

## THEORY

<b>Treasury Management</b>	Treasury management is defined as the efficient management of liquidity and financial risk in business with an objective of having adequate liquidity with the business organization and thereby mitigating its operational, financial and reputational risk.
<b>Functions of Treasury Management</b>	<p>(a) <b>Cash Management</b> – It is related to efficient collection and payment of cash.</p> <p>(b) <b>Currency Management</b> – It is managing the foreign currency risk exposure of the company.</p> <p>(c) <b>Fund Management</b> – It is responsibility for planning and sourcing the company's short, medium and long term cash needs.</p> <p>(d) <b>Banking</b> – It is involvement in arrangement of short term finance from bank loans etc.</p> <p>(e) <b>Corporate Finance</b> – It is involvement with both acquisition and disinvestment activities within the group.</p>
<b>Cash Management</b>	It involves efficient cash collection process and managing payments of cash both inside and outside the organization.
<b>Objective of Cash Management</b>	<p>The main objective of cash management for a business are:</p> <ul style="list-style-type: none"> <li>❑ Provide adequate cash to each of its units.</li> <li>❑ No funds are blocked in idle cash.</li> <li>❑ The surplus cash (if any) should be invested in order to maximize returns for the business.</li> </ul>
<b>Principal motive for holding cash</b>	<p>(a) <b>Transactive Motive</b> – It is needed to make routine payments while conducting business in the ordinary course.</p> <p>(b) <b>Speculative Motive</b> – It is needed to take advantage of profitable opportunities as and when they arise.</p> <p>(c) <b>Precautionary Motive</b> – It is needed to meet contingencies in the future.</p>

<b>Baumol's Model of Cash Management</b>	<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>(a) The cash requirements of the firm are known in advance with a certainty.</li> <li>(b) The cash is to be used evenly over a period of time.</li> <li>(c) The rate of carrying cost is known and it is constant.</li> <li>(d) The transaction cost also remains constant.</li> </ul> <p><b>Model Explanation:</b></p> <ul style="list-style-type: none"> <li>❑ This model was suggested in the year 1952.</li> <li>❑ <b>Carrying cost</b> – It is the cost of holding cash, namely, the interest foregone on marketable securities. It is also known as opportunity cost of keeping cash balance.</li> <li>❑ <b>Transaction cost</b> – It is the cost involved in getting the marketable securities converted into cash, such as brokerage, registration and other costs.</li> <li>❑ There is an inverse relationship between carrying and ordering cost.</li> <li>❑ When one increases, the other decreases and vice versa.</li> <li>❑ Optimum cash level will be at that point where carrying and transaction costs are equal.</li> </ul> $OTS = \sqrt{\frac{2 \times A \times T}{C}}$ <p>Where, OTS = Optimum transfer size  A = Annual cash disbursements  T = Fixed costs per transactions  C = Opportunity costs of one rupee p.a.</p> <p>Total Transaction cost = Cost per transaction × Number of transactions  Total Carrying cost = Average cash balance × Carrying cost per annum</p> <p>Number of transactions = <math>\frac{\text{Total Annual Requirement of Cash}}{\text{Transfer Size}}</math></p> <p>Average Cash Balance = <math>\frac{\text{Transfer Size}}{2}</math></p>
<b>Limitations of Baumol's Model</b>	<ul style="list-style-type: none"> <li>(a) When the cash payment becomes lumpy, it may be appropriate to reduce the period for which calculations are made so that expenditures during the period are relatively steady.</li> <li>(b) Cash payments are seldom predictable. Hence, the model may not give 100% correct results.</li> </ul>
<b>Miller-Orr Model</b>	<ul style="list-style-type: none"> <li>❑ This model is used when the demand for cash is uncertain.</li> <li>❑ In this model, control limits are set for cash balances which are as follows:</li> <li>❑ <b>Upper Limit (h)</b> – It is that level at which the marketable securities are purchased to bring down the cash balance back to the normal level.</li> <li>❑ <b>Lower Limit (o)</b> – It is that level at which the marketable securities are sold to bring up cash balance back to the normal level.</li> </ul>

	<ul style="list-style-type: none"> <li>□ <b>Return Point (z)</b> – It is that level which lies between the upper limit and lower limit.</li> </ul> $\text{Spread} = \sqrt[3]{\frac{3T\sigma^2}{4I}}$ <p>Where, <math>R</math> = Return pint  <math>T</math> = Transaction cost  <math>\sigma^2</math> = Variance of daily cash balance  <math>I</math> = Interest rate i.e. carrying cost per rupee of cash</p> <p><b>Working of the model:</b></p> <ul style="list-style-type: none"> <li>□ When the cash balances touches the upper limit, the marketable securities are purchased for cash equal to <math>(h - z)</math> in order to bring the cash balance back to the normal level.</li> <li>□ When the cash balance touches the lower limit, the marketable securities are sold for cash equal to <math>(z - o)</math> in order to bring the cash balance back to the normal level (return point).</li> <li>□ When the cash balance stays between <math>(h, z)</math> &amp; <math>(z, o)</math> no transaction between cash &amp; marketable security account is made.</li> </ul>
<b>Cash Budget</b>	<ul style="list-style-type: none"> <li>□ It is the plan related to cash receipt and payments and thereby financing or investing of the cash flows.</li> <li>□ It can be prepared in three ways <ul style="list-style-type: none"> <li>(a) Receipt and payment method</li> <li>(b) Adjusted income method</li> <li>(c) Adjusted balance sheet method</li> </ul> </li> </ul>
<b>Meaning of Float</b>	The term float is used to refer to the periods that affect cash as it moves through the different stages of the collection process.
<b>Types of Float</b>	<ul style="list-style-type: none"> <li>(a) <b>Billing Float</b> – It is the time between the sale and mailing of the invoice.</li> <li>(b) <b>Mail Float</b> – It is the time when a cheque is being processed by post office or other means of delivery.</li> <li>(c) <b>Cheque Processing Float</b> – It is the time required by seller to sort, record and deposit the cheque after it had been received by the company.</li> <li>(d) <b>Bank Processing Float</b> – It is the time from the deposit of the cheque to the crediting of funds in the seller account.</li> </ul>
<b>Concentration Banking</b>	<ul style="list-style-type: none"> <li>□ It is a system of operating through a number of collection centers in different regions instead of a single collection center centralized at the head office.</li> <li>□ It is used to minimize the gap between the mailing time from customers to the firm and the time when the funds become available for use.</li> <li>□ The collection centers perform the following functions: <ul style="list-style-type: none"> <li>(a) They collect cheques from customers.</li> <li>(b) They deposit the collected cheques in their local bank accounts.</li> <li>(c) They transfer surplus funds to the concentration bank each day.</li> </ul> </li> </ul>

<b>Lock Box System</b>	<ul style="list-style-type: none"> <li>❑ It is used to eliminate the time gap between the receipt of cheque and its deposit into the bank.</li> <li>❑ The working of lock box system is as follows:               <ul style="list-style-type: none"> <li>(a) The firm establishes a number of collection centers considering customer's location and volume of remittances.</li> <li>(b) The firm hires a local post office box at each center.</li> <li>(c) The firm instructs its customers to mail their remittances to the lock boxes.</li> <li>(d) The firm authorizes its local bank at each center to pick up their remittance from local box.</li> <li>(e) The bank fixed up the mail several times a day and deposits the cheques in firm's bank account.</li> </ul> </li> </ul>
<b>Recent development in cash management</b>	<ul style="list-style-type: none"> <li>❑ <b>Electronic Fund Transfer</b> - The banking system has totally been computerized which provides efficient and effective banking services.</li> <li>❑ <b>Zero Balance Account</b> - These accounts have an added feature that firm is not required to maintain any minimum balance in the account.</li> <li>❑ <b>Money Market Operations</b> - In large companies, investment of surplus funds is one of the major tasks of treasury department and the investment is generally done in the money market.</li> <li>❑ <b>Petty Cash Imprest System</b> - Company estimates its day-to-day petty expenses based on past experience and future needs. Cash requirement upto a week are kept separate for making petty expenses.</li> <li>❑ <b>Management of Temporary Cash Surplus</b> - Temporary cash surpluses can be profitably invested in various options based on economic situation, volatility of returns etc.</li> <li>❑ <b>Electronic Cash Management System</b> - It results in saving in time, reduces paper work and manhours, increase in interest earned and decrease in interest expenses etc.</li> <li>❑ <b>Virtual banking</b> - It denotes the provision of banking and related services through extensive use of information technology without direct recourse to the bank by the customer. It leads to lower cost, increased speed and many other benefits.</li> </ul>
<b>Principles relating to selection of marketable securities</b>	<ul style="list-style-type: none"> <li>(a) <b>Safety</b> - Return and risk go hand-in-hand. As the objective in this investment is ensuring liquidity, minimum risk is the criterion of selection.</li> <li>(b) <b>Maturity</b> - Matching of maturity and forecasted cash needs is essential. Prices of long-term securities fluctuate more with changes in interest rates and are, therefore, riskier.</li> <li>(c) <b>Marketability</b> - It refers to the convenience, speed and cost at which a security can be converted into cash. If the security can be sold quickly without loss of time and price, it is highly liquid or marketable.</li> </ul>

## PRACTICAL QUESTIONS

1. A firm maintains a separate account for cash disbursement. Total disbursement are ₹1,05,000 per month or ₹12,60,000 per year. Administrative and transaction cost of transferring cash to disbursement account is ₹20 per transfer. Marketable securities yield is 8% per annum. Determine the optimum cash balance according to William J. Baumol Model. [SM]

[Sol. ₹25,100]

2. The following information is available in respect of SK Ltd:
- (i) On an average, debtors are collected after 45 days; inventories have an average holding period of 75 days and creditor's payment period on an average is 30 days.
  - (ii) The firm spends a total of ₹120 lakhs annually at a constant rate.
  - (iii) It can earn 20 per cent on investments.

From the above information, you are required to calculate:

- (a) The cash cycle and cash turnover;
- (b) Minimum amounts of cash to be obtained to meet payments as they become due,
- (c) Savings by reducing the average inventory holding period by 30 days. [SM]

[Sol. (a) 90 days; 4 cycles; (b) ₹30,00,000; (c) ₹2,00,000]

Following is the data related to SK Ltd:

Month	January	February	March	April	May	June
Sales	10,000	25,000	30,000	45,000	50,000	20,000

20% of the sales are on cash basis. Calculate the collection from debtors for 2nd quarter in the following cases:

- (a) Goods are sold on 2 month credit.
- (b) 50% of the credit customers pay in the next month of sales and the balance in the following month.
- (c) 50% of the credit customers pay in the following month of sales. 50% of the balance customers will pay in 2 months and the balance in the next month.
- (d) 2% of the customers are bad debts. 50% of the total account receivables are collected in the month of the sales and the rest in the following month.
- (e) 1% of the credit sales are returned by the customers; 2% debts are uncollectible; 50% of the good account receivables are collected in the next month of sales and the rest in the following month.
- (f) Cash sales are 75% less than the credit sales. 75% of credit sales are collected within one month and the balance in two months.

3. Prepare monthly cash budget of 6 months beginning from April 2021, on the basis of following information: [SM]

- (a) Estimated monthly sales are as follows:

Jan	₹1,00,000	June	₹80,000
Feb	₹1,20,000	July	₹1,00,000
March	₹1,40,000	Aug	₹80,000
April	₹80,000	Sept	₹60,000
May	₹60,000	Oct	₹1,00,000

(b) Wages and salaries are estimated to be payable as follows:

April	₹9,000	July	₹10,000
May	₹8,000	Aug	₹9,000
June	₹10,000	Sept	₹9,000

(c) Cash sales are 75% less than the credit sales. 75% of credit sales are collected within one month and the balance in two months. There are no bad debt losses.

(d) Purchases amount to 80% of sales and are made and paid for in the month preceding the sale.

(e) The firm has 10% Debentures of ₹1,20,000. Interest on these has to be paid quarterly in Jan. April and so on.

(f) The firm is to be make an advance payment of tax of ₹5,000 in July 2021.

(g) The firm had a cash balance of ₹20,000 on April, 1 2021, which is the minimum desired level of cash balance. Any cash surplus/deficit above/below this level is made up by temporary investment/liquidation of temporary investments or Temporary borrowings at the end of each month (interest on these to be ignored).

[Sol. Closing balance = ₹20,000; ₹20,000; ₹20,000; ₹20,000; ₹20,000; ₹20,000]

4. A company was incorporated w.e.f. 1st April, 2021. Its authorized capital was ₹1,00,00,000 divided into 10 lakhs equity shares of ₹10 each. It intends to raise capital by issuing equity shares of ₹50,00,000 (fully paid) on 1st April. Besides, a loan of ₹6,50,000 @ 12% per annum will be obtained from a financial institution on 1st April and further borrowings will be made at same rate of interest on the first day of the month in which borrowing is required. All borrowings will be repaid along with interest on the expiry of one year. The company will make payment for the following assets in April.

[RTP Nov 2022]

Particulars	(₹)
Plant and Machinery	10,00,000
Land & Building	20,00,000
Furniture	5,00,000
Motor Vehicles	5,00,000
Stock of Raw Materials	5,00,000

The following further details are available:

(1) Projected Sales (April – September):

	(₹)
April	15,00,000
May	17,50,000
June	17,50,000
July	20,00,000
August	20,00,000
September	22,50,000

- (2) Gross profit margin will be 25% on sales.
- (3) The company will make credit sales only and these will be collected in the second month following sales.
- (4) Creditors will be paid in the first month following credit purchases. There will be credit purchases only.
- (5) The company will keep minimum stock of raw materials of ₹5,00,000.
- (6) Depreciation will be charged @ 10% per annum on cost on all fixed assets.
- (7) Payment of preliminary expenses of ₹50,000 will be made in April.
- (8) Wages and salaries will be ₹1,00,000 each month and will be paid on the first day of the next month.
- (9) Administrative expenses of ₹50,000 per month will be paid in the month of their incurrence.
- (10) No minimum cash balance is required.

You are required to prepare the monthly cash budget (April - September), the projected income statement for the 6 months period and the projected balance sheet as on 30th September, 2021.

[Sol. Closing balance = ₹10,50,000; Nil; ₹1,37,500; ₹5,25,000; ₹7,25,000; ₹11,75,000; Gross profit = ₹28,12,500; Net profit = ₹22,17,250; Total BS = 97,75,000]

5. From the following information relating to a departmental store, you are required to prepare for the three months ending 31st March, 2021: **[SM]**

- (a) Month-wise cash budget on receipts and payments basis; and
- (b) Statement of Sources and uses of funds for the three months period.

It is anticipated that the working capital & other account balances at 1st January, 2021 will be as follows: **₹in 000's**

Cash in hand and at bank	1,090
Short term investments	600
Debtors	5,140
Stock	2,600
Trade creditors	4,220
Other creditors	400
Dividend payable	970
Tax due	640
Plant	1,600

#### Budgeted Profit Statement

**₹in 000's**

	January	February	March
Sales	4,200	3,600	3,400
Cost of sales	3,270	2,810	2,660
Gross profit	930	790	740
Administrative, selling and distribution expenses	630	540	510
Net Profit before tax	300	250	230



**Budgeted balances at the end of each month**

₹in 000's

	January	February	March
Short term investments	1,400	–	400
Debtors	5,200	5,000	4,7000
Stock	2,400	2,200	2,000
Trade creditors	4,000	3,900	3,800
Other creditors	400	400	400
Dividend payable	970	–	–
Tax due	640	640	640
Plant (depreciation ignored)	1,600	3,200	3,100

Depreciation amount of ₹1,20,000 is included in the budgeted expenditure for each month.

[Sol. (a) ₹46,00,000; ₹57,00,000; ₹33,50,000; (b) Sources = Uses = ₹25,70,000]

6. You are given below the Profit & Loss Accounts for two years for a company:

**Profit & Loss Account**

Particulars	Year 1(₹)	Year 2(₹)	Particulars	Year 1(₹)	Year 2(₹)
To Opening Stock	40,00,000	50,00,000	By Sales	4,00,00,000	5,00,00,000
To Raw Materials	1,50,00,000	2,00,00,000	By Closing Stock	50,00,000	75,00,000
To Stores	50,00,000	60,00,000	By Misc. Income	5,00,000	5,00,000
To Manufacturing Exp.	50,00,000	80,00,000			
To Other Expenses	50,00,000	50,00,000			
To Depreciation	50,00,000	50,00,000			
To Net Profit	65,00,000	90,00,000			
	4,55,00,000	5,80,00,000		4,55,00,000	5,80,00,000

Sales are expected to be ₹6,00,00,000 in year 3. Other expenses will increase by ₹25,00,000 besides other charges. Only raw materials are in stock. Assume sales and purchases are in cash terms and the closing stock is expected to go up by the same amount as between year 1 and 2. You may assume that no dividend is being paid. The Company can use 75% of the cash generated to service a loan. Compute how much cash from operations will be available in year 3 for the purpose? Ignore income tax.

[SM]

[Sol. ₹1,27,00,000]

7. SK Ltd is a manufacturing company producing and selling a range of cleaning products to wholesale customers. It has three suppliers and two customers. SK Ltd relies on its cleared funds forecast to manage its cash. You are an accounting technician for the company and have been asked to prepare a cleared funds forecast for the period Friday 9 July to Tuesday 13 July 2021 inclusive. You have been provided with the following information:

[SM]



### (1) Receipts from customers

	Credit Terms	Payment Method	9 July 2021 sales	9 June 2021 sales
P Ltd.	1 Calendar month	BACS	₹3,00,000	₹2,60,000
M Ltd.	None	Cheque	₹3,60,000	₹3,10,000

- (a) Receipt of money by BACS (Bankers' Automated clearing Services) is instantaneous.
- (b) M Ltd.'s cheque will be paid into SK Ltd.'s bank account on the same day as the sale is made and will clear on the third day following this (excluding day of payment).

### (2) Payment to Suppliers

Supplier Name	Credit terms	Payment Method	9 July 2021 Purchases	9 June 2021 Purchases	9 May 2021 Purchases
R Ltd.	1 calendar month	Standing order	₹1,30,000	₹1,10,000	₹90,000
J Ltd.	2 calendar month	Cheque	₹1,70,000	₹1,60,000	₹1,50,000
K Ltd.	None	Cheque	₹1,90,000	₹1,80,000	₹1,70,000

- (a) SK Ltd has set up a standing order for ₹90,000 a month to pay for supplies from R Ltd. This will leave SK's bank account on 9 July. Every few months, an adjustment is made to reflect the actual cost of supplies purchased (you do not need to make this adjustment).
- (b) SK Ltd will send out, by post, cheques to J Ltd and K Ltd on 9 July. The amounts will leave its bank account on the second day following this (excluding the day of posting).

### (3) Wages and salaries

	June 2021	July 2021
Weekly wages	₹24,000	₹26,000
Monthly salaries	₹1,12,000	₹1,18,000

- (a) Factory workers are paid cash wages (weekly). They will be paid one week's wages, on 11 July, for the last week's work done in June (i.e. they work a week in hand).
- (b) All the office workers are paid salaries (monthly) by BACS. Salaries for June will be paid on 9 July.

### (4) Other miscellaneous payments

- (a) Every Friday morning, the petty cashier withdraws ₹400 from the company bank account for the petty cash. The money leaves SK's bank account straight away.
- (b) The room cleaner is paid ₹60 from petty cash every Sunday morning.
- (c) Office stationery will be ordered by telephone on Saturday 10 July to the value of ₹600. This is paid for by company debit card. Such payments are generally seen to leave the company account on the next working day.
- (d) Five new software will be ordered over the Internet on 12 July at a total cost of ₹13,000. A cheque will be sent out on the same day. The amount will leave SK Ltd.'s bank account on the second day following this (excluding the day of posting).

### (5) Other information

The balance on SK's bank account will be ₹4,00,000 on 9 July 2021. This represents both the book balance and the cleared funds.

Prepare a cleared funds forecast for the period Friday 9th July to Tuesday 13th July 2021 inclusive using the information provided. Show clearly the uncleared funds float each day.

[Sol. Cleared fund = ₹4,57,600; ₹4,57,600; ₹93,000; ₹4,53,000; ₹4,53,000; Uncleared funds = ₹4,77,600; ₹4,77,000; ₹4,53,000; ₹4,40,000; ₹4,40,000]

8. Based on the following information prepare a cash budget for SK Ltd:

	1st Qtr (₹)	2nd Qtr (₹)	3rd Qtr (₹)	4th Qtr (₹)
Opening cash balance	10,000	–	–	–
Collections from customers	1,25,000	1,50,000	1,60,000	2,21,000
<b>Payments:</b>				
Purchase of materials	20,000	35,000	35,000	54,200
Other expenses	25,000	20,000	20,000	17,000
Salary and wages	90,000	95,000	95,000	1,09,200
Income tax	5,000	–	–	–
Purchase of machinery	–	–	–	20,000

The company desired to maintain a cash balance of ₹15,000 at the end of each quarter. Cash can be borrowed or repaid in multiples of ₹500 at an interest of 10% per annum. Management does not want to borrow cash more than what is necessary and wants to repay as early as possible. In any event, loans cannot be extended beyond four quarters. Interest is computed and paid when the principal is repaid. Assume that borrowings take place at the beginning and repayments are made at the end of the quarters.

[Sol. Closing balance = ₹15,000; ₹15,000; ₹15,325; ₹23,825]

## PRACTICE QUESTIONS

9. K Ltd. has a Quarterly cash outflow of ₹9,00,000 arising uniformly during the Quarter. The company has an Investment portfolio of Marketable Securities. It plans to meet the demands for cash by periodically selling marketable securities. The marketable securities are generating a return of 12% p.a. Transaction cost of converting investments to cash is ₹60. The company uses Baumol model to find out the optimal transaction size for converting marketable securities into cash.

Consider 360 days in a year.

[Nov 2022]

You are required to calculate:

- (a) Company's average cash balance
- (b) Number of conversions each year and
- (c) Time interval between two conversions

[Sol. (a) ₹30,000; (b) 60; (c) 6 days]

10. A garment trader is preparing cash forecast for first three months of calendar year 2021. His estimated sales for the forecasted periods are as below:

	January (₹'000)	February (₹'000)	March (₹'000)
<b>Total Sales</b>	600	600	800

- (i) The trader sells directly to public against cash payments and to other entities on credit. Credit sales are expected to be four times the value of direct sales to public. He expects 15% customers to pay in the month in which credit sales are made, 25% to pay in the next month and 58% to pay in the next to next month. The outstanding balance is expected to be written off.
- (ii) Purchase of goods are made in the month prior to sales and it amounts to 90% of sales and made on credit. Payments of these occur in the month after the purchase. No inventories of goods are held.
- (iii) Cash balance as on 1st January, 2021 is ₹50,000
- (iv) Actual sales for the last two months of calendar year 2020 are as below:

	November (₹'000)	December (₹'000)
<b>Total Sales</b>	640	880

You are required to prepare a monthly cash budget for the three months from January to March, 2021. **[Dec 2021]**

**[Sol.]** Closing balance (₹in 000s) = ₹174.96; ₹355.78; ₹289.68]

- 11.** Slide Ltd. is preparing a cash flow forecast for the three months period from January to the end of March. The following sales volumes have been forecasted: **[Nov 2019]**

Months	December	January	February	March	April
Sales (units)	1,800	1,875	1,950	2,100	2,250

Selling price per units ₹600. Sales are all on one month credit. Production of goods for sale takes place one month before sales. Each unit produced requires two units of raw material costing ₹150 per unit. No raw material inventory is held. Raw materials purchases are on one month credit. Variable overheads and wages equal to ₹100 per unit are incurred during production and paid in the month of production. The opening cash balance on 1st January is expected to be ₹35,000. A long term loan of ₹2,00,000 is expected to be received in the month of March. A machine costing ₹3,00,000 will be purchased in March.

- (a) Prepare a cash budget for the months of January, February and March and calculate the cash balance at the end of each month in the three months period.
- (b) Calculate the forecast current ratio at the end of the three months period.

**[Sol.]** (a) Closing balance = ₹3,57,500; ₹6,87,500; ₹9,02,500; (b) 4.537]

- 12.** The following information relates to SK Ltd., a publishing company:

The selling price of a book is ₹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 (₹5), labour (₹4) and overhead (₹2).

Month	No. of books
November	1,000
December	1,000
January	1,000
February	1,250
March	1,500

Month	No. of books
April	2,000
May	1,900
June	2,200
July	2,200
August	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 ₹25,000, but it is also planning to buy a new printing press in May for ₹10,000. Depreciation is currently ₹1,000 per month, and will rise to ₹1,500 after the purchase of the new machine.

The company's corporation tax (of ₹10,000) is due for payment in March. The company presently has a cash balance at bank on 31 December 2020, of ₹1,500.

You are required to prepare a cash budget for the six months from January to June 2021. **[SM]**

**[Sol.]** Closing balance = ₹3,250; ₹1,500; (-) ₹11,912; (-) ₹15,024; ₹576; ₹3,239]

13. You are required to prepare a cash budget based on the given information. The cash balance in hand on 1 January 2021 is ₹72,500. Assume that 50 per cent of total sales are cash sales. Assets are to be acquired in the months of February and April. Therefore, provisions should be made for the payment of ₹8,000 and ₹25,000 for the same. An application has been made to the bank for the grant of a loan of ₹30,000 and it is hoped that the loan amount will be received in the month of May.

Months	Sales (₹)	Materials Purchases (₹)	Salaries & Wages (₹)	Production Over Heads (₹)	Office and Selling Over Heads (₹)
January	72,000	25,000	10,000	6,000	5,500
February	97,000	31,000	12,100	6,300	6,700
March	86,000	25,500	10,600	6,000	7,500
April	88,600	30,600	25,000	6,500	8,900
May	1,02,500	37,000	22,000	8,000	11,000
June	1,08,700	38,800	23,000	8,200	11,500

It is anticipated that a dividend of ₹35,000 will be paid in June. Debtors are allowed one month's credit. Creditors for materials purchased and overheads grant one month's credit. Sales commission at 3 per cent on sales is paid to the sales man each month. **[SM]**

**[Sol.]** Closing balance = ₹96,340; ₹1,21,330; ₹1,55,650; ₹1,51,292; ₹2,05,767; ₹1,94,106]

14. Consider the balance sheet of SK ltd. as on 31 December, 2022. The company has received a large order and anticipates the need to go to its bank to increase its borrowings. As a result, it has to forecast its cash requirements for January, February and March, 2023. Typically the company collects 20 percent of this sales in the month of sale, 70 percent in the subsequent month, and 10 percent in the second month after the sale. All sales are credit sales. **[SM]**

Equity & liabilities	Amount (₹in '000)	Assets	Amount (₹in '000)
Equity share capital	100	Net fixed assets	1,836
Retained earnings	1,439	Inventories	545
Long-term borrowings	450	Accounts receivables	530
Accounts payables	360	Cash and bank	50
Loan from banks	400		
Other liabilities	212		
	2,961		2,961

Purchase of raw materials are made in the month prior to the sale and amounts to 60 percent of sales. Payments for these purchases occur in the month after the purchase. Labour costs, including overtime, are expected to be 1,50,000 in January, ₹2,00,000 in February and ₹1,60,000 in March. Selling, administrative, taxes and other cash expenses are expected to be ₹1,00,000 per month for January through March. Actual sales in November and December and projected sales for January through April are as follows (in thousands):

Month	₹	Month	₹	Month	₹
November	500	January	600	March	650
December	600	February	1,000	April	750

On the basis of this information:

- Prepare a cash budget and determine the amount of additional bank borrowings necessary to maintain a cash balance of ₹50,000 at all times for the months of January, February, and March.
- Prepare a pro forma balance sheet as on 31st March 2022.

**[Sol.** (a) Jan = ₹20,000; Feb = ₹2,20,000; March = (-) ₹2,40,000; (b) Total = ₹31,41,000]

## SOLUTIONS

9. (a) Annual cash outflows (U) =  $9,00,000 \cdot 4 = ₹36,00,000$

Fixed cost per transaction (P) = ₹60

Opportunity cost of one rupee p.a. (S) =  $\frac{12}{100} \times 1 = 0.12$

Optimum cash balance =  $\sqrt{\frac{2 \times U \times P}{S}} = \sqrt{\frac{2 \times 36,00,000 \times 60}{0.12}} = ₹60,000$

Average cash balance =  $\frac{60,000}{2} = ₹30,000$

(b) Number of conversions p.a. =  $\frac{\text{Annual requirement}}{\text{Optimum cash balance}} = \frac{36,00,000}{60,000} = 60$

(c) Time interval between two conversion =  $\frac{360}{\text{No. of conversions}} = \frac{360}{60} = 6 \text{ days}$

10. Given, Cash sales = 25% of credit sales

Thus, let credit sales =  $y$   $\therefore$  Cash sales =  $0.25y$

$\therefore y + 0.25y = \text{Total sales}$

$1.25y = \text{Total sales}$

$y = \frac{\text{Total Sales}}{1.25}$

$y = 80\% \text{ of total sales}$

Thus, Credit sales = 80% of total sales and Cash sales = 20% of total sales

### Cash Budget

Particulars	Jan.	Feb.	March
<b>Opening Balance (A)</b>	<b>50</b>	<b>174.96</b>	<b>355.28</b>
<b>Receipts</b>			
20% of current month	120	120	160
12% of current month	72	72	96
20% of previous month	176	120	120
46.4% of previous to previous month	296.96	408.32	278.40
<b>Total receipts (B)</b>	<b>664.96</b>	<b>720.32</b>	<b>654.40</b>
<b>Payments</b>			
Creditors payment	540	540	720
<b>Total payments (C)</b>	<b>540</b>	<b>540</b>	<b>720</b>
<b>Closing Balance (A + B - C)</b>	<b>174.96</b>	<b>355.28</b>	<b>289.68</b>

## 11. Working Notes:

### (1) Calculation of Collection from Trade Receivables

Particulars	December	January	February	March
Sales (units)	1,800	1,875	1,950	2,100
Sales @ ₹600 per unit	10,80,000	11,25,000	11,70,000	12,60,000
Collection from debtors		10,80,000	11,25,000	11,70,000

### (2) Calculation of payment to Trade Payables:

Particulars	December	January	February	March
Output (units)	1,875	1,950	2,100	2,250
Raw Material (2 units per output)	3,750	3,900	4,200	4,500
Raw Material @ ₹150 per unit	5,62,500	5,85,000	6,30,000	6,75,000
Payment to creditors		5,62,500	5,85,000	6,30,000

### (3) Calculation of Variable Overheads and Wages:

Particulars	January	February	March
Output (units)	1,950	2,100	2,250
Payment in same month @ ₹100 per unit	1,95,000	2,10,000	2,25,000

### (a) Preparation of Cash Budget

Particulars	January (₹)	February (₹)	March (₹)
<b>Opening Balance (A)</b>	35,000	3,57,500	6,87,500
<b>Receipts:</b>			
Collection from debtors	10,80,000	11,25,000	11,70,000
Receipt of long term loan	–	–	2,00,000
<b>Total receipt (B)</b>	10,80,000	11,25,000	13,70,000
<b>Payments:</b>			
Payment to creditors	5,62,500	5,85,000	6,30,000
Variable overheads and wages	1,95,000	2,10,000	2,25,000
Purchase of machinery	–	–	3,00,000
<b>Total payments (C)</b>	7,57,500	7,95,000	11,55,000
<b>Closing Balance (A + B - C)</b>	<b>3,57,500</b>	<b>6,87,500</b>	<b>9,02,500</b>



**(b) Calculation of Current Ratios**

Particulars	March (₹)
Inventory $[(2,250 \times 2 \times ₹150) + (2,250 \times 100)]$	9,00,000
Trade receivables	12,60,000
Cash Balance	9,02,500
<b>Current Assets (A)</b>	<b>30,62,500</b>
Trade payables	6,75,000
<b>Current Liabilities (B)</b>	<b>6,75,000</b>
<b>Current Ratio (A ÷ B)</b>	<b>4.537</b>

**12. Workings:****(1) Sales receipts**

Month	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Forecast sales (S)	1,000 ₹	1,000 ₹	1,000 ₹	1,250 ₹	1,500 ₹	2,000 ₹	1,900 ₹	2,200 ₹
S · 15	15,000	15,000	15,000	18,750	22,500	30,000	28,500	33,000
Debtors pay:								
1 month 40%	–	6,000	6,000	6,000	7,500	9,000	12,000	11,400
2 month 60%	–	–	9,000	9,000	9,000	11,250	13,500	18,000
Total	–	–	15,000	15,000	16,500	20,250	25,500	29,400

**(2) Payment for materials**

Month	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Qty produced (Q)	1,000 ₹	1,250 ₹	1,500 ₹	2,000 ₹	1,900 ₹	2,200 ₹	2,200 ₹	2,300 ₹
Materials (Q · 5)	5,000	6,250	7,500	10,000	9,500	11,000	11,000	11,500
Paid (2 month after)	–	–	5,000	6,250	7,500	10,000	9,500	11,000

**(3) Variable overheads**

Month	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Qty produced (Q)	1,000 ₹	1,250 ₹	1,500 ₹	2,000 ₹	1,900 ₹	2,200 ₹	2,200 ₹	2,300 ₹
Var. OHs (Q · 2)	2,000	2,500	3,000	4,000	3,800	–	–	–
Var. OHs (Q · 2.5)	–	–	–	–	–	5,500	5,500	5,750
Paid one month later	–	2,000	2,500	3,000	4,000	3,800	5,500	5,500

#### (4) Wages payment

Month	Dec	Jan	Feb	Mar	Apr	May	Jun
Qty produced (Q)	1,250	1,500	2,000	1,900	2,200	2,200	2,300
	₹	₹	₹	₹	₹	₹	₹
Wages (Q · 4)	5,000	6,000	8,000	–	–	–	–
Wages (Q · 4.50)	–	–	–	8,550	9,900	9,900	10,350
75% this month	3,750	4,500	6,000	6,412	7,425	7,425	7,762
25% of Pr. month	–	1,250	1,500	2,000	2,138	2,475	2,475
Total	–	5,750	7,500	8,412	9,563	9,900	10,237

#### Cash Budget

Particulars	Jan (₹)	Feb (₹)	March (₹)	April (₹)	May (₹)	June (₹)
<b>Receipts:</b>						
Sales receipts	15,000	15,000	16,500	20,250	25,500	29,400
Freehold property	–	–	–	–	25,000	–
	<b>15,000</b>	<b>15,000</b>	<b>16,500</b>	<b>20,250</b>	<b>50,500</b>	<b>29,400</b>
<b>Payments:</b>						
Materials	5,000	6,250	7,500	10,000	9,500	11,000
Var. OHs	2,500	3,000	4,000	3,800	5,500	5,500
Wages	5,750	7,500	8,412	9,563	9,900	10,237
Printing press	–	–	–	–	10,000	–
Corporation tax	–	–	10,000	–	–	–
	<b>13,250</b>	<b>16,750</b>	<b>29,921</b>	<b>23,363</b>	<b>34,900</b>	<b>26,737</b>
Net cash flow	1,750	(1,750)	(13,412)	(3,113)	15,600	2,663
Op. Bal.	1,500	3,250	1,500	(11,912)	(15,025)	575
Closing bal.	3,250	1,500	(11,912)	(15,025)	575	3,238

#### 13. Cash Budget for January to June

	Jan (₹)	Feb (₹)	March (₹)	April (₹)	May (₹)	June (₹)
<b>Receipts:</b>						
Cash Sales	36,000	48,500	43,000	44,300	51,250	54,350
Collection from Debtors	–	36,000	48,500	43,000	44,300	51,250
Bank Loan	–	–	–	–	30,000	–
Total (A)	35,000	84,500	91,500	87,300	1,25,550	1,05,600
<b>Payments:</b>						
Materials	–	5,000	31,000	25,500	30,600	37,000
Salaries and Wages	10,000	12,100	10,600	25,000	22,000	23,000
Production Overheads	–	6,000	6,300	6,000	6,500	8,000
Office and Selling Overheads	–	5,500	6,700	7,500	8,900	11,000

	Jan (₹)	Feb (₹)	March (₹)	April (₹)	May (₹)	June (₹)
Sales Commission	2,160	2,190	2,580	2,658	3,075	3,261
Capital Expenditure	–	8,000	–	25,000	–	–
Dividend	–	–	–	–	–	35,000
<b>Total (B)</b>	<b>12,160</b>	<b>59,510</b>	<b>57,180</b>	<b>91,658</b>	<b>71,075</b>	<b>1,17,261</b>
Net Cash Flow (C = A – B)	23,840	24,990	34,320	4,358	54,475	11,661
Bal. in the Beginning of Month (D)	72,500	96,340	1,21,330	1,55,650	1,51,292	2,05,767
Balance at the End of Month (C + D)	96,340	1,21,330	1,55,650	1,51,292	2,05,767	1,94,106

#### 14. (a) Cash Budget

(₹in thousands)

	Jan (₹)	Feb (₹)	March (₹)
<b>Opening balance (A)</b>	<b>50</b>	<b>50</b>	<b>50</b>
<b>Receipts:</b>			
Collection – 10% of current month	120	200	130
Collection – 70% of previous month	420	420	700
Collection – 10% of 2nd previous month	50	60	60
<b>Total (B)</b>	<b>590</b>	<b>680</b>	<b>890</b>
<b>Payments:</b>			
Payment for purchases	360	600	390
Labour costs	150	200	160
Other expenses	100	100	100
<b>Total (C)</b>	<b>610</b>	<b>900</b>	<b>650</b>
Surplus/Deficit (A + B – C = D)	30	(170)	290
Minimum cash balance (E)	50	50	50
Additional borrowings (E – D)	20	220	(240)
Cumulative borrowing (op. bal. 400)	420	640	400

The amount of financing peaks in February owing to the need to pay for purchases made the previous month and higher labour costs. In March, substantial collections are made on the prior month's billings, causing large net cash inflow sufficient to pay off the additional borrowings.

#### (b) Pro Forma Balance Sheet, 31st March, 2023

Equity & liabilities	Amount (₹in '000)	Assets	Amount (₹in '000)
Equity share capital	100	Net fixed assets	1,836
Retained earnings	1,529	Inventories	635
Long-term borrowings	450	Accounts receivables	620
Accounts payables	450	Cash and bank	50
Loan from banks	400		
Other liabilities	212		
	<b>3,141</b>		<b>3,141</b>

Accounts receivables	$= (\text{Sales in march} \cdot 0.8) + (\text{Sales in February} \cdot 0.1)$ $= (650 \cdot 0.8) + (1,000 \cdot 0.1) = ₹620$
Inventories	$= \text{Opening} + \text{Purchase} - \text{Consumed}$ $= 545 + [(1,000 + 650 + 750)(0.60)] -$ $[(600 + 1,000 + 650) \cdot 0.60] = ₹635$
Accounts payable	$= \text{Purchases in march} = ₹450$
Retained earnings	$= \text{Opening} + \text{Profit of current year}$ $= 1,439 + \text{Sales} - \text{Purchases} - \text{Labour cost} - \text{Other expenses}$ $= 1,439 + (600 + 1,000 + 650) - [(600 + 1,000 + 650)(0.60)]$ $- (150 + 200 + 160) - (100 + 100 + 100)$ $= ₹1,529$