

(S6.)

The no. of subset of a set with n elements is 2^n

According to que $\rightarrow 2^x - 2^y = 56$

$$2^y : 2^y (2^{x-y} - 1) = 56$$

~~56 can factors = 56~~

$$56 \text{ product} = \underset{2^3}{8} \times 7$$

$$2^3 \times (2^3 - 1) = [8 \times 7]$$

Now, comparing both sides:-

(i.)

$$2^y = 2^3$$

$$y = 3$$

(ii.)

$$2^{x-y} = 1$$

$$2^{x-3} = 1$$

$$2^3 - 1 \Rightarrow x - y = 3$$

$$x - 3 = 3$$

$$x = 3 + 3 = 6$$

(b.)

6 & 3 is correct

(S7.)

to find only one set:-

$$[n(A) + n(B) + n(C)] - 2[n(A \cap B) + n(B \cap C) + n(A \cap C)] + 3n(A \cap B \cap C)$$

$$n(A) = 40, n(B) = 32, n(C) = 50$$

$$n(A \cap B) = 4, n(B \cap C) = 7, n(A \cap C) = 5$$

$$n(A \cap B \cap C) = 2$$

$$\text{sum of sets} = 40 + 32 + 50 = 122$$

$$\text{double intersections} = 4 + 7 + 5 = 16$$

1.9160

1.9269

$$122 - 2(16) + 3(2)$$

$$122 - 32 + 6 = 96$$

(a.) 96 is correct.