

Ans to the Question 1

Mtd. Sumon

Id: 20-42556-1

(a)

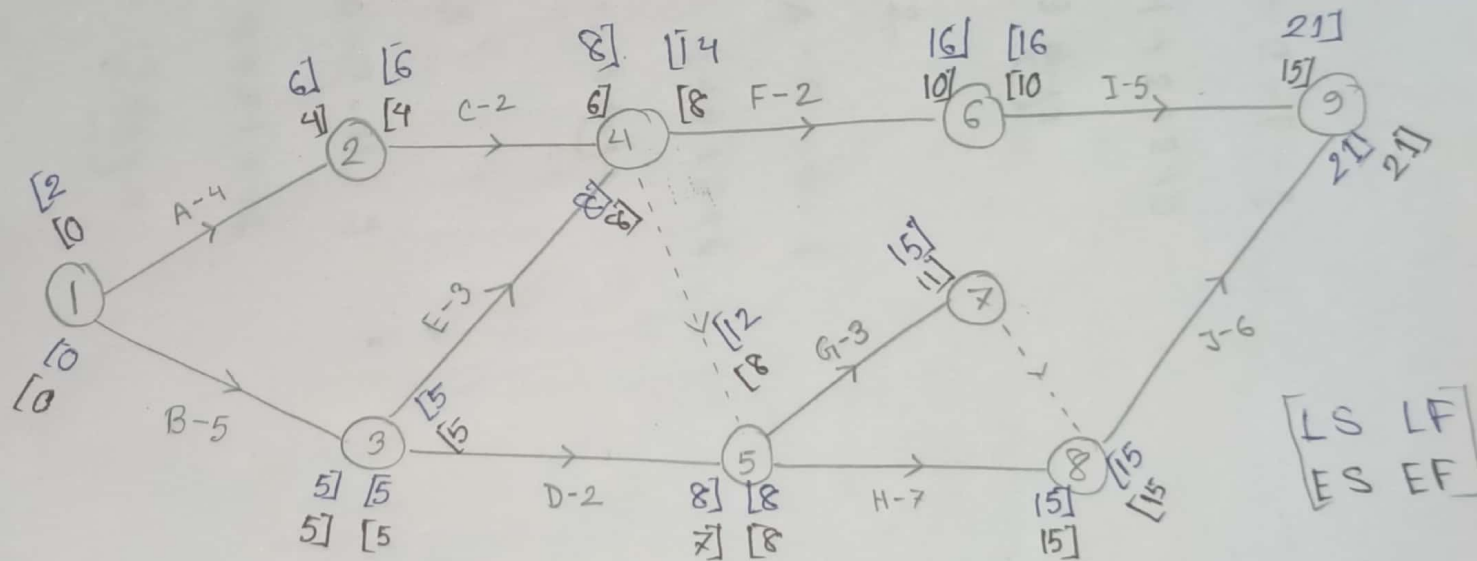
A project is a series of tasks that need to be completed to reach a specific outcome.

Example

- Create a Movie
- Design and Maintain a website
- Agency project.

Ans for the Question 1

(b)



LS LF
ES EF

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Path - 1

A - C - F - I

$$= 4 + 2 + 2 + 5$$

$$= 13 \text{ days}$$

Path - 2

A - C - G - J

$$= 4 + 2 + 3 + 6$$

$$= 15 \text{ days}$$

Path - 3

A - C - H - J

$$= 4 + 2 + 7 + 6$$

$$= 19 \text{ days}$$

Path - 4

B - E - F - I

$$= 5 + 3 + 2 + 5 = 15 \text{ days}$$

(4)

Path - 5

B-E-H-J

$$= 5 + 3 + 7 + 6$$

$$= 21 \text{ days}$$

Path - 6

B-E-G-J

$$= 5 + 3 + 3 + 6$$

$$= 17 \text{ days}$$

Path - 7

B-D-H-J

$$= 5 + 2 + 7 + 6$$

$$= 20 \text{ days}$$

Path - 8

B-D-G-J

$$= 5 + 2 + 3 + 6$$

$$= 16 \text{ days}$$

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I - 7 - 2 - A

B + 5 + 5 + P =

2 prob 81 =

S - 160 F

I - 10 - 2 - A

2 + 8 + 8 + P =

2 prob 81 =

E - 160 F

I - H - 2 - A

2 + 8 + 8 + P =

2 prob 81 =

P - 160 F

I - 1 - 3 - 8

2 prob 81 = 2 + 8 + 8 + P =

5

We see path-5 is max days. So B-E-H-J
is critical path.

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Ans to the Question 1

(c)

Activity	ES	EF	LS	LF	Slack
1-2	0	4	2	6	2
1-3	0	5	0	5	0
2-4	4	6	6	8	2
3-4	5	8	5	8	0
3-5	5	7	6	8	1
4-6	8	10	14	16	6
5-7	8	11	12	15	4
5-8	8	15	8	15	0
6-9	10	15	16	21	6
8-9	15	21	15	21	0

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Ans to the Question 1

(b)

Yes, Activity "I" can be delayed
for 6 days without changing the completion
time.

It \$1000 can be save for each days

So, 6 days save $\$1000 \times 6$

$= \$6000$

Ans to the Question NO 1

(e)

If activity F is delayed by 2 days and additional five days total 7 days. We see "F" slack is 6. So the completion time will change. So it is not possible by keeping the project completion time unchanged.

Ans to the Question 1

(f)

If activity J from 6 days to 2 days. So project will be completed $(21-4)$ day
 $= 17$ days.

Ans to the Ques NO 2

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Least Cost Method.

	Cox	BAN	FENI	SY	Supply
DAC	10 200	8 60	6 220	14 160	280
CTG	16 200	12 150	18 220	12 160	350
TAN	15 200	14 140	18 220	14 160	300
Demand	200	350	220	160	930

Total cost

$$= (200 \times 10) + (60 \times 8) + (150 \times 12) + (140 \times 14) + (220 \times 6) + (160 \times 14)$$

$$\text{Total cost} = \$9800$$

Ans to the Question No-3

$$\begin{aligned} \text{Activity A} &= (2 \times 2000 \times 10) + (50 \times 50) + (125 \times 125) \\ &\quad + \left[\left(\frac{100000}{24} \right) \times 10 \right] + (2 \times 300000) \\ &= 699791.67 \text{ Taka} \end{aligned}$$

$$\begin{aligned} \text{Activity B} &= (10 \times 300 \times 7) + (18 \times 15000) + (20 \times 20000) \\ &\quad + (2 \times 1200 \times 7) + (7 \times 500 \times 7) \\ &= 732300 \text{ Taka} \end{aligned}$$

$$\begin{aligned} \text{Activity C} &= (15 \times 15000) + (15 \times 125) + (2 \times 2000 \times 5) \\ &\quad + (5 \times 1000 \times 5) + (500 \times 800) \\ &= 671875 \text{ Taka} \end{aligned}$$

$$\text{Activity D} = (20000 \times 10) + (100 \times 20000) + (15 \times 300 \times 3) + (5 \times 3 \times 800) + (25 \times 125) + \left[\left(\frac{30000}{24} \right) \times 3 \right] \times 2$$

$$= 2236125 \text{ Taka}$$

$$\text{Activity E} = \left[15 \times \left(\frac{100000}{24} \right) \times 2 \right] + (2 \times 800 \times 2) + (35 \times 50) + (40 \times 125)$$

$$= 51616.67 \text{ Taka}$$

$$\text{Total cost project} = 699791.67 + 732300$$

$$+ 671875 + 2236125 + 51616.67$$

$$= 4391708.34 \text{ Taka}$$

Ans to the Qus No - 4

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(i) Here,

$$F_c = 42000 \text{ Tk}$$

$$r = 22 \text{ Tk}$$

$$N = 15 \text{ Tk}$$

We know

$$Q = \frac{F_c}{r - N}$$

$$Q = \frac{42000}{22 - 15}$$

$$= \frac{42000}{7}$$

$$Q = 6000 \text{ Unit.}$$

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$$\textcircled{ii} P = R - C$$

$$P = nQ - (VQ + FC)$$

$$P = 22 \times 5000 - (15 \times 5000 + 42000)$$

$$= 110000 - (75000 + 42000)$$

$$= (110000 - 117000) \text{ Tk}$$

$$= -7000 \text{ Tk}$$

Profit will be = -7000 Tk . which
is 7000 taka loss.

(iii) We know

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$$P = \pi Q - (VQ - F_c)$$

$$\Rightarrow P = \pi Q - VQ - F_c$$

$$\Rightarrow \pi Q = P + VQ + F_c$$

$$\Rightarrow \pi Q = 4000 + 15 \times 1000 \times 42000$$

$$\pi Q = 61000 \text{ Tk}$$

$$\pi = \frac{61000}{Q} = \frac{61000}{1000}$$

$$\pi = 61 \text{ Tk}$$

if 1000 units can be sold 4000 taka. sell

price should be 61 Tk

Ans to the Question NO 5Md. Sumon
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List and explain at least four functions of inventory along with relevant examples —

① To decouple operations : Manufacturing firms keep buffer stock to tackle any disruption in the operation. The buffers permit other operations to continue temporarily while the problem is resolved (Cement factories)

② To protect against stockout — Unexpected increases in demand increase the risk of shortages. Delays can occur because of

weather condition, delayed deliveries, quality problem etc. The risk of shortage can be reduced by holding safety stock.

③ To take advantage of quantity discount.

Suppliers give discount on large orders

④ To permit operations — Inventory of raw

material, semi-finished goods and finished goods as well as goods stored in warehouse

allow the operation to continue at different stages.

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Ans to the question no 6

The effective capacity is design capacity minus personal and other allowances. Design capacity refers to the maximum designed service capacity or output rate. effective capacity that can be achieved under ideal conditions with unlimited ~~reas~~ resources such as labor, power, materials and parts. Design capacity is the maximum output of a structure, facility, process, machine, tool or component based on its design.