7.2 Answers

Answer 1

(i) S = { Social Media Applications }

[1 mark]

(ii) R = { Rook, Knight, Bishop, King, Queen, Pawn }

[1 mark]

(iii) O = { 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, ... }

[1 mark]

(iv) M = { Multiples of 5 }

[1 mark]

Answer 2

(i)	F	**(vi)**	T
(ii)	T	**(vii)**	F
(iii)	T	**(viii)**	F
(iv)	F	**(ix)**	T
(v)	F	**(x)**	F

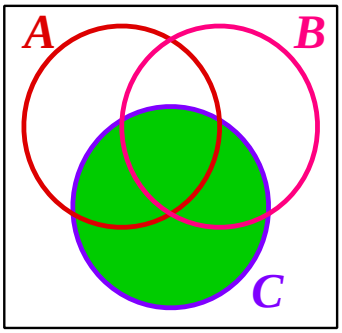
[10 marks]

Answer 3

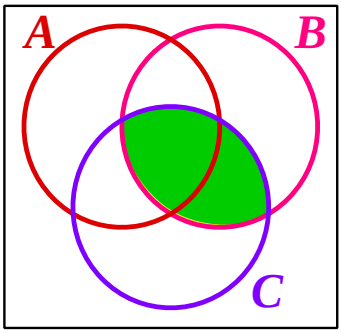
(i)	T	**(vi)**	F
(ii)	T	**(vii)**	T
(iii)	F	**(viii)**	T
(iv)	F	**(ix)**	T
(v)	F	**(x)**	T

[10 marks]

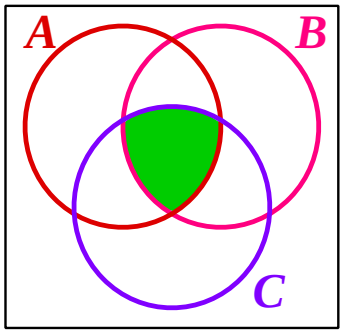
Answer 4



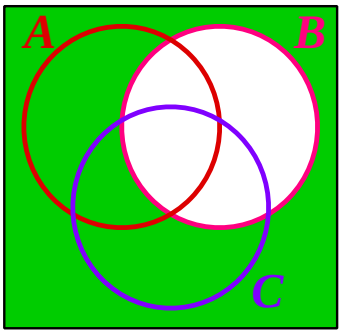
Shade : C



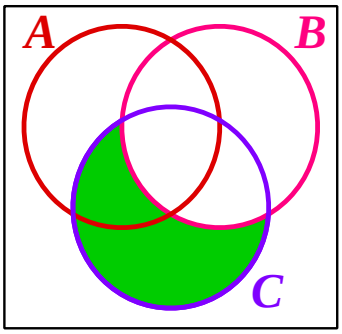
Shade : $C \cap B$



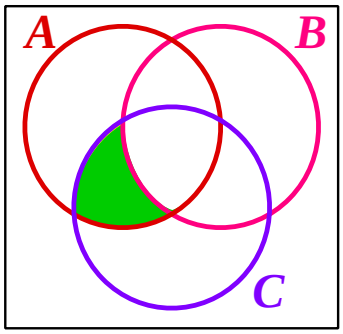
Shade : $C \cap B \cap A$



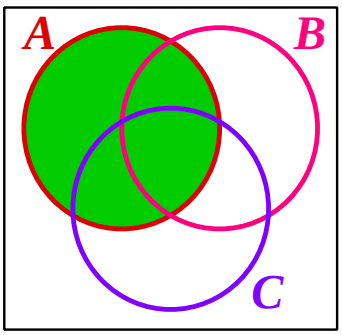
Shade :B'



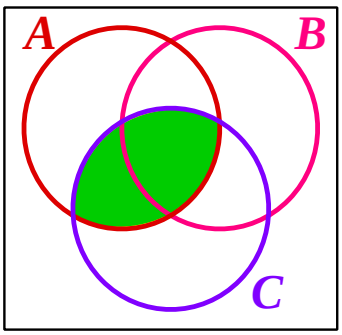
Shade : $B' \cap C$



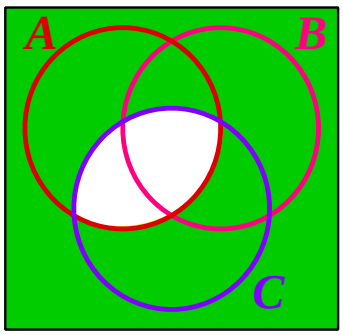
Shade : $B' \cap C \cap A$



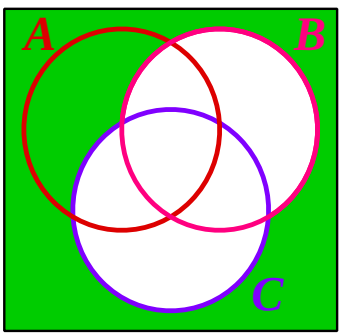
Shade : A



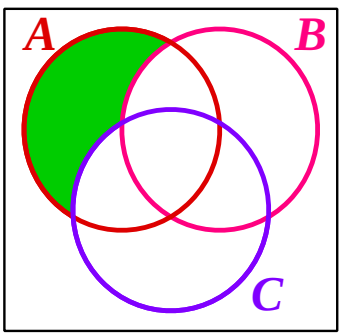
Shade : $A \cap C$



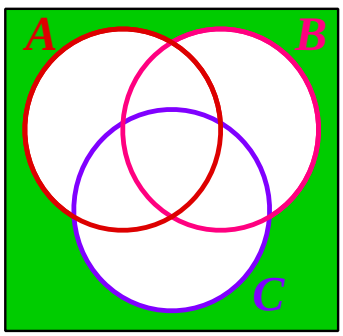
Shade : $(A \cap C)'$



Shade : $B' \cap C'$



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



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

[12 marks]

Answer 5

(a) **(i)** $S = \{ 1, 4, 9, 16, 25 \}$

[1 mark]

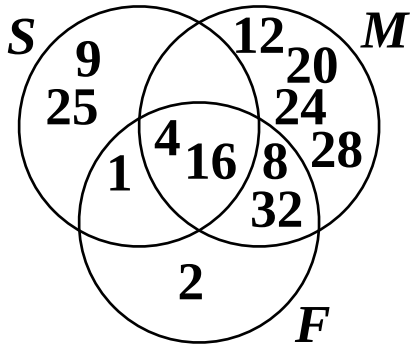
(ii) $M = \{ 4, 8, 12, 16, 20, 24, 28, 32 \}$

[1 mark]

(iii) $F = \{ 1, 2, 4, 8, 16, 32 \}$

[1 mark]

(b)



[5 marks]

(c) **(i)** $S \cap M = \{ 4, 16 \}$

[1 mark]

(ii) $S \cap F = \{1, 4, 16 \}$

[1 mark]

(iii) $M \cap F = \{ 4, 8, 16, 32 \}$

[1 mark]

(iv) $S \cap M \cap F = \{ 4, 16 \}$

[1 mark]

(v) $S \cap F \cap M' = \{ 1 \}$

[1 mark]

(vi) $F \cap S' \cap M = \{ 8, 32 \}$

[1 mark]

(vii) $S \cap M \cap F' = \varnothing$ is observing a region that contains no elements on the Venn Diagram

[1 mark]

Answer 6

(i) 269
(ii) 37
(iii) 160
(iv) 109
(v) 84

[5 marks]

Answer 7

O' is the set of even numbers

[2 marks]

Answer 8

That the mother to whom the card is sent is wise, funny and cool

[2 marks]

Answer 9

(a) **(i)** $S = \{ 7, 14, 21, 28, 35, 42, 49, 56, ... \}$

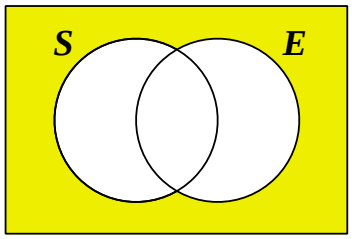
(ii) $E = \{ 8, 16, 24, 32, 40, 48, 56, 64, ... \}$

[2 marks]

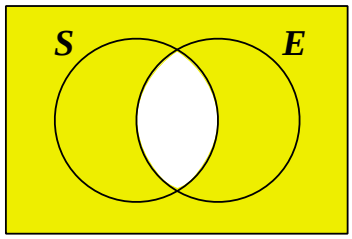
(b)	**(i)**	T	**(vi)**	T
	(ii)	T	**(vii)**	F
	(iii)	T	**(viii)**	F
	(iv)	T	**(ix)**	T
	(v)	T	**(x)**	F

[10 marks]

(c)



$S' \cap E'$



$(S \cap E)'$

$= S' \cup E'$ using Boolean Algebra

[2 mark]