Question-1:

a) Two events are mutually exclusive if they cannot occur at same time.

i) A & B are mutually exclusive because stock can't increase & decrease at same time.

ii) A : price ↑ by ≥10%.

C : price change in between -5% & +10%

∴ Mutually exclusive.

iii) B : price ↓ by ≥5%.

C : price change is between -5% & 10%.

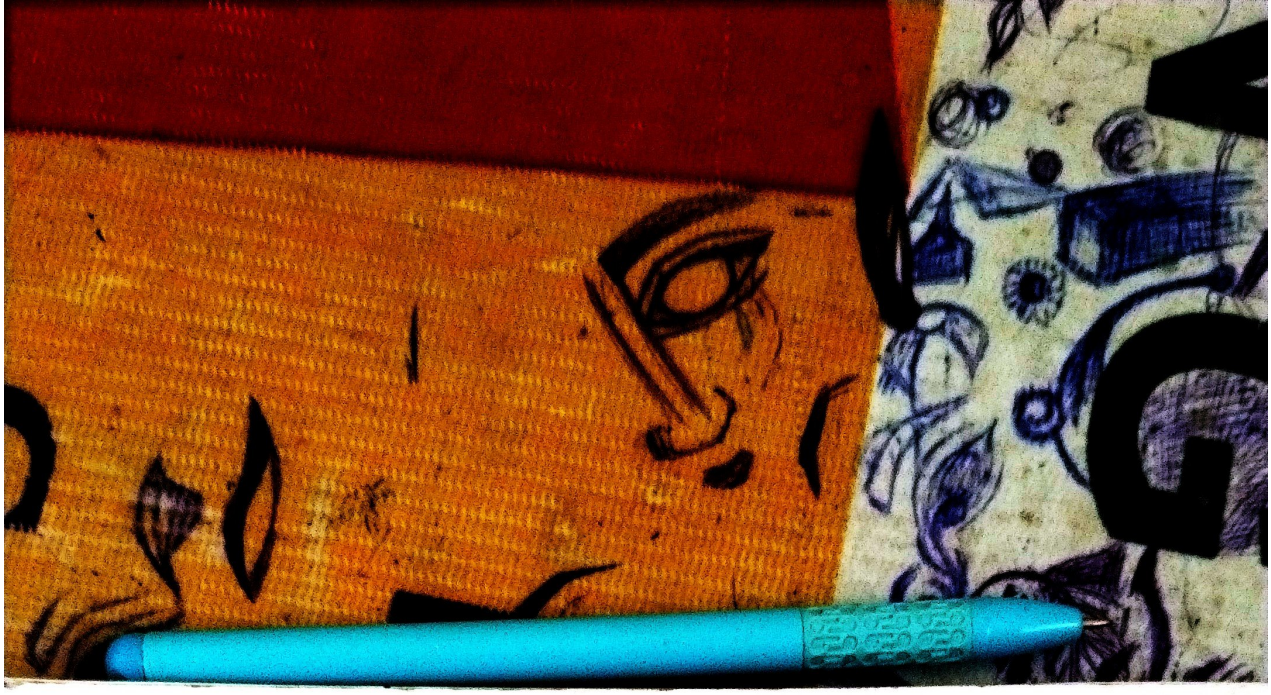
∴ Mutually exclusive.

b) A, B, C are mutually exhaustive.

So $P(A \cup B \cup C) = 1$

But as they are also mutually exclusive,

$$P(A \cup B \cup C) = \boxed{P(A) + P(B) + P(C) = 1}$$



c) Event A and event D are independent. That means occurence of one does not affect the probability of the other.

$$P(A/D) = \frac{P(A \cap D)}{P(D)}$$

∵ A, D are independent,

$P(A \cap D) = P(A) \cdot P(D)$

$$\boxed{P(A/D) = P(A)}$$