set X with elements (3, 5, 7, 9, 11, 13, 15), set Y with elements (4, 6, 8, 10, 12, 14, 16), and set Z with elements (5, 10, 15, 20, 25).
- **(b)** Write the pseudocode to find the total number of elements in each set and output the values.
- **(c)** Write the pseudocode to find the union of sets X and Y, and output the result.
- **(d)** Write the pseudocode to find the intersection of sets X and Z, and output the result.
- **(e)** Write the pseudocode to find the difference of Y - Z (elements in Y but not in Z) and output the result.
- **(f)** Write the pseudocode to check if Z is a subset of X and output TRUE/FALSE.
- **(g)** The element 18 is missing from set Y. Write the pseudocode to insert 18 into Y and display the updated set.
- **(h)** The number 5 should be removed from set X and added to set Z. Write the pseudocode to remove 5 from X and insert it into Z, ensuring the set does not allow duplicates.
- **(i)** Write the pseudocode to find the symmetric difference of X and Y (elements in either X or Y but not both).
- **(j)** Write the pseudocode to find the number of symmetrically different elements of sets X and Y and output the result.