Solution:

(i) Statement showing calculation of Economic Lot size of securities

	Rs.	*Rs.*	*Rs.*	*Rs.*	*Rs.*
(a) Annual cash requirement	10,00,000	10,00,000	10,00,000	10,00,000	10,00,000
(b) Lot size of securities	50,000	1,00,000	2,00,000	2,50,000	5,00,000
(c) No. of Lots (a/b)	20	10	5	4	2
(b) Conversion cost per lot	1,000	1,000	1,000	1,000	1,000
(e) Total conversion cost ($c \times d$)	20,000	10,000	5,000	4,000	2,000
(f) Interest charges $^{(b)}/_{2} \times 5\%$	1,250	2,500	5,000	6,250	12,500
Total cost (e + f)	21,250	12,500	10,000	10,250	14,500

Analysis: From the above statement, it is observed that when the lot of size of securities is Rs. 2,00,000, the total cost is minimum at Rs. 10,000 and hence it is an economic lot size of selling securities.

(ii) Computation of Economic lot size by applying Baumol model

$$C = \sqrt{\frac{2A \times F}{O}}$$

where C = Optimum transaction size (or) Optimum cash balance
A = Annual cash requirement = Rs. 10,00,000
F = Fixed conversion cost per transaction = Rs. 1,000
O = Opportunity cost of holding cash (or) Interest earned on marketable securities = 5% (or) 0.05

$$C = \sqrt{\frac{2 \times 10,00,000 \times 1,000}{0.05}}$$

$$= \text{Rs. } 2,00,000$$

Illustration: 11

Kingston Ltd. provides you the following information:

(i) Cash turnover ratio : 4.5 times

(ii) Annual cash outflow : Rs. 1,75,000

(iii) Accounts payable can be stretched by 20 days.

What would be the effect of stretching accounts payable on the minimum operating cash requirement? Assuming the firm can earn 12% on its investment, what would be the saving on cost?

Solution:

(i) Computation of cash cycle

$$\text{Cash turnover ratio} = 4.5 \text{ times}$$

$$\therefore \text{Cash cycle} = \frac{\text{No. of days in a year}}{\text{Cash turnover}}$$

$$= \frac{360}{4.5} = 80 \text{ days}$$

(ii) Computation of average daily cash balance required

$$\text{Annual cash requirements} = \text{Rs. } 1,75,000$$

$$\therefore \text{Average daily cash balance} = \frac{\text{Annual cash} \times \text{Cash cycle}}{\text{No. of days in a year}}$$

$$= \frac{1,75,000 \times 80}{360} = \text{Rs. } 38,889$$

(iii) Computation of interest on average daily cash balance

$$\text{Interest on average daily cash balance} = 38,889 \times 12\%$$

$$= \text{Rs. } 4,667$$

(iv) Computation of new cash cycle if accounts payable is stretched by 2 days.

$$\text{New cash cycle} = 80 - 20 = 60 \text{ days}$$

$$\text{New cash turnover ratio} = \frac{360}{60} = 6 \text{ times}$$

ation:

payable on the minimum
rn 12% on its investment,

nes

$\frac{\text{f days in a year}}{\text{sh turnover}}$

80 days

quired

,000

$\frac{\text{cash} \times \text{Cash cycle}}{\text{f days in a year}}$

$\frac{\times 80}{} = \text{Rs. } 38{,}889$

balance

12%

ble is stretched by 20

50 days

nes

(v) *Computation of average daily cash balance*

Annual cash requirement = Rs. 1,75,000

Average daily cash balance $= \frac{\text{Annual cash} \times \text{New cash cycle}}{\text{No. of days in a year}}$

$$= \frac{1{,}75{,}000 \times 60}{360} = \text{Rs. } 29{,}167$$

(vi) *Computation of interest on average daily cash balance*

Interest on average daily cash balance: 29,167 × 12% = Rs. 3,500

(vi) *Computation of reduction in average cash balance & interest saved*

Reduction in average cash balance = 38,889 – 29,167

= Rs. 9,722

Interest saved due to reduction in average cash balance :

4,667 – 3,500 = Rs. 1,167

Illustration: 12

Verma & Co. currently has a centralised billing system. All customers make payments to the central billing location. It requires, on an average, 4 days for customers' mailed payment to reach the central location. An additional 1.5 days are required to process payments before a deposit can be made. The firm has a daily average collection of Rs. 2,50,000. It has recently analysed the possibility of initiating a lock - box system.

It is estimated that with a lock-box system, customers mailed payments would reach the receipt location 2.5 days sooner. Further, the processing time could be reduced by 1 additional day because each lock box, bank would pick up mailed deposits twice daily.

From the above information, answer the following questions:

(a) Determine the reduction in cash balance that can be achieved through the use of a lock - box system.

(b) Determine the opportunity cost of the present system, assuming a 7% return on short term investments.

(c) If the annual cost of the lock-box system were Rs. 37,500, should such a system be initiated?

Solution:

(a) Determination of reduction in cash balance by using lock-box syste

Reduction in float = 2.5 days in mail float + 1 day in cheque processing

float = 3.5 days

∴ Reduction in cash balance = 2,50,000 × 3.5 days

= Rs. 8,75,000

(b) Determination of opportunity cost of the present system

i.e., interest on short term investments:

Interest on short term investment: Reduction in cash balance × Rate of retu

8,75,000 × 7% = Rs. 61,250

(c) Computation of net benefit on introduction of lock-box system

		Rs.
	Interest on short term investment	61,250
Less:	Annual cost of lock-box system	37,500
	Net benefit	23,750

Suggestion: The lock-box system can be initiated as it provides a net gain o Rs. 23,750.

Illustration: 13

From the following information, prepare a cash budget for June 2008:

	Rs.
Cash in hand on 1.6.2008	20,000
Cash purchases for June 2008	1,40,000
Cash sales for June 2008	2,00,000
Office expenses for June 2008	6,000
Interest payable in June 2008	2,000
Purchase of office furniture in June 2008	5,000

Solution:

Estima

Add:

Less:

Estin

Illustrat

Prep
2008:

Cr
and th

ance by using lock-box system

1 day in cheque processing

hat = 3.5 days

= 2,50,000 × 3.5 days

= Rs. 8,75,000

present system

cash balance × Rate of return

= Rs. 61,250

of lock-box system

Rs.
61,250
37,500
23,750

as it provides a net gain of

dget for June 2008:

Solution:

Cash Budget for the month of June, 2008

Particulars	*Rs.*
Estimated opening cash balance	20,000
Add: Estimated Cash Receipt:	
Cash sales	2,00,000
Total Receipts (A)	2,20,000
Less: Estimated Cash Payments:	
Cash purchases	1,40,000
Interest payable	2,000
Purchase of furniture	5,000
Total Payments (B)	1,47,000
Estimated closing cash balance (A – B)	73,000

Illustration: 14

Prepare a cash budget from the following information for the month of Feb. 2008:

	Rs.
Cash in hand on Feb. 1	10,000
Sales for Jan. 2008	1,00,000
Sales for Feb. 2008	1,50,000
Purchases for Jan. 2008	50,000
Purchases for Feb. 2008	70,000
Operating expenses for Jan. 2008	10,000
Operating expenses for Feb. 2008	20,000

Credit from suppliers – one month. Sales recovery 60% in the month of sale and the balance in the following month.

Solution:

Cash Budget for the month of Feb. 2008

Particulars		Rs.
Estimated opening cash balance		10,000
Add: Estimated Cash Receipts:		
Cash sales (1,50,000 × 60%)	90,000	
Collection from debtors (1,00,000 × 40%)	40,000	1,30,000
Total Receipts (A)		1,40,000
Less: Estimated Cash Payments:		
Creditors (Jan.)		50,000
Operating expenses		20,000
Total Payments (B)		70,000
Estimated closing cash balance (A – B)		70,000

Illustration: 15

X Ltd., is carrying on business of purchase and sale of an item. Selling price is Rs. 80 and purchase price is Rs. 60. During Dec. 2007, Jan. 2008, Feb. 2008 and Mar. 2008, its sales were 300 units, 400 units, 500 units and 600 units respectively. 10% of sales are on cash basis and the balance on one month's credit basis. Its office expenses are Rs. 3,000 per month. Cash balance on 1.1.2008 Rs. 10,000. At the end of each month, the stock was nil.

Prepare a cash budget for the months of Jan., Feb and March 2008.

. 2008

Rs.

10,000

0,000

0,000 1,30,000

1,40,000

50,000

20,000

70,000

70,000

tem. Selling price
08, Feb. 2008 and
units respectively.
s credit basis. Its
08 Rs. 10,000. At

h 2008.

Solution:

Working Notes:

Computation of Cash and Credit sales and Collection from debtors

	Total sales Rs.	*Cash sales (10% of total sales)* Rs.	*Credit sales (90% of total sales)* Rs.	*Collection from debtors* Rs.
Dec. 2007 (300 × 80)	24,000	2,400	21,600	–
Jan. 2008 (400 × 80)	32,000	3,200	28,800	21,600
Feb. 2008 (500 × 80)	40,000	4,000	36,000	28,800
Mar. 2008 (600 × 80)	48,000	4,800	43,200	36,000

Cash Budget for the period Jan. to March 2008

Particulars	*Jan.* Rs.	*Feb.* Rs.	*March* Rs.
Opening cash balance	10,000	7,800	7,600
Add: Estimated Cash Receipts:			
Cash sales	3,200	4,000	4,800
Collection from debtors	21,600	28,800	36,000
Total Receipts (A)	34,800	40,600	48,400
Less: Estimated Cash Payments:			
Cash purchases	24,000	30,000	36,000
(400 × 60) (500 × 60) (600 × 60)			
Office expenses	3,000	3,000	3,000
Total Payments (B)	27,000	33,000	39,000
Closing cash balance	7,800	7,600	9,400