

7. WORKING CAPITAL MANAGEMENT

CONCEPT WISE ANALYSIS OF PAST EXAM PAPERS OF IPCC

Model No.	M-09	N-09	M-10	N-10	M-11	N-11	M-12	N-12	M-13	N-13	M-14	N-14	M-15	N-15	M-16	N-16
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EOQ CALCULATION	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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MODEL 1: ESTIMATION OF WORKING CAPITAL REQUIREMENT

Estimation of Current Assets:

1. Raw Materials Inventory:

$$\frac{\text{Budgeted production (in units)} \times \text{R.M. Cost per unit} \times \text{Avg. Inventory Holding Period}}{12 \text{ months (365 days)}}$$

2. **Work-in-process Inventory:** The relevant cost to determine work-in-process investments are the proportionate share of cost of raw materials and conversion costs (labour and manufacturing overhead costs excluding depreciation). The value of work-in-process can be determined as under:

$$\frac{\text{Budgeted production (in units)} \times \text{Cost per unit of WIP} \times \text{Avg. time span of WIP inventory (months/days)}}{12 \text{ months (365 days)}}$$

Note: Administration overheads are ignored for valuation of W.I.P. Depreciation is excluded as it does not involve any cash outlay.

3. Finished Goods Inventory:

$$\frac{\text{Budgeted Prod. (in units)} \times \text{Manf. Cost p.u. (Excl. Dep.)} \times \text{Finished Goods Holding Period (Months/days)}}{12 \text{ months (365 days)}}$$

4. **Investment in Debtors:** The W/C tied up in debtors should be estimated in relation to total credit sales (excluding depreciation). The value of debtors is determined as under:

$$\frac{\text{Budgeted Credit Sales (in units)} \times \text{Cost of Sales p.u. (Excl. Dep.)} \times \text{Avg. Debt. Coll. Period (months/days)}}{12 \text{ months (365 days)}}$$

5. **Cash & Bank Balance:** Apart from W/C needs for financing inventories and debtors firms also find it useful to have some minimum cash balances with them.

Estimation of Current Liabilities:

1. Trade Creditors:

$$\frac{\text{Budgeted Prod (in units)} \times \text{Raw Material cost p.u.} \times \text{Credit Period allowed by Creditors (months/days)}}{12 \text{ months (365 days)}}$$

2. Direct Wages:

$$\frac{\text{Budgeted yearly Prod. (in units)} \times \text{Direct Labour cost p.u.} \times \text{Avg. time - lag in payment of wages (months/days)}}{12 \text{ months (365 days)}}$$

The average credit period for the payment of wages approximates to half-a-month in the case of monthly wage payment.

3. Overheads (other than Depreciation & Amortization):

$$\frac{\text{Budgeted yearly Prod. (in units)} \times \text{Overhead cost p.u.} \times \text{Finished Goods holding period (months/days)}}{12 \text{ months (365 days)}}$$

The amount of overheads may be separately calculated for different types of overheads. In case of selling overheads, the relevant item would be sales volume instead of production volume.

Computation of Working Capital:

Particulars	Amount
I. Estimation of Current Assets	
a. Minimum desired cash & bank balances	XXXX
b. Inventories:	
i. Raw material	XXXX
ii. Work-in-process	XXXX
iii. Finished Goods	XXXX
c. Debtors	XXXX
Total Current Assets	XXXX
II. Estimation of Current Liabilities	
a. Creditors	XXXX
b. Wages	XXXX
c. Overheads	XXXX
Total Current Liabilities	XXXX
III. Net Working Capital (I-II)	XXXX
Add: Margin for contingency	XXXX
Net Working capital required:	XXXX

Note:

- If payment is received in advance, the item should appear under CL.
- If advance payment is to be made to creditors, the item should appear under CA.
- The same will be the treatment for advance payment of wages and overheads.
- Depreciation:** An important point in estimating the working capital requirement is the depreciation on fixed assets. The depreciation on the fixed assets is not considered in working capital estimation. The depreciation is a non-cash expense and there is no funds locked up in depreciation therefore, it is ignored. Depreciation is neither included in valuation of work-in-progress nor in finished goods. The working capital calculated by ignoring depreciation is known as cash cost basis working capital. In case, depreciation is included in working capital calculations, such estimate is known as total cost basis working capital.
- Safety Margin:** Sometimes, a firm may also like to have a safety margin of working capital in order to meet any contingency. The safety margin may be expressed as a % of total current assets or total current liabilities or net working capital. The safety margin, if required, is incorporated in the working capital estimates to find out the net working capital required for the firm.

PROBLEMS FOR CLASSROOM DISCUSSION

Pr.1: Musa Limited has budgeted its sales to be Rs.7,00,000 per annum. Its costs as a percentage of sales are as follows:

	%
Raw materials	20
Direct labour	35
Overheads	15

Raw materials are carried in stock for two weeks and finished goods are held in stock before sale for three weeks. Production takes four weeks. Musa Limited takes four weeks credit from suppliers and gives eight weeks credit to its customers. If both overheads and production are incurred evenly throughout the year, what is Musa Limited's total working capital requirement? (SM)

(Solve problem no 1 of assignment problems as rework)

(Ans.: Rs. 1,54,807)

Note: _____

Pr.2: A proforma cost sheet of Fibroplast Limited is given for your consideration. It provides the following particulars:

Particulars	Amount per unit (Rs.)
Raw Materials Cost	80
Direct Labour Cost	30
Overheads Cost	60
Total Cost	170
Profit	30
Selling Price	200

The Company keeps raw material in stock, on an average for one month; work-in-progress, on an average for half a month; and finished goods in stock, on an average for one month.

The credit allowed by suppliers is one month and company allows two months credit to its debtors. The lag in payment of wages is one and a half weeks and lag in payment of overhead expenses is one month.

The Company sells one-fourth of the output against cash and maintains cash-in-hand and at bank put together at Rs.25,000.

You are required to prepare a statement showing estimate of Working Capital needed by Fibroplast Limited to finance an activity level of 1,04,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. *(Solve problem no 2, 3 of assignment problems as rework)*

(Ans.:Rs. 40,30,000)

Note: _____

Pr.3: On 1st January, the Managing Director of HLL Ltd. wishes to know the amount of working capital that will be required during the year. From the following information prepare the necessary forecast. Production during the previous year was 60,000 units. This level would be maintained during the present year. The expected ratios of cost to selling prices are: Raw material 60%, Direct Wages 10%, Overheads 20%. Raw materials are expected to remain in store for 2 months before issue to production. Each unit is expected to be in process for one month, raw materials being fed into the pipeline immediately and the labour and overhead costs

accruing evenly during the month. Finished goods will stay in the warehouse for approximately 3 months. Credit allowed by creditors is 2 months from the date of delivery of raw materials. Credit allowed to debtors is 3 months from the date of dispatch. Selling price is Rs.5 per unit; there is a regular production and sales cycle. Wages and Overheads are paid on the 1st of each month for the previous month. The company normally keeps Rs.20,000 of cash. (SM)

(Ans.: 1,77,500 or 1,66,250)

Note: _____

Pr.4: Aneja Limited, a newly formed company, has applied to the commercial bank for the first time for financing its working capital requirements. The following information is available about the projections for the current year:

Estimated level of activity: 1,04,000 completed units of production plus 4,000 units of work-in-progress Based on the above activity, estimated cost per unit is:

Raw material	Rs.80 per unit
Direct wages	Rs.30 per unit
Overheads (exclusive of depreciation)	Rs.60 per unit
Total cost	Rs.170 per unit
Selling price	Rs.200 per unit

Raw materials in stock: Average 4 weeks consumption, work-in-progress (assume 50% completion stage in respect of conversion cost) (materials issued at the start of the processing)

Finished goods in stock	8,000 units
Credit allowed by suppliers	Average 4 weeks
Credit allowed to debtors receivables	Average 8 weeks
Lag in payment of wages	Average 1 ½ weeks

Cash at banks (for smooth operations) is expected to be Rs.25,000

Assume that production is carried on evenly throughout the year (52 weeks) and wages and overheads accrue similarly. All sales-are on credit basis only. (SM)

You are required to calculate the net working capital required. (Ans.: 46,95,990)

Note: _____

Pr.5: Following are the extracts from the Balance Sheet of a company as on 31.12.1995. Compute the additional working capital required by the company for the next year.

Balance sheet (Extracts) as on 31.12.1995

Fixed assets:			
Land & buildings	5,00,000		
Plant and machinery	<u>3,00,000</u>		8,00,000
Working capital:			
Current assets:			
Stock	8,00,000		
Debtors	3,00,000		
Cash and bank	<u>2,00,000</u>	13,00,000	

Less: Current liabilities:			
Creditors	3,40,000		
Taxation	80,000		
Bank overdraft	1,40,000		
O/s liabilities	1,60,000	7,20,000	5,80,000
			13,80,000

Additional Information:

- It is estimated that sales will increase by 25% next year.
- Maximum amount of bank overdraft will be only Rs.1,60,000
- There will be no increase in tax liability due to increase in exports.
- Period of credit allowed to customers and stock turnover will remain unaltered.
- Period of credit allowed by creditors will also remain same. Bills payable will remain at the same relative position.

There will be no increase in total amount of cash and bank balances. (Ans.: Rs. 1,30,000)

(Solve problem no 5 of assignment problems as rework)

Note: _____

Pr.6: Infosys Ltd. sells goods at a gross profit of 20%. It includes depreciation as a part of cost of production. The following figures for the 12 months ending 31st Dec 1999 are given to enable you to ascertain the requirement of working capital of the company on cash cost basis. In your working, you are required to assume that:

- A safety margin of 15% will be maintained.
- Cash is to be held to the extent of 50% of current liabilities;
- There will be no work-in-progress.
- Tax is to be ignored.

Stocks of raw materials and finished goods are kept at one month's requirements. All working notes are to form part of your answer.

Sales at 2 months credit	Rs.27,00,000
Materials consumed (suppliers credit is for 2 months)	6,75,000
Total wages (paid at the beginning of the next month)	5,40,000
Manufacturing expenses outstanding at the end of the year (These expenses are paid one month in arrears)	60,000
Total administrative expenses (paid as above)	1,80,000
Sales promotion expenses paid quarterly in advance	90,000

(Solve problem no 4 of assignment problems as rework)

(Ans.: Rs. 5,82,188)

Note: _____

Pr.7: (PRINTED SOLUTION AVAILABLE) MM Ltd. sells its products on a gross profit of 20% of sales. Following information is extracted from its annual accounts for the year ending 31st Dec., 1999.

Sales (at 3 months credit)	Rs.40,00,000
Raw material	12,00,000
Wages (15 days in arrears)	9,60,000
Manufacturing and General expenses (one month in arrears)	12,00,000
Administration expenses (one month in arrears)	4,80,000
Sales promotion expenses (payable half yearly in advance)	2,00,000

The company enjoys one month's credit from the suppliers of raw materials and maintains 2 months stock of raw materials and 1 ½ months finished goods. Cash balance is maintained at Rs.1,00,000 as a precautionary balance. Assuming a 10% margin, find out working capital requirement of MM Ltd. *(Solve problem no 6 of assignment problems as rework)*

(Ans.: 16,39,000)

Note: _____

Pr.8: (PRINTED SOLUTION AVAILABLE) PQ Ltd., a company newly commencing business in 2013 has the under mentioned projected Profit and Loss Account:

	Rs.	Rs.
Sales		2,10,000
Cost of goods sold		<u>1,53,000</u>
Gross Profit		57,000
Administrative Expenses	14,000	
Selling Expenses	<u>13,000</u>	<u>27,000</u>
Profit before tax		30,000
Provision for taxation		<u>10,000</u>
Profit after tax		<u>20,000</u>
The cost of goods sold has been arrived at as under:		
Materials used	84,000	
Wages and manufacturing Expenses	62,500	
Depreciation	<u>23,500</u>	
	1,70,000	
Less: Stock of Finished goods	<u>17,000</u>	
(10% of goods produced not yet sold)	<u>1,53,000</u>	

The figure given above relate only to finished goods and not to work-in-progress. Goods equal to 15% of the year's production (in terms of physical units) will be in process on the average requiring full materials but only 40% of the other expenses. The company believes in keeping materials equal to two month's consumption in stock. All expenses are paid one month in Advance. Suppliers of materials will extend 1- 1/2 months credit. Sales will be 20% for cash and the rest at two months' credit. 70% of the Income tax will be paid in advance in quarterly installments. The company wishes to keep Rs.8,000 in cash. 10% has to be added to the estimated figure for unforeseen contingencies. Prepare an estimate of working capital.

Note: All workings should form part of the answer. (SM)

(Ans.: 66,963)

(Solve problem no 8 of assignment problems as rework)

Note: _____

Pr.9: (PRINTED SOLUTION AVAILABLE) Hi-Tech Ltd. Plans to sell 30,000 units next year. The expected cost of goods sold is as follows:

Particulars	Rs. (P/u)
Raw Materials	100
Manufacturing Expenses	30
Selling, Administration & Financial Expenses	20
Selling price	200

The duration at various stages of the operating cycle is expected to be as follows:

Raw Materials stage	2 months
Work-in-process stage	1 month
Finished goods stage	½ month
Debtors stage	1 month

Assuming monthly sales level of 2,500 units:

- Calculate the investment in various current assets; and
- WIP is 25% complete with respect to manufacturing expenses.
- Estimate the gross working capital requirement if the desired cash balance is 5% of the gross working capital requirements.

(C.S. Final, Dec., 1999)

(Ans.: (i) 13,06,250 (ii) 18,750 (iii) 13,75,000)

Note: _____

Pr.10: (PRINTED SOLUTION AVAILABLE) On 1st January, 2000, the Board of Directors of Dowell Co, Ltd. wishes to know the amount of working capital that will be required to meet the program of activity they have planned for the year. The following information is available:

- Issued and paid-up capital Rs.2,00,000.
- 5% Debentures (secured on assets) Rs.50,000.
- Fixed assets valued at Rs.1,25,000 on 31.12.2000.
- Production during the previous year was 60,000 units. It is planned that the level of activity should be maintained during the present year.
- The ratios of costs to selling price are - raw materials 60%, direct wages 10%, and overheads 20%.
- Raw materials are expected to remain in stores for an average of two months before these are issued for production.
- Each unit of production is expected to be in process for one month.
- Finished goods will stay in warehouse for approximately three months.
- Creditors allow credit for 2 months from the date of delivery of raw materials.
- Credit allowed to debtors is 3 months from the date of dispatch.
- Selling price per unit is Rs.5.
- There is a regular production and sales cycle.

Prepare: a) working capital requirement forecast; and

- An estimated Profit and Loss Account and Balance Sheet at the end of the year.

(Ans.: a. Rs. 1,53,750, b. Net Profit Rs. 27,500; B/S Total 3,08,750)

Note: _____

Effect of Double Shift Working on Working Capital Requirements:-

The greatest economy in introducing double shift is the greater use of fixed assets. Though production increases but little or very marginal funds may be required for additional assets.

But increase in the number of hours of production has an effect on the working capital requirements. Let's see the impact of double shift on some of the components of working capital:-

- It is obvious that in double shift working, an increase in stocks will be required as the production rises. However, it is quite possible that the increase may not be proportionate to the rise in production since the minimum level of stocks may not be very much higher. Thus, it is quite likely that the level of stocks may not be required to be doubled as the production goes up two-fold.

- b) The amount of materials in process will not change due to double shift working since work started in the first shift will be completed in the second; hence, capital tied up in materials in process will be the same as with single shift working. As such the cost of work-in-process will not change unless the second shift's workers are paid at a higher rate.

However, in examinations the students may increase the amount of stocks of raw materials proportionately unless instructions are to the contrary.

Pr.11: Samreen Enterprises has been operating its manufacturing facilities till 31.3.2013 on a single shift working with the following cost structure (SM)

	Per unit Rs.
Cost of Materials	6.00
Wages (out of which 40% fixed)	5.00
Overheads (out of which 80% fixed)	5.00
Profit	2.00
Selling Price	18.00
Sales during 2012-13 is Rs.4,32,000/-	
As at 31.03.13 the Company held the following balances :	
	Rs.
Stock of raw materials (at cost)	36,000
Work-in-progress (valued at prime cost)	22,000
Finished goods (valued at total cost)	72,000
Sundry debtors	1,08,000

In view of increased market demand, it is proposed to double production by working an extra shift. It is expected that a 10% discount will be available from suppliers of raw materials in view of increased volume of business. Selling price will remain the same. The credit period allowed to customers will remain unaltered. Credit availed of from suppliers will continue to remain at the present level i.e., 2 months. Lag in payment of wages and expenses will continue to remain half a month.

You are required to assess the additional working capital requirements, if the policy to increase output is implemented. **(Solve problem no 7 of assignment problems as rework)**
(Ans.: Additional working capital requirements 94,800)

Note: _____

MODEL 2: DIFFERENT MODES OF FINANCING WORKING CAPITAL

Pr.12: XYZ Ltd. has forecast its total fund requirements for the coming year as follows:

Month	Amount	Month	Amount
January	Rs.30,00,000	July	Rs.2,00,00,000
February	30,00,000	August	1,80,00,000
March	40,00,000	September	1,10,00,000
April	60,00,000	October	70,00,000
May	1,00,00,000	November	40,00,000
June	1,50,00,000	December	20,00,000

The firm's cost of short-term and long term financing is expected to be 10% and 12% respectively.

- Calculate the cost of financing, using the Hedging Approach/Matching approach.
- Calculate the cost of financing, using the Conservative Approach.
- Discuss the basic Risk-Return trade-off associated with each of these plans.
- Calculate the cost of financing, using trading approach.

(Ans.:(a)8,98,000 (b)24,00,000 (c) Matching – high profits, low investment, Moderate – moderate profits, moderate investment, Conservative – low profits, high investment (d) 14,86,000)

Note: _____

Pr.13: An engineering company is considering its working capital investment for the year 2003-04. The estimated fixed assets and current liabilities for the next year are Rs.6.63 crore and Rs.5.967 crores respectively. The sales and earnings before interest and taxes (EBIT) depend on investment in its current assets – particularly inventory and receivables. The company is examining the following alternative working capital policies:

Working Capital Policy	Investment in Current Assets (Rs. Crore)	Estimated Sales (Rs. Crore)	EBIT (Rs. Crore)
Conservative	11.475	31.365	3.1365
Moderate	9.945	29.325	2.9325
Aggressive	6.63	25.50	2.55

You are required to calculate the following for each policy:

- Rate of return on total assets.
- Net working capital position.
- Current assets to fixed assets ratio.
- Discuss the risk-return trade off of each working capital policy. (PM)

(Ans: (i) 17.32, 17.69, 19.23 (ii) 5.508, 3.978, .663 (iii) 1.73, 1.50, 1.00 (iv) Firm can improve profitability by reducing investment in current assets)

(Solve problem no 09 of assignment problems as rework)

Note: _____

Pr.14: (PRINTED SOLUTION AVAILABLE) The Prudential Company has investigated the profitability of its assets and the cost of its funds. The results indicate: (percentages)

a) Current assets earn	1
b) Fixed assets return	13
c) Current liabilities cost	3
d) Average cost of long-term funds	10

The current Balance Sheet is as follows:

Liabilities		Assets	
Current liabilities	Rs.5,000	Current assets	Rs.10,000
Long-term funds	35,000	Fixed assets	30,000
	40,000		40,000

- What is the net profitability?
- The company is contemplating lowering its net working capital to Rs.3,500 by (i) either shifting Rs.1,500 of current assets into fixed assets, or (ii) shifting Rs.1,500 of its long-term funds into current liabilities. Work out the profitability for each of these alternatives. Which do you prefer? Why?

Can both these alternatives be implemented simultaneously? How would it affect the net profitability?

(Ans.: (a)350 (b)(i) Incremental net profit 180 (ii) 105 Reduce working capital by Rs.1500 by shifting current assets to fixed assets)

Note: _____

MODEL 3: WORKING CAPITAL LIMITS LIKELY TO BE APPROVED BY BANKS

The Tandon Committee introduced the concept of MPBF. It has recommended that a part of current assets should be financed by trade credit and other current liabilities. The remaining part of the current assets, which is termed by the group as 'working capital gap', should be partly financed by the owner's funds and long term borrowings and partly by the short term bank credit. The Tandon Committee has suggested three alternative methods for working out the MPBF.

Method I: In the first method, the borrower will contribute 25% of the working capital gap; the remaining 75% can be financed from bank borrowings. This method will give a minimum current ratio of 1:1.

$$\text{MPBF} = 0.75 (\text{Current Assets} - \text{Current Liabilities})$$

Method II: In second method, borrower will contribute 25% of the total current assets. The remaining of the working capital gap (i.e., the working capital gap less the borrower's contribution) can be bridged from the bank borrowings. This method will give a current ratio 1.3:1.

$$\text{MPBF} = 0.75 (\text{Current Assets}) - \text{Current Liabilities}$$

Method III: In third method, borrower will contribute 100% of core assets, and 25% of the balance of current assets. The remaining of the working capital gap can be met from the borrowings. This method will further strengthen the current ratio.

$$\text{MPBF} = 0.75 (\text{Current Assets} - \text{Core Current Assets}) - \text{Current Liabilities}$$

The Tandon Committee recommended that a beginning should be made by placing all borrowers on the first method within a year and then moving to the second and third methods in stages in the light of the assessment of the prevailing circumstances. It also expressed the view that the third method is ideal as it will provide the largest multiplier of bank finance. The borrowings in excess of what is permissible under the first method should be converted into a working capital term loan and should be repaid over a period of time. The borrowers should be gradually moved to the third method of calculation of MPBF.

Pr.15: The following are the details of current assets and current liabilities of ABC Ltd. Find out the maximum permissible bank finance as per three methods suggested by the Tandon Committee.

Current Assets	Rs. in lakhs	Current Liabilities	Rs. in lakhs
Raw material	200	Creditors	250
Work-in-progress	100	Other current liabilities	50
Finished goods	200	Bank borrowing	300
Receivables	300		
Other current assets	50		
	850		600

The Total Core Current Assets (CCA) are Rs.300 lakhs.

(Solve problem no 10,11 of assignment problems as rework)

(Ans.: Maximum permissible bank finance 112.5, 37.5, (187.5))

Note: _____

Pr.16: (PRINTED SOLUTION AVAILABLE) Following is the balance sheet of XYZ Ltd. Calculate the amount of maximum permissible bank finance by all the three methods for working capital as per Tandon Committee norms. You are required to assume the level of core current assets to be Rs.30 lakhs.

You are also required to calculate the current ratios under each method and compare the same with the current ratios as recommended by the Committee, assuming that the bank has granted MPBF.

Balance Sheet of XYZ Ltd. as on 31st March, 2000

Liabilities	RS	Assets			RS
Equity Shares Rs.10 each	200	Fixed Assets			500
Retained earnings	200	<u>Current Assets:</u>			
11% Debentures	300	Inventory			
Public deposits	100	- Raw materials	100		
Trade Creditors	80	- W.I.P.	150		
Bills Payable	100	- Finished goods	75	325	
		Debtors		100	
		Cash/Bank		55	480
	980				980

(Ans.: (i) 1.74:1, 1.83:1, 1.89:1 (ii) 1:1, 1.33:1, 1.66:1)

Note: _____

MODEL 4: OPERATING CYCLE

The length or time duration of the operating cycle of any firm can be defined as the sum of its inventory conversion period and the receivable conversion period.

- a) **Inventory Conversion Period (ICP):** It is the time required for the conversion of raw materials into finished goods sales. In manufacturing firm the ICP is consisting of Raw Material Conversion Period (RMCP), Work-in-Progress Conversion Period (WPCP), and the Finished Goods Conversion Period (FGCP).
- b) **Receivables Conversion Period (RCP):** It is the time required to convert the credit sales into cash realization. It refers to the period between the occurrence of credit sales and collection of debtors.

The total of ICP and RCP is also known as Total Operating Cycle Period (TOCP). The firm might be getting some credit facilities from the supplier of raw materials, wage earners etc. This period for which the payments to these parties are deferred or delayed is known as Deferral Period (DP). The Net Operating Cycle (NOC) of the firm is arrived at by deducting the DP from the TOCP. Thus

$$\text{NOC} = \text{TOCP} - \text{DP} = \text{ICP} + \text{RCP} - \text{DP}$$

For Calculation of TOCP and NOC, various conversion periods may be calculated as follows:

$$\text{RMCP} = \frac{\text{Average Raw material Stock}}{\text{Total Raw material consumption}} \times 365$$

$$\text{WPCP} = \frac{\text{Average work - in - progress}}{\text{Total Cost of production}} \times 365$$

$$\text{FGCP} = \frac{\text{Average Finished Goods}}{\text{Total Cost of goods sold}} \times 365$$

$$\text{RCP} = \frac{\text{Average Re ceivable}}{\text{Total Credit sales}} \times 365$$

$$\text{DP} = \frac{\text{Average Creditors}}{\text{Total Credit Purchase}} \times 365$$

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On the basis of above conversion periods, the TOCP and NOC may be ascertained as follows:

Particulars	Number of Days
RMCP Days
Add: WPCP Days
Add: FGCP Days
Add: RCP Days
TOCP Days
Less: DP Days
NOC Days

Pr.17: From the following information taken from the books of a manufacturing concern, compute the operating cycle in days:

Period Covered	365 days
Average Period of credit allowed by suppliers	16 days
	(Rs. in '000)
Average debtors outstanding	480
Raw materials consumption	4,400
Total production cost	10,000
Total cost of goods sold	10,500
Sales for the year	16,000
Value of average stock maintained:	
Raw materials	320
Work-in-progress	350
Finished goods	260

(Ans.: 44 days)

Note: _____

Pr.18: (PRINTED SOLUTION AVAILABLE) XYZ Ltd. has obtained the following data concerning the average working capital cycle for other companies in the same industry:

Raw material stock turnover	20 Days
Credit received	-40 Days
Work-in-progress turnover	15 Days
Finished goods stock turnover	40 Days
Debtor's collection period	60 Days
	95 Days

Using the following data, calculate the current working capital cycle for XYZ Ltd. and briefly comment on it.

(Rs. in '000)

Sales	3,000
Cost of Production	2,100
Purchases	600
Average raw material stock	80
Average work-in-progress	85
Average finished goods stock	180
Average creditors	90
Average debtors	350

(Solve problem no 12 of assignment problems as rework)

(Ans.: 82 days or 4 cycles)

Pr.19: (PRINTED SOLUTION AVAILABLE) The Trading and Profit and Loss Account of Beta Ltd. for the year ended 31st March, 2011 is given below:

Particulars		Amount (Rs.)	Particulars		Amount (Rs.)
To Opening Stock:			By Sales		20,00,000
Raw Materials	1,80,000		(Credit)		
Work-in-progress	60,000		By Closing		
Finished Goods	<u>2,60,000</u>	5,00,000	Stock:	2,00,000	
To Purchases (credit)		11,00,000	Raw Materials		
To Wages		3,00,000	Work-in-progress	1,00,000	
To Production			Finished Goods	<u>3,00,000</u>	6,00,000
Expenses		2,00,000			
To Gross Profit c/d		<u>5,00,000</u>			
		<u>26,00,000</u>			<u>26,00,000</u>
To Administration			By Gross Profit		5,00,000
Expenses		1,75,000	b/s		
To Selling Expenses		75,000			
To Net Profit		<u>2,50,000</u>			
		<u>5,00,000</u>			<u>5,00,000</u>

The opening and closing balances of debtors were Rs.1,50,000 and Rs.2,00,000 respectively whereas opening and closing creditors were Rs.2,00,000 and Rs.2,40,000 respectively. You are required to ascertain the working capital requirement by operating cycle method. (PM)
(Ans: Working Capital :Rs.5,28,541)

(Solve problem no 14 of assignment problems as rework)

Note: _____

Pr.20: Alpha Limited has forecasted the following information for the year ending 31st March, 2012:

Particulars	Balance as at 1st April, 2011 (Rs.)	Balance as at 31st March, 2012 (Rs.)
Raw Material	45,000	65,356
Work-in-progress	35,000	51,300
Finished goods	60,181	70,175
Debtors	1,12,123	1,35,000
Creditors	50,079	70,469
Annual purchases of raw material (all credit)		4,00,000
Annual cost of production		7,50,000
Annual cost of goods sold		9,15,000
Annual operating cost		9,50,000
Annual sales (all credit)		11,00,000

You may take one year as equal to 365 days.

You are required to calculate:

- Net operating cycle period.
- Number of operating cycles in the year.
- Amount of working capital requirement.

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(RTP)

(Ans.: (i) 86 days, (ii) 4.24, (iii) Rs. 2,24,057)

(Solve Problem No:13 of Assignment Problems as Rework)

Note: _____

Pr.21: The following information is available in respect of a firm:

- On an average, accounts receivables are collected after 80 days; inventories have an average of 100 days and accounts payables are paid approximately 60 days after they arise.
- The firm spends a total of Rs.18120000 annually at a constant rate.
- It can earn 8% on Investments.

Calculate:

- The firm's cash cycle and cash turnover will be expressed in times assuming a 360 day year.
- Minimum amounts of a cash to be maintained to meet payments as they become due.
- Savings by reducing the average age of inventories to 70 days.

(Solve problem no 15 of assignment problems as rework)

(Ans.: (a) 120days (4months), cash turnover – 3 (b) 60,40,000 (c) 1,20,800)

Note: _____

MODEL 5: DEBTORS MANAGEMENT

Pr.22: A firm has current sales of Rs.2,56,48,750/-.The firm has unutilized capacity .In order to boost its sales; it is considering the relaxation in its credit policy. The proposed terms of credit will be 60days credit against the present policy of 45 days. As a result ,the bad debts will increase from 1.5% to 2% of sales .The firm's sales are expected to increase by 10% .The variable operating costs are 72% of sales .The Firms corporate tax is 35%.and it requires an after tax return of 15% on its investment .Should the firm change its credit period? **(PM)**

(Ans. Incremental Benefit is Rs.1,88,518/-)

(Solve problem no 16 of assignment problems as rework)

Note: _____

Pr.23: As a part of the strategy to increase sales and profits, the sales manager of a company proposes to sell goods to a group of new customers with 10% risk of non-payment. This group would require one and a half months credit and is likely to increase sales by Rs.1,00,000 p.a. Production and Selling expenses amount to 80% of sales and the income-tax rate is 50%. The company's minimum required rate of return (after tax) is 25%.

Should the sales manager's proposal be accepted? Also find the degree of risk of non-payment that the company should be willing to assume if the required rate of return (after tax) were (i) 30%, (ii) 40% and (iii) 60%. **(SM)**

(Ans: Net Benefit :2500)

(Solve problem no 17 of assignment problems as rework)

Note: _____

Pr.24: A company sells a product at Rs. 30/- per unit with a variable cost of Rs. 20/- per unit. The Fixed Costs amount to 6,25,000/- per annum and the total annual sales to Rs. 75 lakhs. It is estimated that if the present credit facility of one month were doubled, sales could be increased by Rs. 6,00,000 per annum. The company expects a return on investment of at least 16% prior to taxation. Justify that this course can be adopted.

(Solve problem no 22 of assignment problems as rework)

(Ans.: Net profit – 1.227 lakhs (Accept the project))

Note: _____

Pr.25: (PRINTED SOLUTION AVAILABLE) M/s XYZ Ltd. have increased the production capacity of their textile plant from 1,00,000 meters per month to 2 lakh meters per month. The cost of sales are 50% of sales realisation. Therefore in order to recover the fixed expenses, they are contemplating to extend credit to the following class of customers.

- Customers with a 20% risk of non payment, (collection costs are estimated to be 5% of sales) and
- Customers with a 40% risk of non payment (collection costs are estimated to be 12% of sales)

Such relaxation in credit terms is likely to get incremental sales of Rs. 1,00,000 in case of category (a) and Rs. 2,00,000 in case of category (b). You are required to comment on above their likely impact on over all profitability of the company.

(Ans.: (a) Net profit – 25,000 (b) Net loss – (4,000))

Note: _____

Pr.26: (PRINTED SOLUTION AVAILABLE) M/s Whisky Ltd. has an annual credit sales of Rs.25,00,000. (2,50,000 units @ Rs.10 per unit). The average cost per unit is Rs.9.00. It has no cash discount policy and allows 2 months credit to its customers. However, the company expects to reduce its receivables by 60% (in value) by offering a cash discount of 5%. You are required to advise on the proposed scheme presuming that the required rate of return is 35%. (Ans.: Net benefit – 3,750)

(Solve Problem No:19 of Assignment Problems as rework)

Note: _____

Pr.27: (PRINTED SOLUTION AVAILABLE) A company currently has Rs.10,00,000 per annum of sales, all on credit terms of 60 days. The average credit taken is, however, 80 days. It is considering offering a discount of 3% within 7 days, and it expects that 60% of existing customers will take discount. The remainder will be equally split between those paying after 80 days and those paying after 100 days. The new credit terms are also expected to generate an additional Rs.50,000 of sales. Variable costs are 80% of sales price and the company's bank overdraft costs 14%. The company wishes to know whether offering the discount is worth while if:

- No new sales are obtained.
- New sales are as described above (year may be taken consisting of 365 days)

(Ans.: (a) 5,788 (b) 2,696)

Note: _____

Pr.28: Zeta Limited has a current sales of Rs. 7,20,000. It is considering revising its credit policy. The proposed terms of credit will be "2, 10, net 30" against the present policy of "net 30". As a result, Zeta Limited's sales are expected to increase by Rs. 20,000 and the average collection period will reduce from 30 days to 20 days. It is also expected that 50 percent of the customers will take the discounts and pay on the 10th day and rest of the customers will pay on the 30th day. Bad debt losses will remain at 2 percent of sales. The variable cost ratio is 70 percent. Its corporate tax rate is 50 percent and opportunity cost of investment in receivables is 10 percent. Advise whether Zeta Limited should change its credit period?

(Ans.: Net gain = 5.2% or 404)

(Solve Problem No. 18 of Assignment Problems as rework)

Note: _____

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Pr.29: Z Corporation is considering relaxing its present credit policy and is in the process of evaluating two proposed policies. Currently, the firm has annual credit sales of Rs. 50 lakhs and accounts receivable turnover ratio of 4 times a year. The current level of loss due to bad debts is Rs. 1,50,000. The firm is required to give a return of 25% on the investment in new accounts receivables. The company's variable costs are 70% of the selling price. Given the following information, which is the better option?

Particulars	Present Policy	Policy Option I	Policy Option I
Annual credit sales	50,00,000	60,00,000	67,50,000
Accounts receivable turnover ratio	4 times	3 times	2.4 times
Bad debt losses	1,50,000	3,00,000	4,50,000

(SM) (Ans.: Policy I – 18,750, Policy II – (67,188) policy I is better)

(Solve problem no 20, 21, 23, 24 of assignment problems as rework)

Note: _____

MODEL 6: FACTORING

Pr.30: A company intends to produce a new product priced at Rs.1,000 per unit with expected annual sales of 5,000 units. Variable costs amount to Rs.750 per unit and 2 month's credit is to be granted. It is estimated that 10 per cent of customers will default; others will pay on the due date. Interest rates are 15 per cent per annum. A credit agency has offered the company a system which it claims can help identify possible bad debts. It will cost Rs.2,50,000 per annum to run and will identify 20 per cent of customers as being potential bad debts. If these customers are rejected no actual bad debts will result. Should the credit agency's system be used?

(Ans.: Net Benefit – 18,750)

(Solve Problem No. 25 of Assignment problems as rework)

Note: _____

Pr.31: A company wants to use a factor. The following information is relevant. Should the company enter into a factoring agreement?

- The current average collection period for the company's debts is 80 days and 0.5% of debtors default. The factor will pay over money due after 60 days, and it will suffer the loss of bad debts.
- The annual charge for factoring is 2% of turnover, payable annually in arrears. Administration cost savings will total Rs. 1,00,000 p.a.
- Annual sales, all on credit, are Rs. 100 lakhs. Variable costs total 80% of sales price. The company's cost of borrowing is 15% p.a.

(Ans.: Net Benefit – 15,753)

Note: _____

Pr.32: A Ltd. has a total sales of Rs.3.2 crores and its average collection period is 90 days. The past experience indicates that bad-debt losses are 1.5% on sales. The expenditure incurred by the firm in administering its receivable collection efforts are Rs.5,00,000. A factor is prepared to buy the firm's receivables by charging 2% commission. The factor will pay advance on receivables to the firm at an interest rate of 18% p.a. after withholding 10% as reserve.

Calculate the effective cost of factoring to the Firm. (PM)

(Ans.: Net Cost – 9,27,200, Effective rate of interest = 13.79%)

(Solve problem no 26 of assignment problems as rework)

Note: _____

MODEL 7: CASH BUDGET

Pr.33: Prepare monthly cash forecast for the company XYZ Ltd. for the quarter ending 31st March, from the following details:

- Opening balance as on 1st January is Rs. 22,000.
- Its estimated sale for the month of January and February Rs.1,00,000 each and for the month of March is Rs.1,20,000. The sale for November and December of the previous year have been Rs.1,00,000 each.
- Cash and credit sales are estimated 20% and 80% respectively.
- The receivables from credit sales are expected to be collected as follows: 50% of the receivable on an average of one month from the date of sales; and balance 50% after two months from the date of sale. No bad debts on the realization of sales.
- Other anticipated receipt is Rs.5,000 from the sale of machine in March.

The forecast of payments is as follows:

- The purchase of materials worth Rs.40,000 cash in January and February and materials worth Rs.48,000 in March.
- The payments for these purchases are made approximately a month after the purchase. The purchases for December of the previous year have been Rs.40,000 for which the payment will be made in January.
- Miscellaneous cash purchase of Rs.2,000 per month.
- The wages payments are expected to be Rs.15,000 per month.
- Manufacturing expenses are expected to be Rs.20,000 per month.
- General selling expenses are expected to be Rs. 10,000 per month,
- A machine worth Rs.50,000 is proposed to be purchased on cash in March.

(Ans.: Closing cash balance – Jan – 35,000, Feb – 48,000, Mar – 20,000)

Note: _____

Pr.34: (PRINTED SOLUTION AVAILABLE) Prepare cash budget for the period of July-December 2001 from the following information:

- a) The estimated sales and expenses are as follows: (Figures in Rs. lacs)

	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Sales	35	40	40	50	50	60	65
Purchases	14	16	17	20	20	25	28
Wages and Salaries	12	14	14	18	18	20	22
Expenses	5	6	6	6	7	7	7
Interest received	2	—	—	2	—	—	2
Sale of Fixed assets	—	—	20	—	—	—	—

- 20% of the sales are made on cash basis and balance on credit basis. 50% of the debtors are collected in the month of sales and the remaining in the next month.
- The time lag in payment of purchases and expenses is 1 month; however, wages and salaries are paid fortnightly with a time lag of 15 days.

- d) The company keeps minimum cash balance of Rs.5 lacs. The cash balance in excess of Rs.7 lacs is invested in Government Securities in multiples of Rs.1 lac. Short falls in cash balance are made good by borrowing from banks. The interest received as well as paid is to be ignored.

(Ans.: Investment in Government Securities- July – 4lakhs, Aug – 24, Sep – 9, Oct – 6, Nov – 10, Dec – 12)

(Solve problem no 28 of assignment problems as rework)

Note: _____

Pr.35: (PRINTED SOLUTION AVAILABLE) Prepare a Cash Budget of XYZ Ltd., on the basis of the following information for the six months commencing April, 2000.

- a) Cost and Prices remain unchanged and firm maintains a minimum cash balance of Rs.4,00,000 for which bank overdraft may be availed if required.
- b) Cash Sales are 25% of the total sales and balance 75% will be credit sales. 60% of credit sales are collected in the month following the sales, balance 30% and 10% in the two following months thereafter. No bad debts are anticipated.
- c) Sales forecasts are as follows:

2000	Rs.	2000	Rs.
January	12,00,000	June	8,00,000
February	14,00,000	July	12,00,000
March	16,00,000	August	10,00,000
April	6,00,000	September	8,00,000
May	8,00,000	October	12,00,000

- d) Gross Profit Margin 20%.
- e) Anticipated Purchases and wages for 2000 are as follows:

	Purchases	Wages
April	6,40,000	1,20,000
May	6,40,000	1,60,000
June	9,60,000	2,00,000
July	8,00,000	2,00,000
August	6,40,000	1,60,000
September	9,60,000	1,40,000

- f) Quarterly Interest payable Rs.30,000; Rent payable Rs.8,000 per month.
- g) Capital expenditure expected in September is Rs.1,20,000.

(Solve problem no 27 of assignment problems as rework)

(Ans.: Cl.Cash balance – Apr-9,07,000, May-10,34,000, June-6,51,000, July-5,28,000, Aug-7,50,000, Sep-4,72,000)

Note: _____

MODEL 8: OPTIMUM CASH BALANCE – BAUMOL'S MODEL

It is suggested by W.J.Baumol (1952), this model is the same as the economic order quantity model of the inventory management. This model can be presented as follows:

$$C = \sqrt{\frac{2FT}{r}}$$

Where, C = Cash required each time to restore balance to minimum cash
 F = Total cash required during the year
 T = Cost of each transaction between cash and marketable securities
 r = Rate of interest on marketable securities.

Pr.36: A firm maintains a separate account for cash disbursement. Total disbursements are Rs.2,62,500 per month. Administrative and transaction cost of transferring cash to disbursement account is Rs. 25 per transfer. Marketable securities yield is 7.5% per annum. Determine the optimum cash balance according to William J Baumol model. (PM) (Ans:45,826)
 (Solve Problem No:27 of Assignment Problems as rework)

Note: _____

Pr.37: The annual cash requirement of A Ltd. is Rs.10 lakhs. The company has marketable securities in lot sizes of Rs.50,000, Rs.1,00,000, Rs.2,00,000, Rs.2,50,000 and Rs.5,00,000. Cost of conversion of marketable securities per lot is Rs.1,000. The company can earn 5% annual yield on its securities. You are required to prepare a table indicating which lot size will have to be sold. Also show that the economic lot size can be obtained by the Baumol Model. (Nov-96)

(PM) (Ans.: Economic Lot Size-2,00,000)

Note: _____

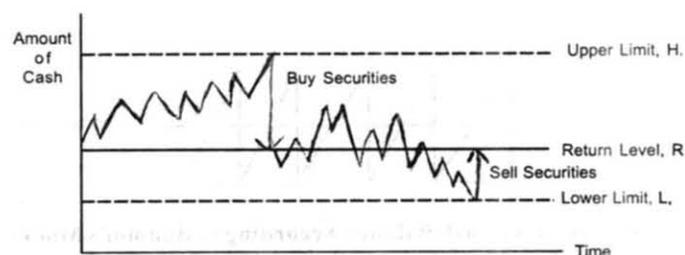
Pr.38: (PRINTED SOLUTION AVAILABLE) Ravana Industries projects that annual cash usage of Rs.3.75 million will occur uniformly throughout the forthcoming year. Ravana plans to meet these demands for cash by periodically selling marketable securities from its portfolio. The firm's marketable securities are invested to earn 12%, and the cost per transaction of converting funds to cash is Rs.40.

- Use the Baumol model to determine the optimal transaction size for transfers from marketable securities to cash.
- What will be Ravana's average cash balance?
- How many transfers per year will be required? (Ans.: (a) 50,000 (b)25,000 (c) 75 transactions)

Note: _____

Pr.39: (PRINTED SOLUTION AVAILABLE) The Shrivari Company plans to have Rs.1 million in steady cash outlays for next year. The firm believes that it will face an opportunity interest rate of 10% and will incur a cost of Rs. 100 each time it borrows (or withdraws). Using the Inventory model

- Determine the transactions demand for cash (the optimal borrowing or withdrawal lot size) for the Shrivari Company.
- What will be the cash cycle for the firm (in days)?
- What would be the average cash balance for the firm? (Ans.: (a) 44,721 (b)16 days (c)22,361)



MODEL 9: OPTIMUM CASH BALANCE – MILLER-ORR MODEL

Also known as Stochastic Model. Miller and Orr (1966) have expanded the Baumol's model which is not applicable if the demand for cash is not steady. Where uncertainty over cash flows is large, the inventory type model cannot be used.

This model has specified two control limits for cash balance. Upper limit, H, beyond which cash balance need not be allowed to go and Lower limit, L, below which the cash level is not allowed to reduce. The cash balance should be allowed to move within these limits. If the cash level reaches the upper control limit, H, then at this point, a part of the cash should be invested in marketable securities in such a way that the cash balance comes down to pre-determined level called the return level, R. If the cash balance reaches the lower level, L, then sufficient marketable securities should be sold to realize cash and cash balance is restored to the return level, R.

Miller-Orr model is more realistic and maintains that the actual cash balance may fluctuate between higher and lower limits. The model may be defined as:

$$Z = \sqrt[3]{\frac{3TV}{4i}} \text{ or } Z = [3TV/4i]^{1/3}$$

Where, T = Transaction cost of conversion
 V = Variance of daily cash flows,
 i = Daily % interest rate on investments.
 L = lower limit
 R = Return Level = L + Z
 H = Upper limit = 3Z + L
 Spread = H – L
 Average Cash Balance = (4R – L)/3

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Pr.40: (PRINTED SOLUTION AVAILABLE) The minimum cash balance of X Ltd is Rs. 10,000/-. The variance of daily cash flow is Rs. 62,50,000/-. The interest rate is 0.025 % per day. The transaction cost for each purchase or sale of securities is Rs. 20/-. Calculate: (a) the spread between the upper and lower cash balance limits (b) the upper limit and the return point (c) Effect a decision.
 (Ans.: (a) 21,684 (b) 31,684, 17,228)

Note: _____

Pr.41: (PRINTED SOLUTION AVAILABLE) Rama East India Ltd. has a standard deviation of monthly net cash flows of Rs.200. It's transaction cost of converting cash into marketable securities is Rs.10 and the interest is 1% per month. The minimum cash balance required by the firm is Rs.100. Set out the Upper, Lower and Return limit for the firm. Also find out the average cash balance. Apply M O Model.

(Ans.: Upper limit – 3010.39, Lower limit – 100, Return limit – 1070.13, Average cash balance – 1393.5)

Note: _____

MODEL 10: CONCENTRATION BANKING & LOCK BOX APPROACH

Pr.42: Royal Industries feels a lock-box system can shorten its accounts receivable collection period by 3 days. Credit sales are estimated at Rs.365 lakhs per year, billed on a continuous basis. The firm's opportunity cost of funds is 15 per cent. The cost of lock box system is Rs.50,000. Will you advise 'Royal' to go for lock-box system? Will your answer be different if accounts receivable collection period is reduced by 5 days?
 (Ans.: Net loss – 5,000)

Note: _____

Pr.43: Sagar Industries sells its products through widely dispersed distributors in Northern India. It currently takes on an average 8 days for cash receipt cheques to become available to the firm from the day they are mailed. The firm is contemplating the institution of concentration banking to reduce this period. It is estimated that such a system would reduce the collection period of accounts receivable by 3 days. The daily cheque receipts currently average Rs.10,00,000. The concentration banking would cost Rs.1,50,000 annually and the cost of funds is 15 %. Advise Sagar whether it should introduce concentration banking system. Will your answer be different, if it is estimated that a lock-box system can reduce the collection time by 4 days and its annual cost would be Rs.2,00,000?

(Ans.: net benefit – 3,00,000, Lock Box System – net benefit -4,00,000)

Note: _____

Pr.44: (PRINTED SOLUTION AVAILABLE) A local bank having wider network, charges for operating the lock box system at 26 paise per cheque processed. Will the lock box system worthwhile introducing, for a company, which provides you the following information:

Average number of daily payments to lock-box	150
Average size of payment	Rs. 1,200
Rate of interest per day	0.02%
Savings in mailing time (on an average)	1.2 days
Savings in processing time (similarly)	0.8 days

(Ans.: Net benefit – 12,045)

Note: _____

Pr.45: (PRINTED SOLUTION AVAILABLE) Jashwant Ltd. currently has a centralized invoicing system located in London. However, over the years, its customers gradually have become less concentrated around London and now cover the whole of Britain and Ireland. On average, it requires five days from the time customers mail payments until Jashwant is able to receive process and deposit their payments. To shorten this time, Jashwant is considering the installation of a localised collection system. It estimates that the system will reduce the time lag from customer mailing to deposit by three and a half days. Jashwant has a daily average collection of Rs.7,00,000.

- What reduction in cash balances can Jashwant achieve by initiating the proposed system?
- If Jashwant has an opportunity cost of 8%, how much is the proposed system worth on an annual basis?
- What is the maximum monthly charge Jashwant can pay for the system?

(Solve problem no 29 of assignment problems as rework)

(Ans.: (a)24,50,000 (b)1,96,000 (c) 16,333)

Note: _____

MANAGEMENT OF PAYABLES (CREDITORS)

INTRODUCTION

There is an old age saying in business that if you can buy well then you can sell well. Management of your creditors and suppliers is just as important as the management of your debtors.

Trade creditor is a spontaneous source of finance in the sense that it arises from ordinary business transaction. But it is also important to look after your creditors - slow payment by you may create ill-feeling and your supplies could be disrupted and also create a bad image for your company.

Creditors are a vital part of effective cash management and should be managed carefully to enhance the cash position.

Computation of Cost of Payables

By using the trade credit judiciously, a firm can reduce the effect of growth or burden on Investments in Working Capital.

Now question arises how to calculate the cost of not taking the discount.

The following equation can be used to calculate nominal cost, on an annual basis of not taking the discount:

$$\frac{d}{1-d} \times \frac{365}{n-p}$$

However the above formula does not take into account the compounding effect and therefore, the cost of credit shall be even higher. The cost of lost cash discount can be estimated by the formula:

$$\left(\frac{100}{100-d} \right)^{\frac{365}{t}} - 1$$

Where,

d = Size of discount i.e. for 6% discount, d=6

t = The reduction in the payment period in days, necessary to obtain the early discount or Days Credit Outstanding – Discount Period.

Pr.46 (Printed Solution Available): Suppose ABC Ltd. has been offered credit terms from its major supplier of 2/10, net 45. Hence the company has the choice of paying Rs.10 per Rs.100 or to invest Rs.98 for an additional 35 days and eventually pay the supplier Rs.100 per Rs.100. The decision as to whether the discount should be accepted depends on the opportunity cost of investing Rs.98 for 35 days. What should the company do?

(SM) (Ans: Refuse the Discount)

Note: _____

Pr.47: A seller offers a credit term of 3/20 net 40. Find out the cost of not availing the cash discount. What will be the cost if the term is 3/20 net 50? (Ans.: 56.4%, 37.63%)

Note: _____

Pr.48: (PRINTED SOLUTION AVAILABLE) ABC Ltd. can borrow money at 18% interest. The supplier of goods has offered the credit term of 1/10 net 60. Should the firm take the discount? (Ans.:7.37%)

Note: _____

Pr.49: (PRINTED SOLUTION AVAILABLE) A company offers standard credit terms of 60 days net. Its cost of short term borrowings is 16% per annum. Determine whether a 2.5% discount should be offered for payment within 7 days to customers who would normally pay after (i) 60 days, (ii) 80 days, and (iii) 105 days. (Ans.: (i) 17.66% (ii) 12.82% (iii) 9.55%)

Note: Cost of not availing cash discount = $\frac{d}{1-d} \times \frac{365}{n-p}$

Where, d = cash discount

n = net period in days

p = discount period in days.

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MODEL 11: MISCELLANEOUS

Pr.50: The field officer of the Garuda Corporation has sold a quantity of silver ingots for Rs.15,000. Garuda wants to transfer this amount to its deposit account in Devalog as economically as possible. Two means of transfer are being considered.

- A normal cheque which costs 50 paise and takes three days.
 - An electronic transfer, costing Rs.7.50, where by funds are immediately available in Devalog.
- Garuda earns 14.5% annual interest on funds in its deposit a/c. Which transfer method should be used.

(Ans.: (a)18.37 (b) 7.5)

Note: _____

Pr.51: (PRINTED SOLUTION AVAILABLE) X Co. Ltd. issued commercial paper as per following detail:

Date of issue	17th January, 1998
Date of maturity	17th April, 1998
No. of days	90
Interest rate	11.25% p.a.

What was the net amount received by the company on issue of commercial paper?(Ans.: 97,226)

Note: _____

Pr.52: A firm is considering offering 30-day credit to its customers. The firm likes to charge them an annualized rate of 24%. The firm wants to structure the credit in terms of a cash discount for immediate payment. How much would the discount rate have to be? (PM)

(Ans.:1.93%)

Note: _____

Pr.53: The Megatherm Corporation has just acquired a large account. As a result, it needs an additional Rs.75,000 in working capital immediately. It has been determined that there are three feasible sources of funds:

- Trade credit:** The company buys about Rs.50,000 of materials per month on terms of 3/30, net 90. Discounts are taken.
- Bank loan:** The firm's bank will lend Rs.1,00,000 at 13 per cent. A 10 per cent compensating balance will be required, which otherwise would not be maintained by the company.
- A factor will buy the company's receivables (Rs.1,00,000 per month), which have a collection period of 60 days. The factor will advance up to 75 per cent of the face value of the receivables at 12 per cent on an annual basis. The factor will also charge a 2 per cent fee on all receivables purchased. It has been estimated that the factor's services will save the company a credit department expense and bad-debts expenses of Rs.1,500 per month.

On the basis of annual percentage cost, which alternative should the company select?

(Ans.: (a) 18.81% (b) 14.44% (c) 24,000 (20%))

Inventory management consisting of the topics - EOQ, Inventory Levels, ABC analysis were taken up in costing.

'A' CATEGORY PROBLEMS – 2,4,6,8,10,11,12,16,18,19,20,21,22,25,27,29,32,33,36,40,43,46,49,51
(APPLICABLE FOR WEEKEND EXAMS ONLY BUT NOT FOR ANY OTHER EXAMS)

ASSIGNMENT PROBLEMS

MODEL 1: ESTIMATION OF WORKING CAPITAL REQUIREMENT

Pr.1: From the following information prepare a statement showing the working capital requirements: Budgeted sales (Rs.10 per unit) Rs.2,60,000 per annum. Analysis of one rupee of sales:

Raw materials	0.30
Direct labour	0.40
Overhears	<u>0.20</u>
Total cost	0.90
Profit	0.10
Sales	1.00

It is estimated that:

- a) Raw materials are carried in stock for three weeks and finished goods for two weeks.
- b) Factory processing will take three weeks.
- c) Suppliers will give full five weeks credit.
- d) Customers will require eight weeks credit.

It may be assumed that production and overheads accrue evenly throughout the year.

(Ans.: Net working Capital – 51,000)

Pr.2: The cost sheet of Master Minds Ltd. provides the following data:

	Cost per unit (Rs.)
Raw material	50
Direct labour	20
Overheads (including depreciation of Rs.10)	<u>40</u>
Total cost	110
Profit	<u>20</u>
Selling price	130

Average raw material in stock is for one month. Average material in work – in – progress is for half month. Credit allowed by supplies: one month; credit allowed to debtors: one month. Average time lag in payment of wages: 10 days; average time lag in payment of overheads 30 days. 25% of the sales are on cash basis. Cash balance expected to be Rs.1,00,000. Finished goods lie in the warehouse for one month. You are required to prepare a statement of working capital needed to finance a level of activity of 54,000 units of output. Production is carried on evenly throughout the year and wages and overheads accrue similarly. State your assumptions, if any, clearly.

(Jun- 94)

(Ans.: Net working capital – 8,91,661)

Pr.3: XYZ Co. Ltd. is a pipe manufacturing company. Its production cycle indicates that materials are introduced in the beginning of the production cycle; wages and overhead accrue evenly throughout the period of the cycle. Wages are paid in the next month following the month of accrual. Work in process includes full units of raw materials used in the beginning of the production process and 50% of wages and overheads are supposed to be conversion costs. Details of production process and the components of working capital are as follows:

(PM) (M-05)

Production of pipes	12,00,000 units
Duration of the production cycle	One month
Raw materials inventory held	One month consumption
Finished goods inventory held for	Two months

Credit allowed by creditors	One month
Credit given to debtors	Two months
Cost price of raw materials	Rs.60 per unit
Direct wages	Rs.10 per unit
Overheads	Rs.20 per unit
Selling price of finished pipes	Rs.100 per unit

Required to calculate the amount of working capital required for the company.

(Ans.: 4,25,00,000)

Pr.4: The following annual figures relate to XYZ Co.,

(SM)

	Rs.
Sales (at two months' credit)	36,00,000
Materials consumed (suppliers extend two month's credit)	9,00,000
Wages paid (monthly in arrear)	7,20,000
Manufacturing expenses outstanding at the end of the year (Cash expenses are paid one month in arrear)	80,000
Total administrative expenses, paid as above	2,40,000
Sales promotion expenses, paid quarterly in advance	1,20,000

The company sells its products on gross profit of 25% counting depreciation as part of the cost of production. It keeps one month's stock each of raw materials and finished goods, and a cash balance of Rs.1,00,000.

Assuming a 20% safety margin, work out the working capital requirements of the company on cash cost basis. Ignore work-in-process
(Ans.: Working Capital – 7,20,000)

Pr.5: X & Y Ltd is desirous to purchase a business and has consulted you, and one point on which you are asked to advise them is the average amount of working capital which will be required in the first year's working.

You are given the following estimates and are instructed to add 10% to your computed figure to allow for contingencies.

Particulars	Amount for the year
i) Average amount backed up for stocks:	
Stocks of finished product	Rs.5,000
Stocks of stores and materials	8,000
ii) Average credit given:	
Inland sales, 6 weeks credit	3,12,000
Export sales, 1.5 weeks credit	78,000
iii) Average time lag in payment of wages and other outgoings:	
Wages, 1.5 weeks	2,60,000
Stores and materials, 1.5 months	48,000
Rent and royalties, 6 months	10,000
Clerical staff, 0.5 month	62,400
Manager, 0.5 month	4,800
Miscellaneous expenses, 1.5 months	48,000
iv) Payment in advance:	
Sundry expenses (paid quarterly in advance)	8,000
Undrawn profits on an average throughout the year	11,000

(Ans.: Working Capital – Rs. 28,545)

Pr.6: From the following projections of XYZ Ltd for the next year, you are required to determine the working capital required by the company.

Annual sales, Rs.14,40,000

Cost of production (including depreciation of Rs.1,20,000), Rs.12,00,000

Raw material purchases, Rs.7,05,000

Monthly expenditure, Rs.30,000

Estimated opening stock of raw materials, Rs.1,40,000

Estimated closing stock of raw materials, Rs.1,25,000

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To **MASTER MINDS**, Guntur

Inventory norms:

Raw materials, 2 months Work-in-process, 1/2 month Finished goods, 1 month

The firm enjoys a credit of half-a-month on its purchases and allows one month credit on its supplies. On sales orders, the company receives an advance of Rs.15,000.

You may assume that production is carried out evenly throughout the year and minimum cash balance desired to be maintained is Rs.35,000. (Ans.: Working Capital – Rs. 3,28,125)

Pr.7: M/s PCT Ltd. has been operating its manufacturing facilities till 31-03-2008 on a single shift working with the following cost structure:

	Per Unit (Rs.)
Cost of Materials	12
Wages (40% fixed)	10
Overheads (80% fixed)	10
Profit	4
Selling Price	36

Sales during 2007 – 2008 Rs.8,64,000. As at 31.3.2008, the company held:

Stock of Raw Materials (at cost)	72,000
Work-in-Progress (valued at Prime Cost)	44,000
Finished Goods (valued at Total Cost)	1,44,000
Sundry Debtors	2,16,000

In view of increased market demand, it is proposed to double production by working an extra shift. Raw material suppliers agree to allow 10% discount in view of increase in volume of business. Credit period and selling price continue to remain same. Creditors still allow 2 – month credit period. Lag in payment of wages and expenses continue to be half a month.

Required: Prepare Cost Sheet and Estimate the Working Capital Requirements for (a) single shift working and (b) double shift working.

(Ans.: Working Capital: a) Rs. 3,84,000; b) 5,73,600)

Pr.8: A company newly commencing business in 2009 has the under mentioned projected Profit and Loss Account:

	Rs.	Rs.
Sales		21,00,000
Cost of goods sold		<u>15,30,000</u>
Gross Profit		5,70,000
Administrative Expenses	1,40,000	
Selling Expenses	<u>1,30,000</u>	2,70,000
Profit before tax		3,00,000
Provision for taxation		<u>1,00,000</u>
Profit after tax		<u>2,00,000</u>

The cost of goods sold has been arrived at as under:		
Materials used		8,40,000
Wages and manufacturing Expenses		6,25,000
Depreciation		<u>2,35,000</u>
		17,00,000
Less: Stock of Finished goods		<u>1,70,000</u>
(10% of goods produced not yet sold)		15,30,000

The figure given above relate only to finished goods and not to work-in-progress. Goods equal to 15% of the year's production (in terms of physical units) will be in process on the average requiring full materials but only 40% of the other expenses. The company believes in keeping materials equal to two months' consumption in stock.

All expenses are paid one month in arrear. Suppliers of materials will extend 1- 1/2 months credit. Sales will be 20% for cash and the rest at two month's credit. 70% of the Income tax will be paid in advance in quarterly installments. The company wishes to keep Rs 80,000 in cash. Prepare an estimate of working capital.

Note: All workings should form part of the answer. (PM) (Ans.: (i) 6,20,017 (ii) 5,14,217)

MODEL 2: DIFFERENT MODES OF FINANCING WORKING CAPITAL

Pr.9: The balance sheet of Company X stood as follows as on March 31 of the current year:

Liabilities		Assets	
Current liabilities	Rs.2,000	Current assets	Rs.8,000
Long-term funds	22,000	Fixed assets	16,000
	24,000		24,000

If current assets earn 2 per cent, fixed assets earn 14 per cent, current liabilities cost 4 per cent and long-term funds cost 10 per cent, calculate (a) total profits on assets and the ratio of current assets to total assets, (b) the cost of financing and the ratio of current liabilities to total assets, and (c) net profitability of the current financing plan. (Ans.: a) 1:3; b) 1:12; c) 120)

MODEL 3: WORKING CAPITAL LIMITS LIKELY TO BE APPROVED BY BANKS

Pr.10: From the following data, calculate the maximum permissible bank finance under the three methods suggested by the Tandon Committee:

Current Assets	Lakhs	Current Liabilities	Lakhs
Raw material	180	Creditors	120
Work-in-progress	50	Other current liabilities	30
Finished goods	100	Bank borrowing	50
Receivables	150		
Other current assets	20		
	500		200

The total Core Current Assets (CCA) is Rs.200 lakhs.

(Ans.: Method: I – Rs. 212.5 lakhs; II – Rs. 175 lakhs; III – Rs. 25 lakhs)

Pr.11: From the following data, calculate the maximum permissible bank finance under the three methods suggested by the Tandon committee:

Current Assets	Lakhs	Current Liabilities	Lakhs
Raw material	160	Creditors	100
Work-in-progress	60	Other current liabilities	20
Finished goods	120	Bank borrowing	180
Other current assets	20		
	360		300

The total Core Current Assets (CCA) is Rs.180 lakhs.

(Ans.: Method: I – Nil; II – Rs. (30)lakhs; III – Rs. (165)lakhs)

MODEL 4: OPERATING CYCLE

Pr.12: From the following information of XYZ Ltd, Calculate Net operating cycle period & Number of Operating cycles in a year.

Raw material inventory consumed during the year	6,00,000
Average stock of raw material	50,000
Work-in-progress inventory	5,00,000
Average work-in-progress inventory	30,000
Finished goods inventory	8,00,000
Average finished goods stock held	40,000
Average collection period from debtors	45 days
Average credit period availed	30 days
No. of days in a year	360 days

(Ans.: Net Operating Cycle Period = 85 days)

Pr.13: From the following data, compute the duration of operating cycle for each of the two years and comment on the increase/decrease:

	Year 1	Year 2
Stock:		
Raw materials	20,000	27,000
Work-in-progress	14,000	18,000
Finished goods	21,000	24,000
Purchases	96,000	1,35,000
Cost of goods sold	1,40,000	1,80,000
Sales	1,60,000	2,00,000
Debtors	32,000	50,000
Creditors	16,000	18,000

Assume 360 days per year for computational purposes.

[Nov-94]

(Ans.: 177 days, 198 days)

Pr.14: Satyam Sundaram Ltd.'s Profit and Loss A/c and Balance Sheet for the year ended 31.12.2000 are given below. You are required to calculate working capital requirement & operating cycle period.

Trading and profit & loss a/c for the year ended 31.12.2000

Particulars	Rs.	Particulars	Rs.
To Opening Stock:		By Credit Sales	1,00,000
Raw materials	10,000	By Closing Stock:	
Work-in-progress	30,000	Raw materials	11,000
Finished goods	5,000	Work-in-progress	30,500
To Credit Purchase	35,000	Finished goods	8,500
To Wages & Manufacturing exp.	15,000		
To Gross profit c/d	55,000		
	1,50,000		1,50,000
To Administrative exp.	15,000	By Gross profit b/d	55,000
To Selling and Dist. Exp.	10,000		
To Net Profit	30,000		
	55,000		55,000

Balance sheet as at 31.12.2000

Liabilities	Rs.	Assets	Rs.
Share Capital (16,000 equity Shares of Rs.10 each)	1,60,000	Fixed assets	1,00,000
Profit and Loss Account	30,000	Closing Stock:	
Creditors	10,000	Raw materials	11,000
		Work in Progress	30,500
		Finished goods	8,500
		Debtors	30,000
		Cash and Bank	20,000
	2,00,000		2,00,000

Opening debtors and opening creditors were Rs.6,500 and Rs.5,000 respectively.

(Ans.: 317 days)

Pr.15: The under mentioned facts about a company are available:

- Cash turnover rate is 4.5.
- Annual cash outflow is Rs.1,75,000, and.
- 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 8% on its investment, what would be the saving on cost?

(Ans.: (i) 6 cycles (ii) cost per cycle – 29,767 (iii) Savings – 9,722 (iv) operating cost – 778)

MODEL 5: DEBTORS MANAGEMENT

Pr.16: The average period of credit allowed by a company to its customers last year was one month and the average amount of debtors was Rs.10 lakhs. To increase sales and profitability the company doubled the period of credit during the current year. As a result the average amount of debtors increased to Rs.25 Lakhs. If the company has a contribution sales ratio of 40%, what additional contribution has been earned by the company during the current year?

(Ans.: Additional Contribution – 12 lakhs)

Pr.17: X Ltd wishes to increase its credit period from "net 35" to "net 50". It expects sales to increase from Rs.120 lakhs to Rs. 180 lakhs and the average collection period to increase from 35 days to 50 days. The bad-debt loss ratio and collection costs ratio will remain at 5% and 6% respectively. The company's variable costs ratio is 85%, tax rate is 50% and the after tax required rate of return is 20%. Advise X Ltd based on (i) variable cost valuation (ii) sales value valuation.

(Ans.: (i) (1.47) (ii) (1.067))

Pr.18: Misha Limited presently gives terms of net 30 days. It has Rs.6 crores in sales, and its average collection period is 45 days. To stimulate demand, the company may give terms of net 60 days. If it does instigate these terms, sales are expected to be 75 days, with no difference in habits between old and new customers. Variable costs are 0.80 for every Rs.1. of sales, and the company's required rate of return on investment in receivables is 20 percent. Should the company extend its credit period? (Assume 360 days year) **(SM)**

(Ans: Incremental Carrying cost is less than the incremental profitability, the company should lengthen its credit period from 30 to 60 days)

Pr.19: Mosaic Limited has current sales of Rs. 1.5 lakh per year. Cost of sales is 75 per cent of sales and bad debts are one per cent of sales. Cost of sales comprises 80 per cent variable costs and 20 per cent fixed costs, while the company's required rate of return is 12 per cent. Mosaic Limited currently allows customs 30 days credit, but is considering increasing this to 60 days credit in order to increase sales.

It has been estimated that this change in policy will increase sales by 15 per cent, while bad debts will increase from one per cent to four per cent. It is not expected that the policy change will result in an increase in fixed costs and creditors and stock will be unchanged.

Should Mosaic Limited introduce the proposed policy?

(Ans.: Savings – 16,767)

Pr.20: A company's present annual sales is Rs.5,00,000 and its average collection period is 30 days. It is considering a more liberal credit policy. If the credit period is extended, the company expects sales and bad debt losses to increase in the following manner.

Credit Policy	Increase in credit period	Increase in sales (Rs.)	Bad-debt as % total sales
A	10 days	25,000	1.2
B	15 days	35,000	1.5
C	30 days	60,000	1.8
D	42 days	80,000	2.2

The selling price per unit is Rs.2. Average cost per unit at the current level of operations is Rs. 1.50 and variable cost per unit is Rs.1.20. If the current bad-debt loss is 1% of sales and the required rate of return on investment is 20%, which credit policy should be undertaken?

(Ans.: Policy A – 6,700; Policy B – 7,950; Policy C – 12,720; Policy D – 15,320)

Pr.21: Sonachandi Limited has present annual sales of 10,000 units at Rs. 300 per unit. The variable cost is Rs. 200 per unit and the fixed costs amount to Rs. 3,00,000 per annum. The present credit period allowed by the company is 1 month. The company is considering a proposal to increase the credit period to 2 months and 3 months and has made the following estimates:

Credit Policy	Existing	Proposed	
	1 month	2 months	3 months
Increase in sales	-	15%	30%
% of Bad Debts	1%	3%	5%

There will be increase in fixed cost by Rs. 50,000 on account of increase of sales beyond 25% of present level. The company plans on a pre-tax return of 20% on investment in receivables. You are required to calculate the most paying credit policy for the company. (RTP - M 13)

(Ans.: Sonachandi Limited should adopt the 2 months credit policy as it yields higher return.)

Pr.22: A new customer with 10% risk of non-payment desires to establish business connections with you. He would require 1.5 month of credit and is likely to increase your sales by Rs.1,20,000 p.a. Cost of sales amounted to 85% of sales. The tax rate is 30%. Should you accept the offer if the required rate of return is 40% (after tax)? (PM)

(Ans.: 900)

Pr.23: JKL Ltd. is considering the revision of its credit policy with a view to increasing its sales and profit. Currently all its sales are on credit and the customers are given one month's time to settle the dues. It has a contribution of 40% on sales and it can raise additional funds at a cost of 20% per annum. The marketing manager of the company has given the following options along with estimates for considerations: (PM)

Particulars	Current Position	Option I	Option II	Option III
Sales (Rs. in lakhs)	200	210	220	250
Credit period (in months)	1	1 ½	2	3

Bad debts (% of sales)	2	2 ½	3	5
Cost of Credit administration (Rs. in lakhs)	1.20	1.30	1.50	3.00

You are required to advise the company for the best option.

(Ans.: Net gain – option I - 0.73 lakhs, option II – 1.10 lakhs, option III – 0.53 lakhs)

Pr.24: The credit manager of XYZ Ltd is reappraising the company's credit policy. The company sells the products on terms of net30. Cost of goods sold is 85% of sales and fixed costs are further 5 % of sales. XYZ classifies its customers on a scale of 1 to 4. During the past 5 years .the experience was as under.

Classification	Default as a Percentage of sales	Avg Collection period in days for non-defaulting accounts
1	0	45
2	2	42
3	10	40
4	20	80

The Average rate of Interest is 15% .What conclusions do you draw about the company's credit policy? What other factors should be taken into account before changing the present policy? Discuss.

(PM) (Ans: Net Benefits:8.34,6.45,(1.48),(12.96))

MODEL 6: FACTORING

Pr.25: The turnover of PQR Ltd. is Rs.120 lakhs of which 75 per cent is on credit. The variable cost ratio is 8 per cent. The credit terms are 2/10, net 30. On the current level of sales, the bad debts are 1 per cent. The company spends Rs.1,20,000 per annum on administering its credit sales. The cost includes salaries of staff who handle credit checking, collection etc. These are avoidable costs. The past experience indicates that 60 per cent of the customers avail of the cash discount, the remaining customers pay on an average 60 days after the date of sale. (PM) The Book debts (receivable) of the company are presently being financed in the ratio of 1:1 by a mix of bank borrowings and owned funds which cost per annum 15 per cent and 14 per cent respectively.

A factoring firm has offered to buy the firm's receivables. The main elements of such deal structured by the factor are:

- i) Factor reserve, 12 per cent
- ii) Guaranteed payment, 25 days
- iii) Interest charges, 15 per cent, and
- iv) Commission 4 per cent of the value of receivables.

Assume 360 days in a year.

What advise would you give to PQR Ltd. – whether to continue with the in house management of receivables or accept the factoring firm's offer?

(Ans.: Cost of in house decision – 4,26,750, Factoring firm – 4,52,780, Net Loss – 26,030)

Pr.26: A firm has a total sales of Rs.12,00,000 and its average collection period is 90 days. The past experience indicates that bad debt losses are 1.5% on sales. The expenditure incurred by the firm in administering receivable collection efforts are Rs.50,000. A factor is prepared to buy the firm's receivables by charging 2% commission. The factor will pay advance on receivables to the firm at an interest rate of 16% p.a. after withholding 10% as reserve. Calculate effective cost of factoring to the firm. Assume 360 days in a year. (PM)

(Ans.: Effective cost – 26.136%)

MODEL 7: CASH BUDGET

Pr.27: A firm maintains a separate account for cash disbursement. Total disbursement are Rs.1,05,000 per month or Rs.12,60,000 per year. Administrative and transaction cost of transferring cash to disbursement account is Rs.20 per transfer. Marketable securities yield is 8% per annum. Determine the optimum cash balance according to J. Baumal model.

(Ans.:25,100)

Pr.:28. Prepare a Cash Budget for three months ending 30th June, 1986 from the information given below:

Month	Sales Rs.	Material Rs.	Wages Rs.	Overhead Rs.
February	14,000	9,600	3,000	1,700
March	15,000	9,000	3,000	1,900
April	16,000	9,200	3,200	2,000
May	17,000	10,000	3,600	2,200
June	18,000	10,400	4,000	2,300

1. Credit items are: Sales / Debtor - 10% sales are on cash, 50% of the credit sales are collected next month and the balance in the following month.

Creditors	Materials	2	Months
	Wages	¼	Month
	Overheads	½	Month

2. Cash and Bank balance on 1st April, 1986 is expected to be Rs.6,000.

3. Other relevant information is:

- Plant and Machinery will be installed in February at a cost of Rs.96,000. The monthly installments of Rs.2,000 is payable from April onwards.
- Dividend @ 5% on Preference Share Capital of Rs.2,00,000 will be paid on 1st June.
- Advance to be received for sale of vehicles Rs.9,000 in June.
- Dividends from investments amounting to Rs.1,000 are expected to be received in June.
- Income tax (advance) to be paid in June is Rs.2,000.

(Ans.: Closing cash balance – April-3,950, May -3,000, June-300)

Pr.29: The following information relates to Zeta Limited, a publishing company:

The selling price of a book is Rs.15, and sales are made on credit through a book club and invoiced on the last day of the month.

Variable costs of production per book are materials (Rs.5), labour (Rs.4), and overhead (Rs.2)

The sales manager has forecasted the following volumes:

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
No.of Books	1,000	1,000	1,000	1,250	1,500	2,000	1,900	2,200	2,200	2,300

Customers are expected to pay as follows:

One month after the sale 40%

Two months after the sale 60%

The company produces the books two months before they are sold and the creditors for materials are paid two months after production.

Variable overheads are paid in the month following production and are expected to increase by 25% in April; 75% of wages are paid in the month of production and 25% in the following month. A wage increase of 12.5% will take place on 1st March.

The company is going through a restructuring and will sell one of its freehold properties in May for Rs.25,000, but it is also planning to buy a new printing press in May for Rs.10,000. Depreciation is currently Rs.1,000 per month, and will rise to Rs.1,500 after the purchase of the new machine.

The company's corporation tax (of Rs.10,000) is due for payment in March.

The company presently has a cash balance at bank on 31 December 2010, of Rs.1, 500.

You are required to prepare a cash budget for the six months from January to June. (SM)

(Ans.: Cumulative cash flows – Jan – 3,250, Feb – 1,500, Mar – (11,912), Apr – (15,024), May – 576, June – 3,239)

MODEL 10: CONCENTRATION BANKING & LOCK BOX APPROACH

Pr.30: Z Ltd currently has a centralized billing system. Payments are made by all customers to the central billing location. It requires, on the average, 4 days of customers' mailed payments 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. 500,000/-. The Company has recently investigated the possibility of initiating a lock box system. It has estimated that with such a 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. Determine the reduction in cash balances that can be achieved through the use of a lock box system. Determine the opportunity cost of the present system assuming a 5% return on short term instruments. If the annual cost of the lock box system will be Rs.75,000, should such a system be initiated?

(Ans.: Net Benefit – Rs. 12,500)

'A' CATEGORY ASSIGNMENT PROBLEMS – 2,5,7,8,10,11,13,18,21,22,24,25,27,30
(APPLICABLE FOR WEEKEND EXAMS ONLY BUT NOT FOR ANY OTHER EXAMS)

PRINTED SOLUTIONS TO SOME SELECTIVE PROBLEMS

PROBLEM NUMBERS TO WHICH SOLUTIONS ARE PROVIDED: 7,8,9,10,14,16,18,19,25,26,27,34,35,38,39,40,41,48,49,51

PROBLEM NO. 7

Cost of Goods sold

- = Sales – Gross Profit
- = 40,00,000 – 20% (40,00,000)
- = 40,00,000 – 8,00,000
- = 32,00,000

Statement showing the estimation of working capital requirements of Alpha Limited

Particulars	Amount (Rs.)	Amount (Rs.)
(A) Current Assets:		
Inventories -		
Raw material $\left(12,00,000 \times \frac{2}{12}\right)$	2,00,000	

Finished goods $\left(32,00,000 \times \frac{1.5}{12}\right)$	4,00,000	6,00,000
Debtors $\left(38,80,000 \times \frac{3}{12}\right)$		9,70,000
Prepaid sales expenses $\left(2,00,000 \times \frac{6}{12}\right)$		1,00,000
Cash Balance		1,00,000
Total Current Assets (A)		17,70,000
(B) Current liabilities:		
Creditors for Raw Material $\left(12,00,000 \times \frac{1}{12}\right)$		1,00,000
Wages $\left(9,60,000 \times \frac{0.5}{12}\right)$		40,000
Manufacturing expenses $\left(12,00,000 \times \frac{1}{12}\right)$		1,00,000
Administrative expenses $\left(4,80,000 \times \frac{1}{12}\right)$		40,000
Total Current liabilities (B)		2,80,000
(C) Net working capital (A-B)		14,90,000
Add: Margin @ 10%		1,49,000
Working Capital Requirements of Alpha Limited		16,39,000

PROBLEM NO. 8**Statement showing the requirements of Working Capital**

PARTICULARS		Rs.
A. CURRENT ASSETS		
Stock of Raw material	96,600 x 2/12	16,100
Stock of Work-in-progress	As per Working Note	16,350
Stock of Finished goods	1,46,500 x 10/100	14,650
Debtors	1,27,080 x 2/12	21,180
Cash in Hand		8,000
Prepaid Expenses:		
Wages & Mfg. Expenses	66,250 x 1/12	5,521
Administrative expenses	14,000 x 1/12	1,167
Selling & Distribution Expenses	13,000 x 1/12	1,083
Total Current Assets		84,051
B. Current Liabilities:		
Creditors for Raw materials	1,12,700 x 1.5/12	14,088
Provision for Taxation (Net of Advance Tax)	10,000 x 30/100	3,000
Total Current Liabilities		17,088
C. Net Working Capital	(A – B)	66,963

Working Notes:

(i) Calculation of Stock of Work-in-progress

Particulars		Rs
Raw Material	(84,000 x 15%)	12,600

Wages & Mfg. Expenses	(62,500 x 15% x 40%)	3,750
Depreciation	(23,500 x 15% x 40%)	-
Total		16,350

(ii) Calculation of Stock of Finished Goods and Cost of Sales

Particulars		Rs
Direct material Cost	[Rs.84,000 +Rs.12,600]	96,600
Wages & Mfg. Expenses	[Rs.62,500+ Rs.3,750]	66,250
Depreciation	[Rs.23,500 +Rs.1,410]	
Gross Factory Cost		1,62,850
Less: Closing W.I.P		-16,350
Cost of goods produced		1,46,500
Less: Closing stock		-14,650
Cost of goods sold		1,31,850
Add: Administrative Expenses		14,000
Add: Selling and Distribution Expenses		13,000
Total Cash Cost of Sales		1,58,850
Debtors (80% of cash cost of sales)		1,27,080

(iii) Calculation of Credit Purchase

Particulars	Rs
Raw Material consumed	96,600
Add: Closing Stock	16,100
Less: Opening Stock	-
Purchases	1,12,700

PROBLEM NO. 09

Given Information /Inventory Norms,

Raw material holding period (RMHP) = 2months

Production Period (P.P) = 1month

Finished goods holding period (FGHP) = ½ month

Debtors Collection period (DCP) = 1month

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W.N-1:**Cost Structure**

Particulars	Per Unit
Raw materials	100
Add: Manufacturing Exp.	30
Cost of production	130
Add: Selling, administrative & financial	20
Cost of Goods Sold	150
Add: Profit	50
Selling Price	200

Step-1: Raw Material inventory = $\frac{\text{Raw Material Consumption During Year}}{12m} \times \text{RMHP}$

$$= \frac{30,000 \times 100}{12m} \times 2m = \text{Rs. } 5,00,000$$

Step-2: Work in Progress Valuation

a) Raw material = $\frac{\text{Raw Material Consumed During Yr}}{12m} \times \text{P.P} = \frac{30K \times 100 \text{ P.U}}{12m} \times 1m$
= Rs. 2,50,000

$$\begin{aligned} \text{b) Manufacturing Exp.} &= \frac{\text{Manu.Exp. incurred during the year}}{12\text{m}} \times \text{P.P} \times 25\% \\ &= \frac{30,000 \times 30}{12\text{m}} \times 1\text{m} \times 25\% = \text{Rs. } 18,750 \end{aligned}$$

∴ Value of Work in Progress = (a) + (b) = Rs. 2,68,750

$$\begin{aligned} \text{Step-3: Finished Goods} &= \frac{\text{Cost of Production during the year}}{12\text{m}} \times \text{FGHP} = \frac{30,000 \times 130}{12\text{m}} \times \frac{1}{2}\text{m} \\ &= \text{Rs. } 1,62,500 \end{aligned}$$

$$\begin{aligned} \text{Step-4: Investment in debtors} &= \frac{\text{Cost of sales during the year}}{12\text{m}} \times \text{DCP} = \frac{30,000 \times 150}{12\text{m}} \times 1\text{m} \\ &= \text{Rs. } 3,75,000 \end{aligned}$$

Estimation of Gross Working Capital

Particulars	Amount
Raw material Inventory (Step-1)	5,00,000
Work in Progress Inventory (Step-2) (Note c)	2,68,750
Finished Goods Inventory (Step-3)	1,62,500
Debtors (Step-4) (Note d)	3,75,000
Other Assets (95)	13,06,250
Add: Cash Balance (5) $\left(\frac{13,06,250}{95} \times 5\right)$ (Note e)	68,750
Gross Working Capital required	13,75,000

Note:

- a) Ignore Administration Expenses because they can't be separated.
- b) Generally Administration Expenses are included in the valuation of finished goods inventory. Since information relating to Administration expenses is not given in the problem finished goods are valued similar to that of Work in Progress.
- c) While valuing Work in Progress, Raw Materials are assumed to be finished to the extent of 100% and the manufacturing expenses are given to be completed to the extent of 25%.
- d) Debtors have been valued on cash cost basis alternatively they can be valued on full value basis in such a case gross working capital will be more than 13,75,000.
- e) Desired cash balance is 5% of the gross working capital.

PROBLEM NO. 10

PART - A

Given Information, Inventory Norms,

Raw material holding period (RMHP) = 2 months

Production Period (P.P) = 1 month

Finished goods holding period (FGHP) = 3 months

Debtors Collection period (DCP) = 3 months

Creditors payment period (CPP) = 2 months

W.N-1:

Cost structure

Particulars	Per Unit
Raw materials (5×60%)	3.0
Wages (5×10%)	0.5
Overhead (5×20%)	1.0
Cost of Production per Unit	4.5

Add: Profit	0.5
Selling price per unit	5.0

Step-1: Raw material inventory = $\frac{\text{R.M. Consumption during yr}}{12\text{m}} \times \text{R.M.H.P} = \frac{60,000 \times \text{Rs.3}}{12\text{m}} \times 2\text{m} = 30,000$

Step-2: W.I.P inventory

a) Raw material = $\frac{\text{RM Consumption During Yr}}{12\text{ m}} \times \text{P.P} = \frac{60,000 \times \text{Rs.3}}{12\text{m}} \times 1\text{m} = \text{Rs. 15,000}$

b) Wages = $\frac{60,000 \times 0.50}{12\text{ m}} \times 1\text{m} \times 50\% = \text{Rs. 1250}$

c) Overheads = $\frac{60,000 \times 1}{12\text{m}} \times 1\text{m} \times 50\% = \text{Rs. 2,500}$

∴ W.I.P = Rs. 18,750

Step-3: F.G Inventory = $\frac{60,000 \times 4.50}{12\text{m}} \times 3\text{m} = \text{Rs. 67,500}$

Step-4: Investment in debtors = $\frac{60,000 \times 4.5}{12\text{m}} \times 3\text{m} = \text{Rs. 67,500}$

Step-5: Creditors for RM = $\frac{60,000 \times 3}{12\text{m}} \times 2\text{m} = \text{Rs. 30,000}$

Working Capital Statement

Particulars	Amount
i) Current assets:	
a. Raw Material inventory (Step-1)	30,000
b. W.I.P inventory (Step-2)	18,750
c. F.G inventory (Step-3)	67,500
d. Debtors (Step-4)	67,500
Total (A)	1,83,750
ii) Current liabilities:	
Creditors (B) (Step-5)	30,000
Net working capital (A-B)	1,53,750

PART - B

Estimated profit for the year ended 31.12.00.

Particulars	Amount	Particulars	Amount
To Raw material a/c (60,000 × 3)	1,80,000	By sales a/c	3,00,000
To Wages a/c (60,000×0.5)	30,000	(60,000 ×5)	
To Overhead a/c (60,000×1)	60,000		
To Interest on debentures a/c (50,000×5%)	2,500		
To Net profit	27,500		
	3,00,000		3,00,000

Balance Sheet as on 31st Dec.2000

Liabilities	Rs.	Assets	Rs.
Equity Share Capital	2,00,000	Fixed Assets	1,25,000
5% Debentures	50,000	Raw material Inventory	30,000
Creditors for raw material	30,000	W.I.P Inventory	18,750
Net profit	27,500	F.G. Inventory	67,500
Reserve & Surplus (B/F)	1,250	Debtors	67,500
	3,08,750		3,08,750

PROBLEM NO. 14**Part A****Net Profitability in the existing situation**

Particulars	Amount
Earnings on current assets (10,000 x 1%)	100
Earnings on fixed assets (30,000 x 13%)	3,900
	4,000
Less: Cost of current liabilities (5000 x 3%)	150
Less: Interest on long term funds (35,000 x 10%)	3,500
Net Profit	350

Part B**Balance Sheet Positions in both situations**

	b(i)	b(ii)
Assets:		
Fixed Assets	31,500	30,000
Current Assets	8,500	10,000
	40,000	40,000
Liabilities:		
Long term liabilities	35,000	33,500
Current liabilities	5,000	6,500
	40,000	40,000

Calculation of Net Profit in both the situations:

Particulars	b(i)	b(ii)
Earnings on fixed assets @ 13%	4,095	3,900
Earnings on current assets @ 1%	85	100
	4,180	4,000
Less: Cost of current liabilities @ 3%	150	195
Less: Interest on Long term loans @ 10%	3,500	3,350
Net Profit	530	455
Incremental net profit	180	105

Conclusion: Since the net profit is maximum it is beneficial for the company to decrease the net working capital by Rs.1,500 by shifting current assets to fixed assets.

Both the given alternatives can be implemented simultaneously, in such a case current assets will decrease by Rs.1,500 and current liabilities will increase to the extent of Rs.1,500.

Net working capital = Rs.2,000

Net profit = 350+180+105= 635

Verification:**Balance Sheet**

Liabilities	Amount	Assets	Amount
Current Liabilities	6,500	Current Assets	8,500
Long term liabilities	33,500	Fixed Assets	31,500
	40,000		40,000

Earnings on current assets (8,500 x 1%) = 85

Earnings on fixed assets (31,500 x 13%)	=	4,095
Less: Cost of current liabilities (6,500 x 3%)	=	195
Less: Cost of long term liabilities (33,500 x 10%)	=	<u>3,350</u>
Net Profit	=	<u>635</u>

PROBLEM NO. 16

Calculation of MPBF as per Tandon Committee Norms

Method I: MPBF = 0.75 (Current Assets – Current Liabilities) = 0.75 (480-180) = Rs. 225

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{481+225}{180+225} = 1.74 : 1$$

Method II: MPBF = 0.75 (Current Assets) – Current Liabilities = 0.75 (480)-180 = Rs.180

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{480 + 180}{180 + 180} = 1.83 : 1$$

Method III: MPBF = 0.75 (Current Assets – Core Current Assets) – Current Liabilities
= 0.75 (480-30)-180 = Rs. 157.5

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{480+157.5}{180+157.5} = 1.89 : 1$$

Conclusion: According to Tandon committee norms the minimum desired current ratio is as follows

Method I - 1 : 1, Method II - 1.33 : 1, Method III - 1.66 : 1

∴ In all the three methods current ratio is satisfactory and is more than the limits prescribed by Tandon Committee.

PROBLEM NO. 18

Calculation of Net Operating Cycle Period

Particulars	Calculations	No.of days
RMCP = $\frac{\text{Avg RM inv.}}{\text{RM cons.}} \times 360$	$\frac{80}{600} \times 360$	48
W.I.PCP = $\frac{\text{Avg. WIP inv.}}{\text{COP}} \times 360$	$\frac{85}{2,100} \times 360$	15
FGCP = $\frac{\text{Avg. FG inv.}}{\text{COGS}} \times 360$	$\frac{180}{2,100} \times 360$	31
RCP = $\frac{\text{Avg. debtors}}{\text{Cr. Sales}} \times 360$	$\frac{350}{3,000} \times 360$	42
Total Operating Cycle Period		136
Less: DP = $\frac{\text{Avg. creditors}}{\text{cr. purchases}} \times 360$	$\frac{90}{600} \times 360$	54
Net Operating Cycle Period		82

No. of Operating Cycles in a year = $\frac{365}{82} = 4$ cycles (approx)

Assumptions:

1. Raw Material Purchased = Raw Material Consumption
2. 1 year = 360 days
3. 100% Sales is on credit basis.

The operating cycle period of XYZ Ltd. is less than that of industry average.

- a) RMCP of XYZ Ltd. is more than that of industry average. XYZ Ltd has to implement better inventory management techniques to reduce the RMCP.

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- b) WIPCP of XYZ Ltd. is same as that of industry Average.
- c) FGCP of XYZ Ltd. is less than that of industry average; due to this the firm may loose some profitable opportunities.
- d) DCP of XYZ Ltd. is less than that of industry average. XYZ Ltd. might be adopting strict collection policies which may affect the future sales.
- e) CPP of XYZ Ltd. is more than that of industry average. This may show a negative impact on the credit rating of the organization.

PROBLEM NO. 19**1. Computation of Operating Cycle:**

$$\begin{aligned} \text{Raw Material Storage Period (R)} &= \frac{\text{Average Stock of Raw Material}}{\text{Daily Average Consumption of Raw Material}} \\ &= \frac{(1,80,000 + 2,00,000)/2}{10,80,000/360} \\ &= 63.33 \text{ Days} \end{aligned}$$

$$\begin{aligned} &= \text{Raw Material Consumed} = \text{Opening Stock} + \text{Purchases} - \text{Closing Stock} \\ &= \text{Rs. } 1,80,000 + \text{Rs. } 11,00,000 - \text{Rs. } 2,00,000 \\ &= \text{Rs. } 10,80,000 \end{aligned}$$

2. Conversion/Work-in-Process Period (W):

$$\begin{aligned} \text{Conversion/Processing Period (W)} &= \frac{\text{Average Stock of WIP}}{\text{Daily Average Production of Cost}} \\ &= \frac{(60,000 + 1,00,000)/2}{15,40,000/360} \\ &= 78.7 \text{ Days} \end{aligned}$$

Production Cost

Opening Stock of WIP	60,000
Add: Raw Material Consumed	10,80,000
Add: Wages	3,00,000
Add: Production Expenses	<u>2,00,000</u>
	16,40,000
Less: Closing Stock of WIP	<u>1,00,000</u>
Production Cost	15,40,000

3. Finished Goods Storage Period (F)

$$\begin{aligned} \text{Finished Goods Storage Period (F)} &= \frac{\text{Average Stock of Finished Goods}}{\text{Daily Average Cost of Goods Sold}} \\ &= \frac{(2,60,000 + 3,00,000)/2}{15,00,000/360} \\ &= 67.2 \text{ Days} \end{aligned}$$

Cost of Goods Sold	
Opening Stock of Finished Goods	2,60,000
Add: Production cost	<u>15,40,000</u>
	18,00,000
Less: Closing Stock of Finished Goods	<u>3,00,000</u>

15,00,000

4. Debtors collection period(D)

Debtors Collection Period (D)

$$\frac{\text{Average Debtors}}{\text{Daily Average Sales}}$$

$$\frac{(1,50,000+2,00,000)/2}{20,00,000/360}$$

$$= 31.5 \text{ Days}$$

5. Creditors Payment period(C)

Creditors Payment Period (C)

$$\frac{\text{Average Purchases}}{\text{Daily Average Purchases}}$$

$$\frac{(2,00,000+2,40,000)/2}{11,00,000/360}$$

$$= 72 \text{ Days}$$

6. Duration of Operating cycle (O)

$$O = R+W+F+D-C$$

$$= 63.33+18.7+67.2+31.5-72$$

$$= 108.73 \text{ days}$$

Computation of Working Capital

i) Number of Operating cycles per year

$$= 360/\text{Duration Operating Cycle} =$$

$$360/108.73\text{days} = 3.311$$

ii) Total Operating Expenses

Total Cost of Production	15,00,000
Add: Administrative Expenses	1,75,000
Selling Expenses	75,000
	17,50,000

iii) Working Capital Required

Working capital required

$$\frac{\text{Total Operating Expenses}}{\text{Number of Operating cycles per year}}$$

$$\frac{17,50,000}{3.311}$$

$$= 5,28,541$$

PROBLEM NO. 25**Calculation of incremental net profit**

Particulars	Proposal A	Proposal B
Sales	1,00,000	2,00,000
Less: Variable Cost @ 50%	50,000	1,00,000
Contribution	50,000	1,00,000
Less: Bad Debts	(1,00,000 x 20%) 20,000	(2,00,000 x 40%) 80,000
Less: Administration Expenses	(1,00,000 x 5%) 5,000	(2,00,000 x 12%) 24,000
Net Profit / (Loss)	25,000	(4,000)

Conclusion: If proposal A is accepted profits will increase by Rs.25,000 and if proposal B is accepted we incur a loss of Rs.4,000.

PROBLEM NO. 26**Evaluation of the given proposal of cash discount**

Particulars	Amount
A. Cost	
Cash discount (25 L x 60 x 5%)	75,000
B. Benefit	
a) Reduction in interest in debtors $\left(\frac{25L}{12m} \times 2m \times 60\%\right) \times \frac{9}{10} = 2,25,000$	78,750
b) Savings there on @ 35% (2,25,000 x 35%)	
Net Benefit (A - B)	3,750

Conclusion: Since benefit is more than cost it is beneficial for the company to accept the proposal.

Note: Debtors have been valued at average cost of Rs.9 per unit. Alternatively they can be valued at full value of Rs.10 per unit.

PROBLEM NO. 27**i. Evaluation of the given proposal assuming no incremental sales**

Particulars	Amount
A. Cost	
Cash discount (10,00,000 x 60% x 3%)	18,000
B. Benefit	
a. Investment in Debtors (existing) $\left(\frac{10,00,000}{365} \times 80\right) \times 80\% = 1,75,342$	
b. Investment in debtors $\left(\frac{10,00,000 \times 60\% \times 7}{365} + \frac{10,00,000 \times 20\% \times 80}{365} + \frac{10,00,000 \times 20\% \times 100}{365}\right) \times 80\%$ $= \underline{88,110}$	
(a - b) $\underline{87,232}$	
Savings in interest there on (87,232, x 14%)	12,212
Net Benefit (B - A)	5,788

ii. Evaluation of Cash Discount Policy when cash discount is given.

Particulars	Amount
A. Cost	
Cash discount (10,50,000 x 60% x 3%)	18,900
B. Benefit	
a. Incremental Profit (50,000 x 20%)	10,000
b. Savings in loss of interest	11,596
Deduction in investment in debtors $\left(\frac{10,00,000 \times 80}{365}\right) - \left(\frac{10,50,000 \times 60\% \times 7}{365} + \frac{10,50,000 \times 20\% \times 80}{365} + \frac{10,50,000 \times 20\% \times 100}{365}\right) \times 80\% \times 14\%$	
Net Benefit (B - A)	2,696

Conclusion: It is worth for the company to offer cash discount when new sales are obtained.

PROBLEM NO. 34

Cash budget for the period July to Dec. 2001 (Rs. In lakhs)

Particulars	July	Aug.	Sep.	Oct.	Nov.	Dec.
I. Opening balance (A)	5	7	7	7	7	7
II. Receipts/Collections						
Sales (W.N - 1)	38	40	46	50	56	63
Interest received	-	-	2	-	-	2
Sale of fixed assets	-	20	-	-	-	-
Loan from bank	-	-	-	-	-	-
(B)	38	60	48	50	56	65
III. Payments/Disbursements						
Purchases	14	16	17	20	20	25
Expenses	5	6	6	6	7	7
Wages and Salaries	13	14	16	18	19	21
	(14×1/2 +12×1/2)	(14×1/2 +14×1/2)	(14×1/2 +18×1/2)	(18×1/2 +18×1/2)	(18×1/2 +20×1/2)	(20×1/2 +22×1/2)
Investment in Govt. securities	4	24	9	6	10	12
(C)	36	60	48	50	56	65
Closing Balance (A+B+C)	7	7	7	7	7	7

W.N-1:

Sales

Particulars	July	Aug.	Sep.	Oct.	Nov.	Dec.
June month Sales	14(35X40%)	-	-	-	-	-
July month Sales	24 (40X60%)	16 (40X40%)	-	-	-	-
Aug. month Sales	-	24	16	-	-	-
Sep month Sales	-	-	30	20	-	-
Oct. month Sales	-	-	-	30	20	-
Nov. month Sales	-	-	-	-	36	24
Dec. month Sales	-	-	-	-	-	39
	38	40	46	50	56	63

PROBLEM NO. 35

Cash budget of XYZ Ltd. for period Apr. – Sep. 2000

Particulars	April	May	June	July	August	Sep.
I) Opening cash balance (A)	4,00,000	9,07,000	10,34,000	6,51,000	5,28,000	7,50,000
II) Collections / receipts						
Sales (W.N-1) (B)	12,75,000	9,35,000	8,15,000	8,85,000	10,30,000	9,80,000
III) Payments/disbursements						
Purchases	6,40,000	6,40,000	9,60,000	8,00,000	6,40,000	9,60,000
Wages	1,20,000	1,60,000	2,00,000	2,00,000	1,60,000	1,40,000
Interest	-	-	30,000	-	-	30,000
Rent	8,000	8,000	8,000	8,000	8,000	8,000
Capital Expenditure	-	-	-	-	-	1,20,000
(C)	7,68,000	8,08,000	11,98,000	10,08,000	8,08,000	12,58,000
Closing balance (A+B-C)	9,07,000	10,34,000	6,51,000	5,28,000	7,50,000	4,72,000

W.N-1:

Calculation of Sales

Particulars	Apr.	May	June	July	Aug.	Sep.
Jan. Sales	(9LX10%) 90,000					
Feb. Sales	3,15,000	1,05,000				
Mar. Sales	7,20,000	3,60,000	1,20,000			
Apr. Sales	1,50,000	2,70,000	1,35,000	45,000		
May Sales		2,00,000	3,60,000	1,80,000	60,000	
June Sales			2,00,000	3,60,000	1,80,000	60,000
July Sales				3,00,000	5,40,000	2,70,000
Aug. Sales					2,50,000	4,50,000
Sep. Sales						2,00,000
	12,75,000	9,35,000	8,15,000	8,85,000	10,30,000	9,80,000

PROBLEM NO. 38

- a) Given information, Total cash required during the year (F) = 37,50,000
 Transaction cost (T) = 25
 Rate of interest (r) = 0.12

$$\text{Economic lot size (C)} = \sqrt{\frac{2FT}{r}} = \sqrt{\frac{2 \times 37,50,000 \times 40}{0.12}} = \text{Rs. } 50,000$$

- b) No. of Transactions = $\frac{\text{Annual Cash Requirement}}{\text{Economic Lot Size}} = \frac{37,50,000}{50,000} = 75$ Transactions

- c) Average Cash balance = $\frac{0 + 50,000}{2} = \text{Rs. } 25,000$

$$\text{Holding cost} = 25,000 \times 12\% = \text{Rs. } 3,000$$

$$\text{Total Transaction Cost} = 75 \times 40 = \text{Rs. } 3,000$$

PROBLEM NO. 39

- a) Given information, Total cash required during the year (F) = 10,00,000
 Transaction cost (T) = 100
 Rate of interest (r) = 10% = 0.1

$$\text{Economic lot size (C)} = \sqrt{\frac{2FT}{r}} = \sqrt{\frac{2 \times 10L \times 100}{0.1}} = 44721$$

- b) Cash cycle in days = $\frac{44721}{10L} \times 365 = 16$ days (approx)

- c) Average Cash balance = $\frac{0 + 44721}{2} = \text{Rs. } 22361$

PROBLEM NO. 40

Given information

- Transaction cost per conversion (T) = Rs. 20
 Variance of daily cash balance (V) = 62,50,000
 Lower Level (L) = 10,000
 Rate of interest per day (i) = 0.00025

Step-1: Calculation of Z

$$Z = \sqrt[3]{\frac{3TV}{4i}} = \sqrt[3]{\frac{3 \times 20 \times 62,50,000}{4 \times 0.00025}} = 7,228$$

Step-2: Return level R = L + Z = 10,000 + 7,228 = 17,228

Step-3: Upper limit

$$H = 3Z + L = 3(7,228) + 10,000 = 31,684$$

$$\text{Spread} = H - L = 31,684 - 10,000 = 21,684$$

$$\text{Average Cash Balance} = \frac{4R - L}{3} = \frac{4(17,228) - 10,000}{3} = 19,637$$

PROBLEM NO. 41

Given information

- Transaction cost per conversion (T) = Rs. 10

Variance of daily cash balance (V) = (200)² = 40,000

Lower Limit (L) = Rs.100

Rate of interest per day (i) = $\frac{0.01(1\%)}{30} = 0.00033$

Step 1: Calculation of Z

$$Z = \sqrt[3]{\frac{3TV}{4i}} = \sqrt[3]{\frac{3 \times 10 \times 40,000}{4 \times 0.00033}} = \sqrt[3]{909090909} = 970.13$$

Step 2: Return level R = L+Z= 970.13+100 = 1070.13

Step 3: Upper limit

H = 3Z + L = 3(970.13) + 100 = 3010.39

Spread = H-L = 3010.39-100 = 2910.39

Average Cash Balance = $\frac{4R - L}{3} = \frac{4(1070.13) - 100}{3} = 1393.5$

PROBLEM NO. 44

Evaluation of the proposal of lock box system

Particulars	Amount
A. Cost	
Number of cheques per day = 150 Service Charge of Lock Box System = 150 x 0.26 x 365 days	14,235
B. Benefit	
Average size of payment = 1200 Average collection Reduction in float = 1.2 + 0.2 = 2 days Reduction in average cash balance = 1,80,000 x 2 = 3,60,000 Savings in opportunity cost of loss of interest = 3,60,000 x 0.02 x 365 days	26,280
Net Benefit (B - A)	12,045

Conclusion: It is advisable to initiate lock box system.

PROBLEM NO. 45

Given Information:

Daily Average Collection = Rs.7,00,000

Reduction in float = Rs.3,50,000

Opportunity cost of capital = 8%

a) Average collection per day = 7,00,000
Reduction in float = 3.5 days
Reduction in minimum cash balance = 7,00,000 X 3.5 = Rs.24,50,000

b) Worth of the proposed system = Savings in interest = 24,50,000X8% = Rs.1,96,000

c) Maximum monthly charge that Jaswanth can pay = $\frac{1,96,000}{12} = Rs.16,333$

PROBLEM NO. 46

If the co. does not avail the cash discount & pays the amount after 45 days the implied cost of interest p.a would be

$$\left[\frac{100}{100 - 2} \right]^{\frac{365}{35}} - 1 = 23.5\%$$

Let us assume that ABC Ltd. can invest the additional cash and can obtain an annual return of 25% & if the amount of invoice is Rs.10,000

Particulars	Refuse Discount	Accept Discount
Payment to supplier	10,000	9,800
Return from investing Rs.9,800 between day 10 to day 45		
$\frac{35}{365} \times 9800 \times 25\%$	(235)	
	9765	9800

Advice: Thus, it is better for the co. to refuse the discount, as return on cash retained is more than the saving on A/c of discount.

PROBLEM NO. 48

$$\text{Cost of not availing the cash discount} = \frac{d}{1-d} \times \frac{365}{n-p} = \frac{0.01}{0.99} \times \frac{365}{60-10} = 7.37\%$$

Interest on borrowed money = 18%

In the point of view of seller, it is better to allow cash credit because they can't get less than that. In the point of view of buyer, it is not advisable to borrow, they can invest in other benefits.

Conclusion: Since the borrowing cost is more than 7.37%, it is not advisable for ABC Ltd. to avail discount.

PROBLEM NO. 49

Given, opportunity cost = 18%

$$\text{i) Cost of not availing the cash discount} = \frac{d}{1-d} \times \frac{365}{n-p} = \frac{0.025}{0.975} \times \frac{365}{60-7} = 17.66\%$$

Decision: Since the borrowing cost of company is less than 17.66% it is not beneficial for the company to offer cash discount.

$$\text{ii) Cost of not availing the cash discount} = \frac{d}{1-d} \times \frac{365}{n-p} = \frac{0.025}{0.975} \times \frac{365}{80-7} = 12.82\%$$

Decision: Since the borrowing cost of company is greater than 12.82% it is beneficial for the company to offer cash discount instead of borrowing funds.

$$\text{iii) Cost of not availing the cash discount} = \frac{d}{1-d} \times \frac{365}{n-p} = \frac{0.025}{0.975} \times \frac{365}{105-7} = 9.55\%$$

Decision: Since the borrowing cost of company is greater than 9.55% it is beneficial for the company to offer cash discount instead of borrowing funds.

PROBLEM NO. 51**Net Amount Received by the company on issue of commercial paper**

Let the face value of commercial paper = Rs.1, 00,000

Less: Applicable Interest = $1,00,000 \times 11.25\% \times \frac{90}{365}$ = Rs. 2,774

Rs. 97,226

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To **MASTER MINDS**, Guntur

Verified by: M.P. Raju Sir

Executed by: Sai Ram Sir

THE END