1. Use the Venn diagram to answer the following questions.
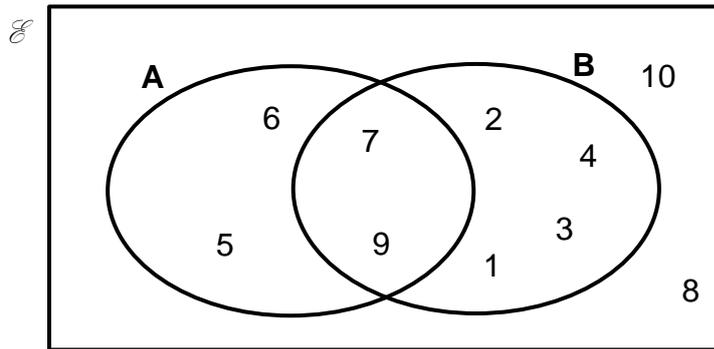
(a) List the elements of:

(i) A'

……………………………………………………………………………

(1)

(ii) $A \cap B$

……………………………………………………………………………

(1)

(iii) $A \cup B$

……………………………………………………………………………

(1)

(iv) $(A \cap B)'$

……………………………………………………………………………

(1)

(v) $A \cap B'$

……………………………………………………………………………

(1)

(b) Describe, using set-builder notation, the universal set, $\mathscr{E}$ (all the content within the Venn Diagram).

……………………………………………………………………………

(2)

2. A group of 60 people were asked whether they like Basketball (B) or Squash (S). The number liking both Basketball and Squash was four times the number liking Squash only. Adding 5 to the number liking only Squash and doubling the answer equals the number of people liking Basketball only. One person said they did not like sport at all.

Let x be the number of people who like Basketball only.

(a) Draw a Venn diagram for this information, in terms of x.

(4)

(b) Form an equation and solve it to find x.

$x =$ …………………… **(3)**

(c) Find:
   (i) the number of people who like both Basketball and Squash.

…………………**(1)**

   (ii) the number of people who like either Basketball, or Squash or both.

…………………**(2)**

3.
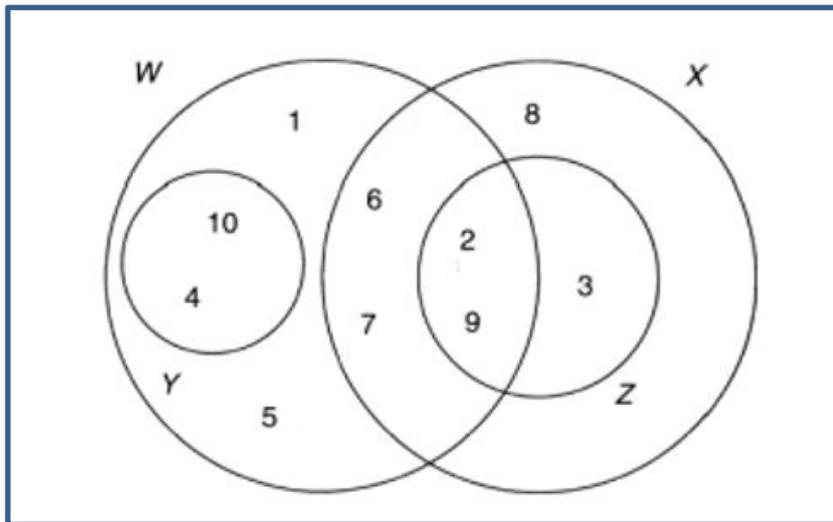
(a) Which of the named sets is a subset of W ?

……………………….(1)

(b) Two of the following statements are wrong. Circle them.

$Z \cap W = \{\, x : 2 \leq x \leq 9, x \epsilon N \,\}$　　　　　　　$n(\, W \cap Y) = 14$
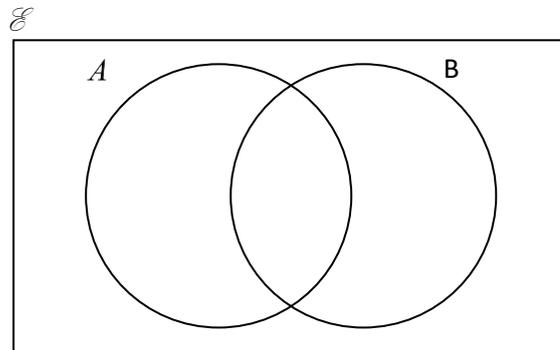
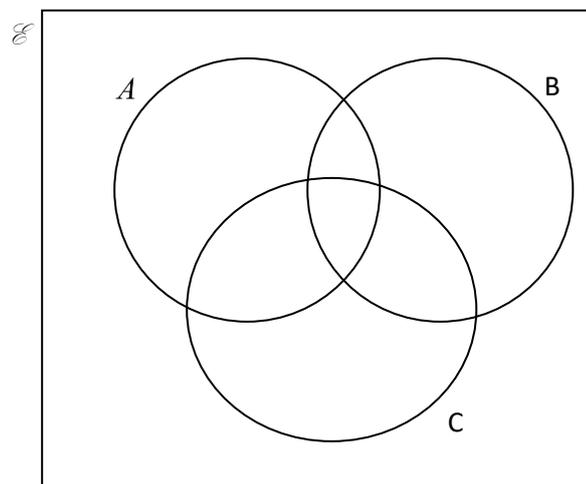$n(\, W' \cap X'\,) = 0$　　　　　　　$W \cap Z = \{\, 2\,,9 \,\}$

(2)

4. On each of the three Venn diagrams below, **shade** the region which represents the set.
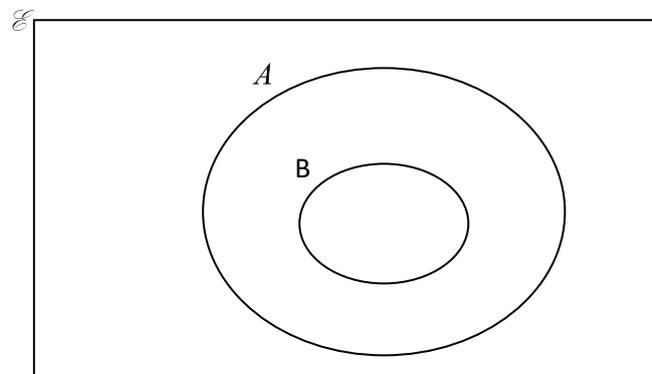
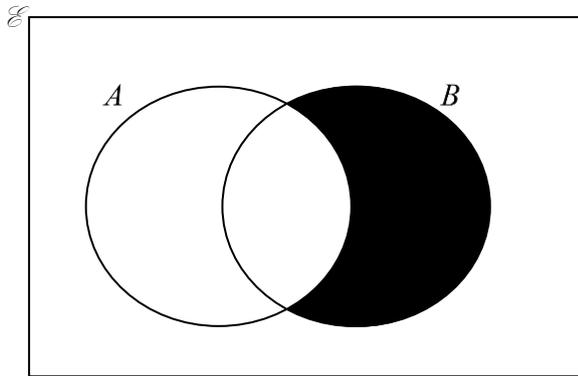**(a)** $A' \cap B'$

(2)

(b) $(A \cap B)' \cup C$
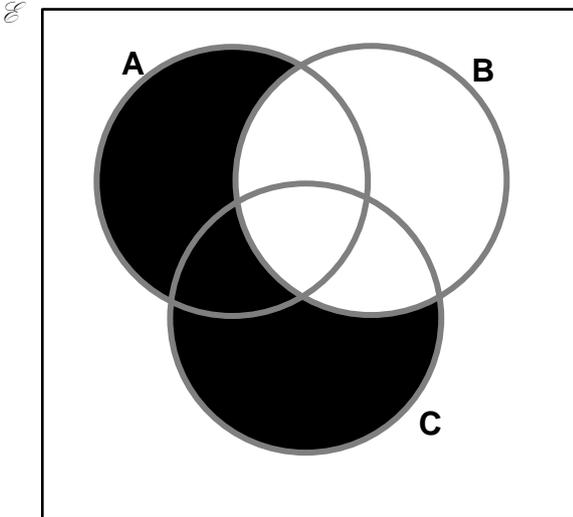

(2)

(c) $A' \cap B'$

(2)

5. Describe, in set notation, the region shaded in each of the Venn diagrams below.
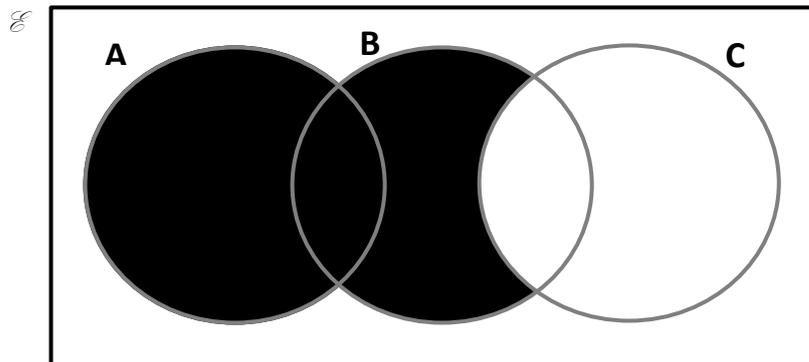
(a)

…….……………..(2)

(b)

……………………….(3)

(c)

……….……………..(2)

END OF PAPER

Total: 32 marks