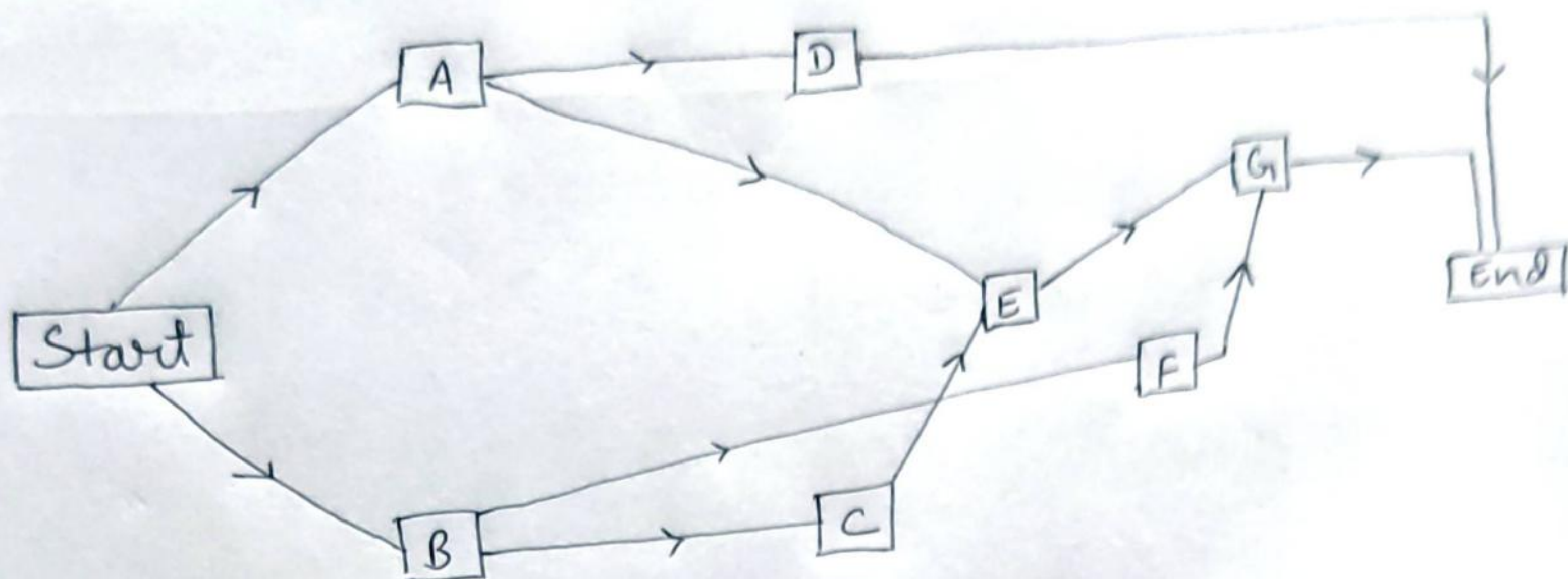


② (a) (i)



Activity Network diagram

Path 1: Start \rightarrow A \rightarrow D \rightarrow End.

Path 2: Start \rightarrow B \rightarrow F \rightarrow G \rightarrow End.

Path 3: Start \rightarrow B \rightarrow C \rightarrow E \rightarrow G \rightarrow End.

Path 4: Start \rightarrow A \rightarrow E \rightarrow G \rightarrow End

(ii) Duration for path 1 = $4 + 12 = 16$ days

Duration for path 2 = $5 + 9 + 4 = 18$ days

Duration for path 3 = $5 + 3 + 6 + 4 = 18$ days

Duration of path 4 = $4 + 6 + 4 = 14$ days

Critical path is path 3 & path 2.

hence, slack time for all activities in path 2 & 3 is 0.

(b) Risk Reduction Leverage (RRL) is defined as the difference between the Risk Exposure before and after the reduction activities divided by the cost of that activity.

It measures the return on investment of the available risk reduction techniques.

At Q,

Chance of fire = 1%.

Loss from fire damage = ₹100 000

we know, Risk Exposure (RE)

$$RE = \text{Probability (VO)} \times \text{Loss (VO)}$$

where VO is unexpected outcome.

Thus,

$$RE_{old} = 1\% \text{ of } £1,000,000$$

$$= \frac{1}{100} \times 1,000,000$$

$$= £1000$$

Cost of installing fire alarm = £1000

Chances of fire damage after alarm = 0.5%

Thus,

$$RE_{new} = 0.5\% \text{ of } £1,000,000$$

$$= \frac{1}{200} \times 1,000,000$$

$$= £500$$

$$\therefore RRL = \frac{RE_{old} - RE_{new}}{\text{Cost of reduction}}$$

$$= \frac{1000 - 500}{1000} = \frac{500}{1000} = 0.5$$

we know, if the RRL is less than one, it means the cost of risk reduction activity outweigh the probable gain from implementation of the action.

Hence, as a team leader, I will not go ahead with the installation of the fire alarm system

as

$$RRL = 0.5 < 1$$