Đỗ Minh Duy - ITITSB22029   1. Sample Space - Events

1)

- 1 red
- 1 green
- 1 blue
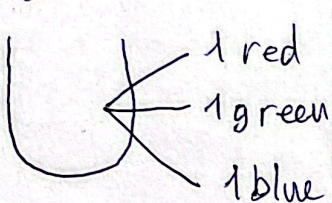
- Case 1: when second marble is taken out after replacing the first marble
  (R,R), (R,G), (R,B), (G,G), (G,R), (G,B), (B,B), (B,R), (B,G)
  → 9 outcomes
- Case 2: when second marble is taken out without replacing the first marble
  (R,G), (R,B), (G,R), (G,B), (B,R), (B,G)
  → 6 outcomes

2) a) Total possible outcomes = $6^2 = 36$

	1	2	3	4	5	6
1	(1,1)	(1,2)	(1,3)	(1,4)	(1,5)	(1,6)
2	(2,1)	(2,2)	(2,3)	(2,4)	(2,5)	(2,6)
3	(3,1)	(3,2)	(3,3)	(3,4)	(3,5)	(3,6)
4	(4,1)	(4,2)	(4,3)	(4,4)	(4,5)	(4,6)
5	(5,1)	(5,2)	(5,3)	(5,4)	(5,5)	(5,6)
6	(6,1)	(6,2)	(6,3)	(4,4)	(6,5)	(6,6)

f) $A \cap B = \{\emptyset\}$ | **g)** $B \cap C = \{(5,2),(6,2)\}$

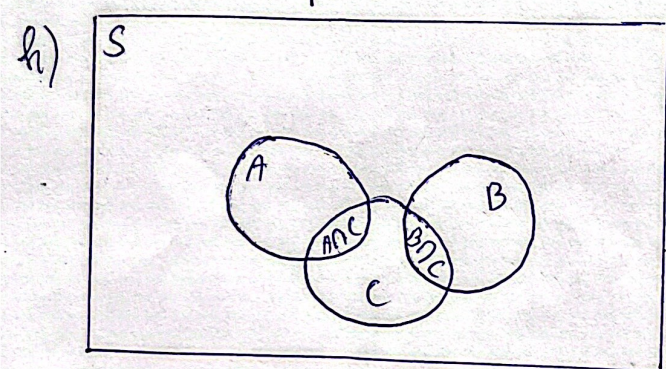**b)** $A = \{(6,3),(5,4),(6,4),(4,5),(5,5),(6,5), (3,6),(4,6),(5,6),(6,6)\}$

c) $B = \{(1,2),(2,1),(2,2),(2,3),(2,4),(2,5), (2,6),(3,2),(4,2),(5,2),(6,2)\}$

d) $C = \{(5,1),(6,1),(5,2),(6,2),(5,3),(6,3), (5,4),(6,4),(5,5),(6,5),(5,6),(6,6)\}$

e) $A \cap C = \{(5,4),(5,5),(5,6),(6,3),(6,4), (6,5),(6,6)\}$

h) S

3) a) $A^c = \{x \mid x \geq 72.5\} = [72.5; +\infty)$
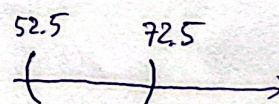
b) $B^c = \{x \mid x \leq 52.5\} = (-\infty; 52.5]$

c) $A \cap B = \{x \mid 52.5 < x < 72.5\} = (52.5, 72.5)$

d) $A \cup B = \{x \mid x > 0\} = (0, +\infty)$

4) a) x_1: 2 ways
x_2: 2 ways
x_3: 2 ways
x_4: 2 ways

outcomes $= 2^4 = 16$

b) Event = $\{(1,1,0,0),(1,1,0,1),(1,1,1,0),(1,1,1,1), (0,0,1,1),(1,0,1,1),(0,1,1,1)\}$

c) x_1: 1 way (only 0)
x_2: 2 ways
x_3: 1 way (only 0)
x_4: 2 ways

outcomes $= 2^2 = 4$