

①/④

1284696
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Q3A4)

Actual cost = 45000

PV = 35,000

EV = 40000

$$\begin{aligned}SV &= EV - PV \\&= 40000 - 35000 \\&= 5000\end{aligned}$$

$$\begin{aligned}CV &= EV - AC \\&= 40000 - 45000 \\&= -5000\end{aligned}$$

$$\begin{aligned}\text{Scheduled performance (SPI)} &= EV/PV \\&= 40000/35000 \\&= 1.14\end{aligned}$$

$$\begin{aligned}\text{Cost performance Index (CPI)} &= EV/AC \\&= 40000/45000 \\&= 0.88\end{aligned}$$

Q3A)

AnsB) Contract is a legal binding between the buyer and the seller. It is required to create share + bear the responsibilities in completion of the project.

Types of contract

➤ Fixed price contract (FPC):

involves a fixed price for a defined product or service or result to be provided

The subtypes are as follows.

➤ Firm fixed prices - The prices of goods + services are set and are never subject to change unless the scope is changed + agreed mutually.

(2) Fixed price incentive fee - The price ceiling is set + the seller needs to perform + fulfill the contract requirement with that price.

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(Q3A5)

(3) Fixed price with economic price adjustment. It is suitable when the contracts are executed in different countries and payments are made in different currency.

(3) Cost Reimbursable Contract

This involves cost reimbursement for the costs incurred during completion of the contract job. The subtypes are as follows.

(4) Cost plus Incentive Fee. The seller gets the reimbursement for all the costs incurred on performing the work agreed in the contract.

(5) Cost plus Award Fee. In this, the seller gets the legitimate reimbursements.

(6) Time & Material Contracts:

This is a hybrid type of contract combining the features of the fixed & cost reimbursable contracts. This is often used when contractual requirement is not known. Also this type of contract is suitable for hiring of experts, project staff required for a particular period.

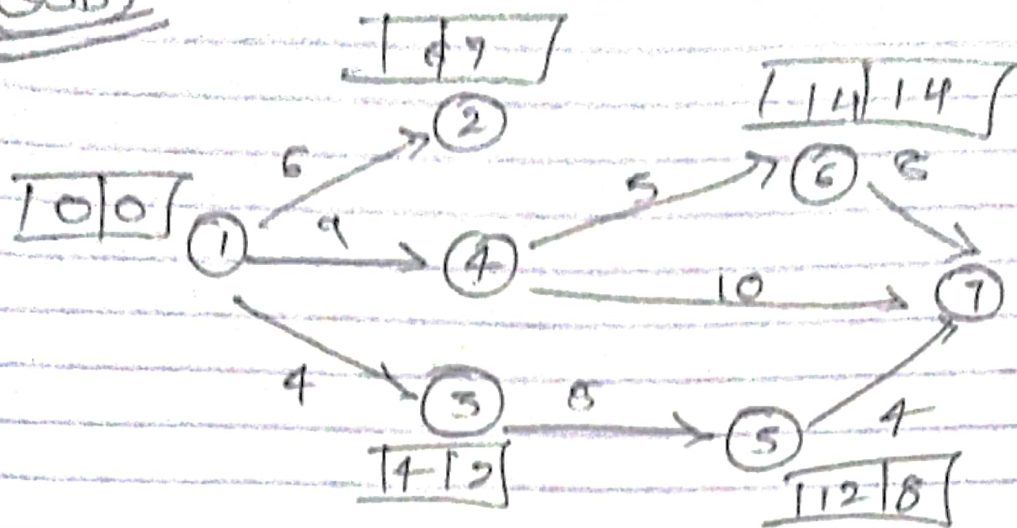
(Q3B)

Activity	t_o	t_m	t_p	t_a	σ^2
1-2	4	6	8	6	0.44
1-3	2	3	10	4	1.77
1-4	6	8	16	9	2.77
2-4	1	2	3	2	0.11
3-4	6	7	8	7	0.11
3-5	6	7	14	8	0.44 1.77
4-6	3	5	7	5	1.77 0.44
4-7	4	11	12	10	0.44 1.77
5-6	2	4	6	4	0.44
6-7	2	9	10	8	1.77

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(Q3B)



(b) Critical path 1-4-6-7

(c) probability of completing project in 19 days.

$$\begin{aligned}
 Z_0 &= \frac{t_s - t_e}{\sqrt{\sum \sigma^2 \text{ in critical path}}} \\
 &= \left(\frac{19 - 22}{\sqrt{2.777 + 0.444 + 1.777}} \right) \\
 &= \frac{-3}{\sqrt{5}} = -1.3416
 \end{aligned}$$

$$\begin{aligned}
 P(Z < Z_0) &= 0.5 - 0.4099 \\
 &= 0.0901 \\
 &= 9.01\%
 \end{aligned}$$

probability for FTD in 19 days is 9.01%.

Since the probability of completing the project in 19 days is less than 20%, the probability of completion in 24 days

$$\begin{aligned}
 Z_0 &= \frac{t_s - t_e}{\sqrt{\sum \sigma^2 \text{ in critical path}}} = \frac{24 - 22}{\sqrt{5}} = \frac{2}{\sqrt{5}} \\
 &= 0.8944 \text{ days}
 \end{aligned}$$

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Q3B

$$\begin{aligned}P(Z \leq Z_0) &= 0.5 - y(0.8944) \\&= 0.5 - 0.3133 \\&= 0.1867 \\&= 18.67\%\end{aligned}$$

∴ IF probability is less 20% probability of completing the project in 24 days is 18.67%.