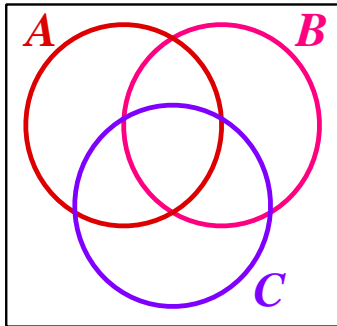
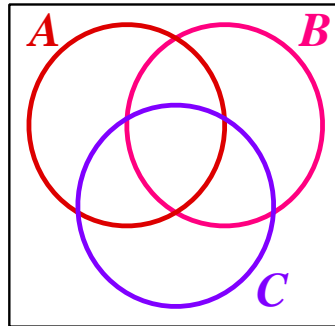


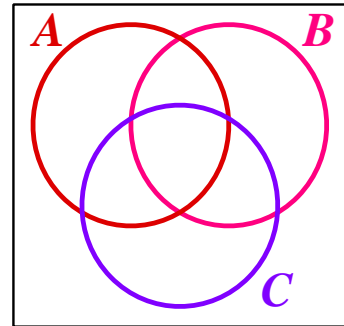
2.1 Shady Goes On



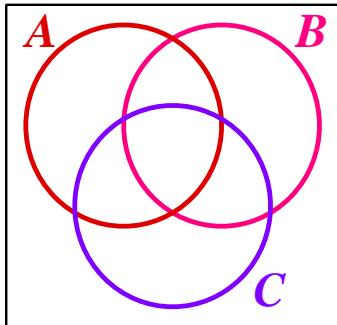
Shade : A



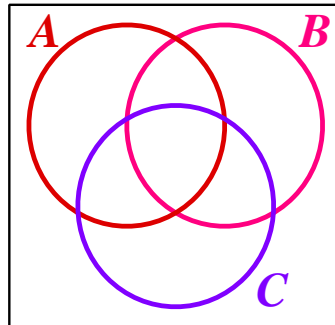
Shade : $A \cap B$



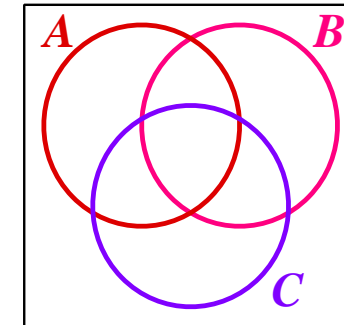
Shade : $A \cup B$



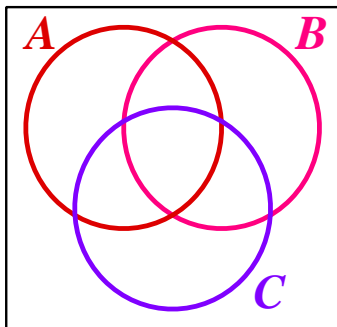
Shade : $A \cup B \cup C$



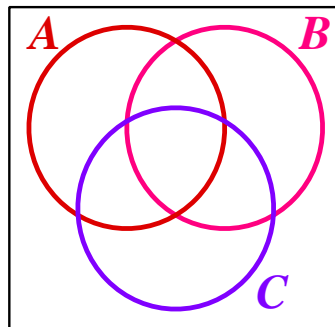
Shade : $(A \cup B \cup C)'$



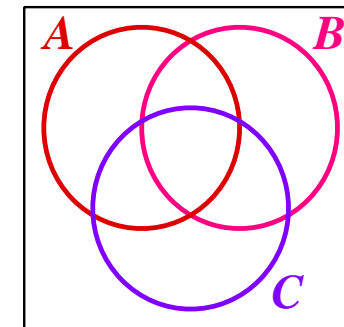
Shade : B'



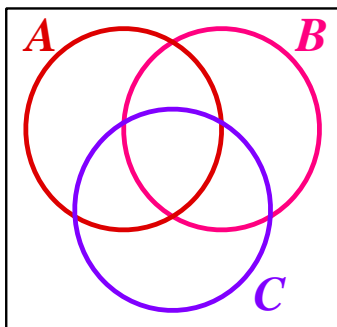
Shade : $B \cap C'$



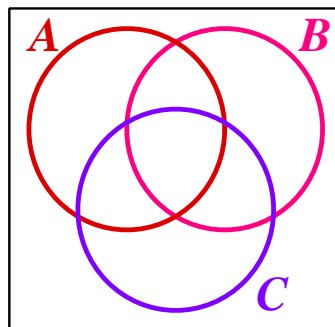
Shade : $(B \cap C)'$



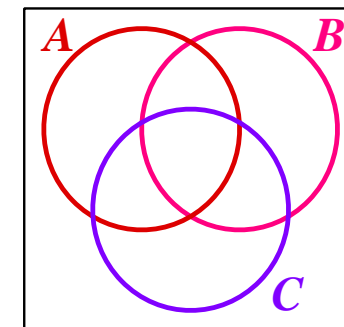
Shade : $B \cup C$



Shade : $(B \cup C)'$



Shade : $C \cap A'$



Shade : $C \cup A'$

[12 marks]

2.2 Exercise

Marks Available : 30

Question 1

Let : A be the set of numbers in the infinite sequence 1, 5, 9, 13, 17, ...

B be the set of numbers in the infinite sequence 3, 7, 11, 15, 19, ...

(i) List the first few members of the set $A \cup B$

[2 marks]

(ii) What is the special name given to the set $A \cup B$?

[1 mark]

(iii) Use a Set Theory Symbol to describe $A \cap B$

[1 mark]

Question 2

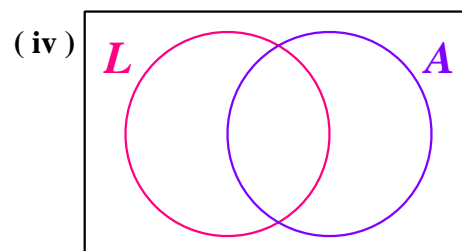
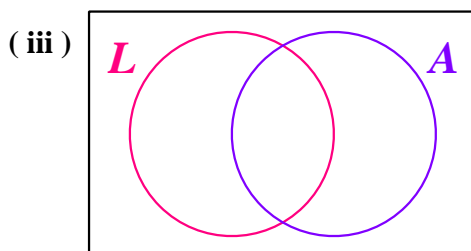
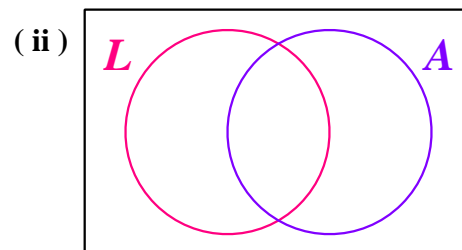
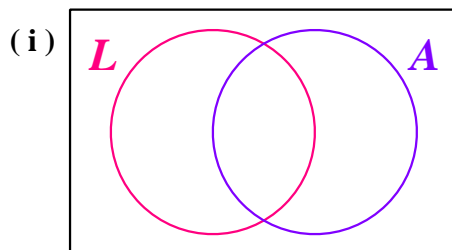
On the Venn Diagrams below, shade the part that represents;

(i) $L \cup A$

(ii) $L \cup A'$

(iii) $L' \cup A$

(iv) $L' \cup A'$



[4 marks]

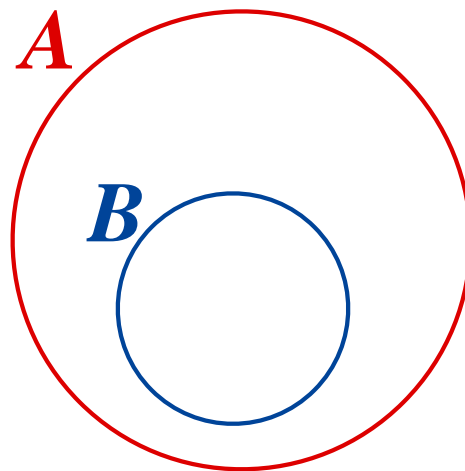
Question 3

Sets A and B are :

$$A = \{ \text{The multiples of 3 that are less than 20} \}$$

$$B = \{ \text{The multiples of 6 that are less than 20} \}$$

- (i) List the elements of set A [1 mark]
- (ii) List the elements of set B [1 mark]
- (iii) Complete the Venn Diagram to show the relationship between sets A and B



- (iv) The Venn Diagram is drawn in an unusual way. Explain why this has been done.

[2 marks]

[2 marks]

Question 4

In this question,

$$\varepsilon = \{ \text{all cars in the world} \}$$

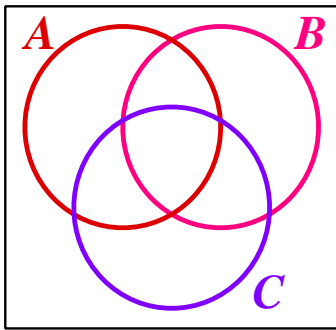
$$P = \{ \text{pink cars} \}$$

$$R = \{ \text{Rolls-Royce cars} \}$$

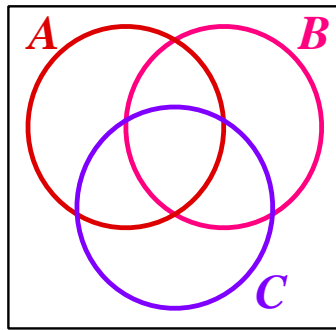
- (i) Describe the set $P \cap R$ in words [2 marks]
- (ii) George writes that $P \cap R = \emptyset$
Describe in words what George is claiming.
(Do you think George is correct ?)

[2 marks]

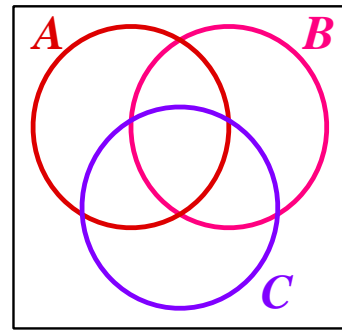
Question 5



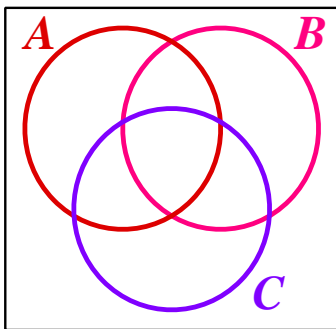
Shade : $B \cap C'$



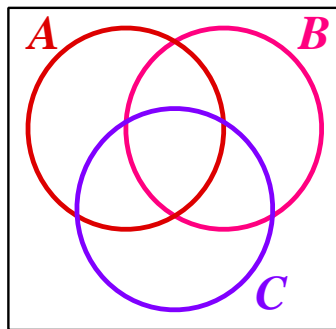
Shade : $B \cup B'$



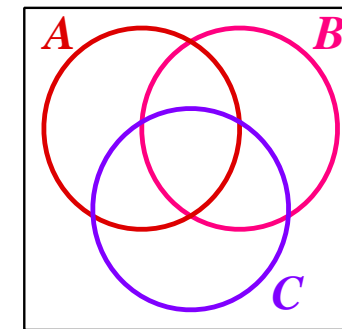
Shade : $B \cup C'$



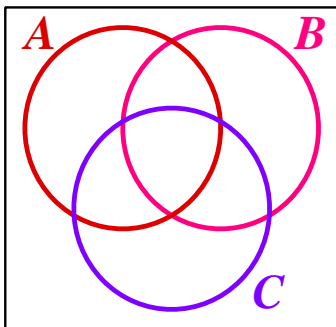
Shade : $A \cap C$



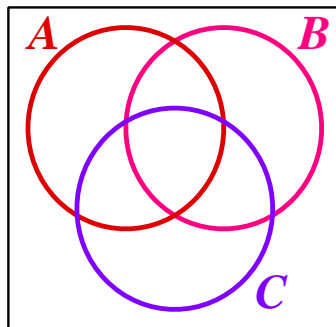
Shade : $(A \cap C)'$



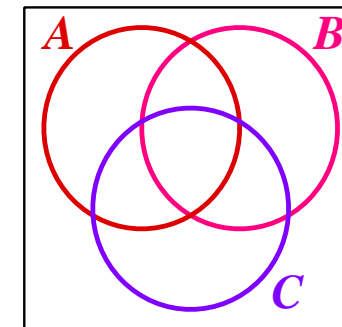
Shade : $(A \cup C)'$



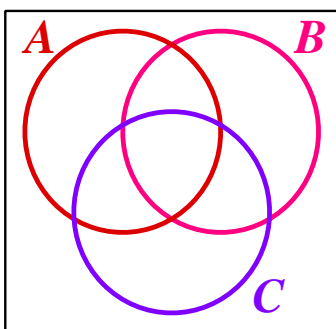
Shade : $B' \cap C'$



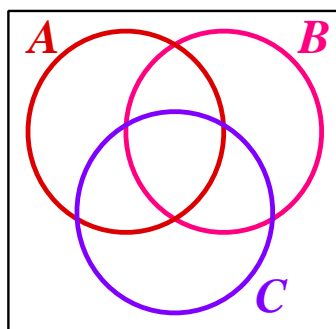
Shade : $A \cap A$



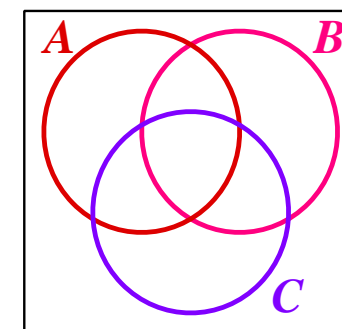
Shade : $A \cup A$



Shade : $B \cup C$



Shade : $(A \cap B \cap C)'$



Shade : $(A \cup B \cup C)'$

[12 marks]

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In October 2020, Shrewsbury School was voted "**Independent School of the Year 2020**"

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Teachers may obtain detailed worked solutions to the exercises by email from mhh@shrewsbury.org.uk