Material and Employee (Labour) Cost

Time Allowed : 1 hour	TEST – 7(Solution)	Total Marks: 34 Marks

Answer to Question no.1:

(a) Gross Quantity of Material Input to be purchased in the next year

Total output desired to be produced (3,000 + 2,000)	5,000 tons
(+) Manufacturing Loss	
Department P (5% of 5,000 tons)	250 tons
Department Q (10% of 5,000 tons)	500 tons
Gross Input to be purchased	5,750 tons

(b) Selection of best supplier:-

	L	M	N
Basic Purchase Price /ton	65,000	60,000	70,000
(-) Discount/ton	–	–	(3,500)
(+) Transport/ton	3,000	5,000	–
Efficiency Cost/ton	68,000	65,000	66,500

Available Purchase option:-

1) Total quantity of 5,750 tons to be purchased from supplier N @ ₹ 66,500 per ton.
Total Purchase Cost = ₹ 38,23,75,000

2) Purchase 4,000 tons from supplier M @₹ 65,000/ton and balance 1,750 tons from supplier L @ 68,00/ton.

Total Purchase Cost

= (4,000 X 65,000) + (1,750 X 68,000)
= ₹ 37,90,00,000

It is advised to the management to select purchase option (2).

(c) Statement Showing Estimated Profit in The Next Period

Particulars		Amount
Material cost [as in (b)]		37,90,00,000
Labour Cost		
Department P	20,00,000	
Department Q	50,00,000	70,00,000
Overheads		
Department P	60,00,000	
Department Q	1,50,00,000	2,10,00,000
(-) **Sale Value of Scarp**		
Department P	(250 X 20,000)	
Department Q	(500 X 25,000)	(1,75,00,000)
Production Cost		38,95,00,000
(+) Distribution Cost (10% of cost of production)		3,89,50,000
Total Cost		42,84,50,000
Profit		51,15,50,000
Sales Value		94,00,00,000

Sales Value
= (3,000 X 1,80,000) +(2,000 X 2,00,000)
= 54,00,00,000 + 40,00,000
= 94,00,00,000

Answer to Question no.2:

Statement showing the Profit foregone last year due to labour turnover

Particulars			
(A) Avoidable Expenses			
Settlement Cost	43,820		
Recruitment Cost	26,740		
Selection Cost	12,750		
Training Cost	30,490	1,13,800	
(B) Additional Possible Profit			
Additional Possible Sales	22,20,650		
(-) Variable Cost (80% of Sales)	17,76,520	4,44,130	**5,57,930**

Computation of Additional Possible Sales

Actual Sales	=	83,03,300
Total labour hours	=	4,45,000hours
(-) Unproductive training(½× 30,000 hrs)	=	15,000 hours
Productive time	=	4,30,000hours

As a result of labour turnover, following productive time is lost:

Unproductive training time	=	15,000	hrs.	
Delayed replacement	=	1,00,000	hrs.	**1,15,000hrs.**

Hence, the amount of additional sales that could have been achieved had there been no labour turnover is (83,03,300× 4,30,000 hrs) × 1,15,000 hrs= 22,20,650

Answer to Question no.3:

Particulars	**Location A**	**Location B**
Time Allowed	60 hrs.	60 hrs.
Time Taken	(36 hrs.)	(48 hrs.)
Time Saved	24 hrs.	12 hrs.
Time Wages (x /hr.)	36 x	48 x
Bonus -Location A (Rowan Plan) $\left(\frac{36\,\text{hrs.}}{60\,\text{hrs.}}\times 24\,\text{hrs.}\times ₹\ x/\text{hr.}\right)$	14.4 x	---
- Location B (Halsey Plan) $\left(\frac{50}{100}\times 12\,\text{hrs.}\times ₹\ x/\text{hr.}\right)$	---	6 x
	50.4 x	54 x

Location A

Conversion Cost	=	2,448
Labour Cost + Overheads	=	2,448
50.4 x + (36 hrs. x 40/hr.)	=	2,448
Solving, we get x	=	20/hr.

Location B

Conversion Cost	=	3,000
Labour Cost + Overheads	=	3,000
54 x + (48 hrs. x 40/hr.)	=	3,000
Solving, we get x	=	20/hr.

Hence, Wage Rate is 20/hr. in both the locations.

Answer to Question no.4:

Annual Consumption of Raw Material (U) = 250 kgs. / week X 52 weeks = 13,000 kgs.
Cost per order (P) = 1,500
Carrying cost per kg. p.a. (S) = 100 X 9.75% = 9.75

(i) Re-order Quantity (EOQ) = $\sqrt{\frac{2UP}{S}}$

$= \sqrt{\frac{2\times13,000\times1,500}{9.75}}$ = 2,000 kgs.

(ii) Re-order Level

= Maximum Usage Rate X Maximum Lead Time
= 300 kgs./week X 7 weeks = 2,100 kgs.

(iii) Maximum Level

= ROL + ROQ – (Min. Usage Rate) (Min Lead Time)
= 2,100 kgs. + 2,000 kgs. – (200 kgs. /week) (5weeks) = 3,100 kgs.

(iv) Minimum Level

= ROL – (Avg. Usage rate) (Avg. lead time)
= 2,100 kgs. – (250 kgs. /week) (6weeks) = 600 kgs.

(v) Average Stock Level

= (Min. Stock Level) + $\frac{1}{2}$ (Re-order Quantity)

= 600 kgs. + $\frac{1}{2}$ (2,000 kgs.) = 1,600 kgs.

Answer to Question no.5:

Time and Motion Study

1. **Meaning of Time Study:-**It is a technique which is used to measure the time that may be taken by workman with reasonable skill and ability to perform the requirements of a job. This study is conducted with the help of stopwatch.
2. **Purpose of Time Study:-**
   (a) To ascertain the time normally required to perform a certain job.
   (b) To decide the fair days work of the workman.
3. **Meaning of Motion Study:-**It is a technique which involves close observation of the movements of body and limbs which are required to perform a specific job.
4. **Purpose of Motion Study:-**
   (a) To ascertain the best way of doing job.
   (b) To eliminate the waste motion.