# PAPER - 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT 

Question No. 1 is compulsory.

Attempt any five questions out of the remaining six questions.
In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer.

## Question 1

Answer the following:
(a) A manufacturing company having strength of 50 workers planned for 300 working days of 8 hours each. Based on earlier year's trend, it is estimated that average absenteeism per worker would be 10 days in addition to eligibility of 20 days annual leave. The budgeted overheads amounted to ₹ $15,12,000$.
During the year, factory worked for 2 extra days to meet the production targets. The actual average absenteeism per worker was 8 days. Out of 50 workers, 20 took the annual leave of 20 days and the remaining took 15 days leave. 450 hours were lost due to machine breakdown. Overtime worked on production during the year amounted to 650 hours. Actual overheads amounted to ₹ $15,92,600$.
You are required to:
(i) Calculate overhead absorption rate based on direct labour hours.
(ii) Determine the under or over absorption of overheads during the year.
(b) K. Ltd. has the following capital structure as per the books of accounts:

| Equity Capital <br> (in shares of ₹ 10 each, fully paid up-at par) | $₹ 20$ crores |
| :--- | :--- |
| $15 \%$ Debentures (of ₹100 each) | $₹ 15$ crores |
| $18 \%$ Term Loans | $₹ 18$ crores |

The next expected dividend on equity shares per share is ₹ 6 ; the dividend per share is expected to grow at the rate of $8 \%$. The market price per share is ₹ 60 .
Debentures, redeemable after 8 years, are currently selling at $₹ 90$ per debenture.
The Income-tax rate for the company is $30 \%$.
You are required to calculate the current weighted average cost of capital using market value proportions.
(Note: Workings should be upto three decimal places.)
(c) In a chemical factory, two products ' A ' and ' B ' emerges from a refining process. For the month of March-2021, following details are available:
Total cost upto separation point is ₹9,84,000.

| Products | Output <br> (In litres) | Selling Price per <br> unit at the split- <br> off point (₹) | Additional processing <br> cost after the split-off <br> point ( ₹) | Sales Value after <br> further <br> processing (₹) |
| :--- | :---: | :---: | :---: | :---: |
| A | 24,000 | 80.00 | $1,20,000$ | $23,02,500$ |
| B | 4,500 | 39.63 | 18,000 | 42,000 |

You are required to prepare a 'Statement of Profitability' based on:
(a) If the products are sold after further processing in the factory.
(b) If the products are sold at the split-off point.
(d) Following information is available from the financial records of ABC Limited:

|  | Balance as on | Balance as on |
| :--- | ---: | ---: |
|  | 31.03 .2021 | 31.03 .2020 |
| Profit \& loss account | $15,60,000$ | $14,35,000$ |
| Plant \& machinery (net of depreciation) | $12,58,000$ | $9,84,000$ |
| Equity Share Capital @ ₹10 each | $20,00,000$ | $20,00,000$ |
| Investments | $4,50,000$ | $5,00,000$ |

Additional Information:
(i) New plant \& machinery amounting to ₹ 4,92,500 was purchased and the machinery costing ₹ $1,12,500$ with a book value of $₹ 75,000$ was sold. A gain of ₹ 17,500 made on the sale of machinery.
(ii) Some investments were sold for ₹ 58,000 and its profit transferred to profit and loss account.
(iii) ₹ $1,25,000$ transferred to general reserve during the year.
(iv) ₹ 60,000 by way of dividend received during the year ending 31-03-2021 including ₹ 4,000 from pre-acquisition profits which was credited to investment account.
(v) Provision for Income-tax made during the year was ₹ $1,32,000$.
(vi) Interim dividend @ ₹ 0.75 per share paid during the year.

You are required to calculate funds from operation for the year ended 31-03-2021.
( $4 \times 5=20$ Marks)

## Answer

(a) (i) Calculation of overhead absorption rate based on direct labour hours

| Normal labour hours (50 workers $\times 300$ working days <br> $\times 8$ hours) | $1,20,000$ labour hours |
| :--- | ---: |
| Less: Absenteeism and Leave $[50$ workers $\times(10+20)$ <br> days $\times 8$ hours) | 12,000 labour hours |
| Budgeted hours | $1,08,000$ labour hours |
| Overhead absorption rate $=\frac{₹ 15,12,000}{1,08,000 \text { hours }}=₹ 14$ per labour hour |  |

(ii) Computation of under or over absorption of overhead

| Normal labour hours ( 50 workers $\times 300$ working days $\times$ <br> 8 hours) | $1,20,000$ labour hours |
| :--- | ---: |
| Add: 2 extra days worked ( 50 workers $\times 2$ days $\times 8$ <br> hours) | 800 labour hours |
| Add: Overtime | 650 labour hours |
| Less: Absenteeism ( 50 workers $\times 8$ days $\times 8$ hours) | 3,200 labour hours |
| Less: Annual leave $[(20$ workers $\times 20$ days $\times 8$ hours) + <br> (30 workers $\times 15$ days $\times 8$ hours)] | 6,800 labour hours |
| Less: Idle hours | 450 labour hours |
| Utilizable hours | $1,11,000$ labour hours |

Overhead absorbed $=1,11,000$ labour hours $x$ ₹ 14 per labour hour $=₹ 15,54,000$
Overhead under-absorbed = Actual - Absorbed

$$
\begin{aligned}
& =₹ ~ 15,92,600-₹ 15,54,000 \\
& =₹ 38,600
\end{aligned}
$$

Alternatively, Part(ii) of the solution can be done as below:
(ii) Computation of under or over absorption of overhead

| Normal labour hours (50 workers $\times 300$ working days $\times$ <br> 8 hours $)$ | $1,20,000$ labour hours |
| :--- | ---: |
| Add: Overtime | 650 labour hours |
| Less: Leave $[(20$ workers $\times 20$ days $\times 8$ hours $)+(30$ <br> workers $\times 15$ days $\times 8$ hours $)]$ | 6,800 labour hours |


| Less: Idle hours | 450 labour hours |
| :--- | ---: |
| Utilizable hours | $1,13,400$ labour hours |

Overhead absorbed = 1, 13,400 labour hours x ₹ 14 per labour hour $=₹ 15,87,600$
Overhead under-absorbed $=$ Actual - Absorbed

$$
\begin{aligned}
& =₹ 15,92,600-₹ 15,87,600 \\
& =₹ 5,000
\end{aligned}
$$

(b) Workings:
(i) Cost of Equity $\left(K_{e}\right)=\frac{D_{1}}{P_{0}}+g=\frac{₹ 6}{₹ 60}+0.08=0.18=18 \%$
(ii) Cost of Debentures $\left(K_{d}\right)=\frac{I(1-t)\left[\frac{R V-N P}{n}\right]}{\frac{R V+N P}{2}}$

$$
=\frac{₹ 15(1-0.30)+\frac{(₹ 100-₹ 90)}{8 \text { years }}}{\frac{(₹ 100+₹ 90)}{2}}
$$

$$
=0.12368 \text { or } 12.368 \%
$$

(iii) Cost of Term Loans (Kt) $=r(1-t)=18 \%(1-0.30)=12.6 \%$

Computation of Weighted Average Cost of Capital
(WACC using market value weights)

| Source of capital | Market Value <br> of capital <br> (₹ in crores) | Weight | Cost of <br> capital (\%) | WACC <br> (\%) |
| :--- | ---: | ---: | ---: | ---: |
| Equity Capital <br> (₹ $60 \times 2$ crores shares) | 120.00 | 0.792 | 18.000 | 14.256 |
| $15 \%$ Debentures <br> (₹ $90 \times 0.15$ crores debentures) | 13.50 | 0.089 | 12.368 | 1.101 |
| $18 \%$ Term Loans | 18.00 | 0.119 | 12.600 | 1.499 |
| Total | 151.50 | 1.000 |  | 16.856 |

## (c) Working Note:

Apportionment of joint costs on the basis of Market value after further processing.
Apportioned joint cost $=\frac{\text { Sales value of eachproduct }}{\text { Total Market value after further proces sing }} \times$ Total joint cost
Where,
Total Joint cost
= ₹ 9,84,000

Total sales after further processing $(A+B)=₹ 23,02,500+₹ 42,000=₹ 23,44,500$
Share of $A$ in joint cost $=\frac{23,02,500}{23,44,500} \times ₹ 9,84,000=₹ 9,66,372$
Share of $B$ in joint cost $=\frac{42,000}{23,44,500} \times ₹ 9,84,000=₹ 17,628$
(a) Statement of profitability if the products are sold after further processing

|  | A (₹) | B (₹) | Total (₹) |
| :--- | ---: | ---: | ---: |
| Sales Value after further processing | $23,02,500$ | 42,000 | $23,44,500$ |
| Less: Apportioned Joint Costs (refer Working Note) | $9,66,372$ | 17,628 | $9,84,000$ |
| Less: Additional processing Cost | $1,20,000$ | 18,000 | $1,38,000$ |
| Profit | $\mathbf{1 2 , 1 6 , 1 2 8}$ | $\mathbf{6 , 3 7 2}$ | $12,22,500$ |

(b) Statement of profitability if the products are sold at split-off point

|  |  | $\mathbf{A}(₹)$ | $\mathbf{B}$ (₹) |
| :--- | ---: | ---: | ---: |
| Total (₹) |  |  |  |
| Sales <br> point | $19,20,000$ | $1,78,335$ | $20,98,335$ |
| Less: Apportioned <br> Costs (refer Working Note) | $9,66,372$ | 17,628 | $9,84,000$ |
| Profit |  |  |  |

Alternatively,
Joint costs can also be apportioned on the basis of Market Value at split-off point Working Note:

Apportionment of joint costs on the basis of Market Value at split-off point.

Apportioned joint cost $=\frac{\text { Sales value of each product }}{\text { Total Sales value at split-off point }} \times$ Total joint cost
Where,
Total Joint cost
= ₹ 9,84,000

Total sales value at split-off point $(A+B)=₹ 19,20,000+₹ 1,78,335=₹ 20,98,335$
Share of $A$ in joint cost $=\frac{19,20,000}{20,98,335} \times ₹ 9,84,000=₹ 9,00,371$
Share of $B$ in joint cost $=\frac{1,78,335}{20,98,335} \times ₹ 9,84,000=₹ 83,629$
(a) Statement of profitability if the products are sold after further processing

|  |  | $\mathbf{A}(₹)$ | $\mathbf{B}(₹)$ | Total (₹) |
| :--- | :--- | ---: | ---: | ---: |
| Sales Value after further processing |  | $23,02,500$ | 42,000 | $23,44,500$ |
| Less: Apportioned Joint Costs (refer | $9,00,371$ | 83,629 | $9,84,000$ |  |
| Working Note) |  |  |  |  |
| Less: Additional processing Cost | $1,20,000$ | 18,000 | $1,38,000$ |  |
| Profit | $\mathbf{1 2 , 8 2 , 1 2 9}$ | $\mathbf{( 5 9 , 6 2 9 )}$ | $12,22,500$ |  |

(b) Statement of profitability if the products are sold at split-off point

|  | $\mathbf{A}(₹)$ | $\mathbf{B}(₹)$ | Total (₹) |
| :--- | ---: | ---: | ---: |
| Sales Value at split-off <br> point | $19,20,000$ | $1,78,335$ | $20,98,335$ |
| Less: Apportioned Joint <br> Costs (refer Working <br> Note) | $9,00,371$ | 83,629 | $9,84,000$ |
| Profit |  |  |  |

Alternatively,
Joint costs can also be apportioned on the basis of physical units

## Working Note:

Apportionment of joint costs on the basis of Physical Unit Method.
Apportioned joint cost will be shared in the ratio of Physical Units i.e. $24,000: 4,500$.
Total Joint cosy $=₹ 9,84,000$

Share of $A$ in joint cost $=\frac{24,000}{28,500} \times 9,84,000=₹ 8, \mathbf{2 8 , 6 3 2}$
Share of B in joint cost $=\frac{4,500}{28,500} \times 9,84,000=₹ 1,55,368$
(a) Statement of profitability if the products are sold after further processing

|  | $\mathbf{A}(₹)$ | $\mathbf{B}(₹)$ | Total (₹) |
| :--- | ---: | ---: | ---: |
| Sales Value after further processing | $23,02,500$ | 42,000 | $23,44,500$ |
| Less: Apportioned Joint Costs (refer Working | $8,28,632$ | $1,55,368$ | $9,84,000$ |
| Note) |  |  |  |
| Less: Additional processing Cost | $1,20,000$ | 18,000 | $1,38,000$ |
| Profit | $\mathbf{1 3 , 5 3 , 8 6 8}$ | $\mathbf{( 1 , 3 1 , 3 6 8 )}$ | $12,22,500$ |

(b) Statement of profitability if the products are sold at split-off point

|  | A (₹) | B (₹) | Total (₹) |
| :---: | :---: | :---: | :---: |
| Sales Value at split-off point | $\begin{gathered} 19,20,000 \\ (24,000 \text { litres x ₹ } 80) \end{gathered}$ | $\begin{gathered} 1,78,335 \\ (4,500 \text { litres } x \text { ₹ } 39.63) \end{gathered}$ | 20,98,335 |
| Less: Apportioned Joint Costs (refer Working Note) | 8,28,632 | 1,55,368 | 9,84,000 |
| Profit | 10,91,368 | 22,967 | 11,14,335 |

(d) Calculation of Funds from Operation for the year ended 31-03-2021

|  |  | $(₹)$ |
| :--- | :--- | ---: |
| Add: | Profit and loss as on 31.03.2021 | $15,60,000$ |
|  | Depreciation (refer Working Note 1) | $1,43,500$ |
|  | Provision for Income Reserves | $1,25,000$ |
|  | Interim Dividend (₹ $0.75 \times 2,00,000$ ) | $1,32,000$ |
|  |  | $\mathbf{1 , 5 0 , 0 0 0}$ |
| Less: | Gain on Sale of Plant \& machinery | $21,10,500$ |
|  | Gain on Sale of Investment (refer Working Note 2) | 17,500 |
|  | Dividend Received (60,000 - 4,000) | 12,000 |
|  | Profit and loss as on 31.03.2020 | $\mathbf{5 6 , 0 0 0}$ |
| Fund from Operations | $\mathbf{1 4 , 3 5 , 0 0 0}$ |  |

## Working Notes:

## 1. Plant \& Machinery A/c

| Particulars | $₹$ | Particulars | $₹$ |
| :--- | ---: | :--- | ---: |
| To Balance b/d | $9,84,000$ | By Depreciation A/c (Bal. fig.) | $1,43,500$ |
| To Bank (New purchase) | $4,92,500$ | By Cash (₹ $75,000+₹ 17,500)$ | 92,500 |
| To P/L (Gain on sale) | 17,500 | By Balance c/d | $12,58,000$ |
|  | $14,94,000$ |  | $14,94,000$ |

2. Investments A/c

| Particulars | $₹$ | Particulars | $₹$ |
| :--- | :---: | :--- | :---: |
| To Balance b/d | $5,00,000$ | By Cash (Sale) | 58,000 |
| To P/L (Gain on sale) (Bal. <br> fig.) | 12,000 <br> By Cash (pre-acquisition <br> profit) | 4,000 |  |
|  |  | By Balance c/d | $4,50,000$ |
|  | $5,12,000$ |  | $5,12,000$ |

## Question 2

(a) A skilled worker engaged in machining of component 'WYE' receives an ordinary wage rate of ₹ 504 per day of 8 hours. The standard output for machining the component has been fixed at 64 pieces per hour (time as fixed for premium bonus).

In a certain week of 48 hours, the output of the worker on this machine is 3,456 pieces.
You are required to calculate total weekly earnings of worker under the following:
(i) Rowan premium bonus system;
(ii) Halsey Weir premium plan;
(iii) Emerson efficiency system and
(iv) If a bonus of $₹ 1.50$ is paid per piece in excess of standard output.
(b) A Ltd. is considering the purchase of a machine which will perform some operations which are at present performed by the workers. Machine "I" and Machine "II" are the two alternative models.

The following details of Machine "I" and Machine "II" are available:

|  | Machine I | Machine II |
| :--- | ---: | ---: |
| (₹) | (₹) |  |
| Cost of machine | 70,000 | $1,80,000$ |
| Estimated life of machine | 7 years | 9 years |


| Estimated cost of maintenance p.a. | 5,000 | 8,000 |
| :--- | ---: | ---: |
| Estimated additional cost of indirect material p.a. | 3,000 | 4,000 |
| Estimated savings in scrap p.a. | 8,000 | 12,000 |
| Estimated cost of supervision p.a. | 13,000 | 18,000 |
| Estimated savings in wages p.a. | 40,000 | 80,000 |

Depreciation will be charged on straight line basis. The tax rate is $30 \%$.
You are required to:
Evaluate the alternatives according to each of the following:
(i) Average rate of return method,
(ii) Present value index method assuming cost of capital being $12 \%$.
(The present value of ₹ 1.00 @ $12 \%$ p.a. for 7 years is 4.564 and for 9 years is 5.328 )

## Answer

(a) Working Notes:

1. Hours worked 48
2. Standard hours required to produce 3,456 pieces 54
( 3,456 pieces $\div 64$ pieces per hour)
3. Time saved in hours ( 54 hours -48 hours)

6
4. Wage rate per hour (₹) (₹ $504 \div 8$ hours) 63
5. Standard output (64 pieces $\times 48$ hours) 3,072
6. Actual output in pieces 3,456
(i) Rowan premium Bonus system

$$
\begin{aligned}
& \text { Total Earnings }=\text { Hours worked } \times \text { Rate per hour }+ \\
& \begin{aligned}
&\left(\frac{\text { Time saved }}{\text { Time allowed }} \times \text { Hours worked } \times \text { Rate per hour }\right) \\
&=48 \times 63+\left\lfloor\frac{6}{54} \times 48 \times 63\right\rfloor \\
&=3,024+336=₹ 3,360
\end{aligned}
\end{aligned}
$$

(ii) Halsey Weir premium Plan

Total Earnings $=$ Hours worked $\times$ Rate per hour + $\left(\frac{30}{100} \times\right.$ Time saved $\times$ Rate per hour) $)$
$=48 \times 63+\left(\frac{30}{100} \times 6 \times 63\right)$

$$
=3,024+113.40=₹ 3,137.40
$$

(iii) Emerson Efficiency System

Efficiency level $(\%)=\left\lfloor\frac{\text { Actual output }}{\text { Standarad output }} \times 100\right\rfloor=\frac{3,456 \text { pieces }}{3,072 \text { pieces }} \times 100=112.5 \%$ In this system, if above $100 \%$ efficiency, bonus of $20 \%$ of basic wages plus $1 \%$ for each $1 \%$ increase in efficiency is admissible.
So, Bonus rate $=20 \%+12.50 \%=32.50 \%$
Total Earnings $=3,024+(3,024 \times 0.325)=3,024+982.8=₹ 4,006.82$
(iv) If a bonus of $₹ 1.50$ is paid per piece in excess of standard output

Total Earnings $=3,024+1.5(3,456-3,072)=3,024+576=₹ 3,600$
(b) Working Notes:

Depreciation on Machine I $=\frac{70,000}{7}=₹ 10,000$
Depreciation on Machine II $=\frac{1,80,000}{9}=₹ 20,000$

| Particulars | Machine I (₹) | Machine II (₹) |
| :--- | ---: | ---: |
| Annual Savings: |  |  |
| Wages | 40,000 | 80,000 |
| Scrap | 8,000 | 12,000 |
| Total Savings (A) | 48,000 | 92,000 |
| Annual Estimated Cash Cost: |  |  |
| Indirect Material | 3,000 | 4,000 |
| Supervision | 13,000 | 18,000 |
| Maintenance | 5,000 | 8,000 |
| Total Cash Cost (B) | 21,000 | 30,000 |


| Annual Cash Savings (A-B) | 27,000 | 62,000 |
| :--- | ---: | ---: |
| Less : Depreciation | 10,000 | 20,000 |
| Annual Savings Before Tax | 17,000 | 42,000 |
| Less : Tax @ 30\% | 5,100 | 12,600 |
| Annual Savings/Profit (After Tax) | $\mathbf{1 1 , 9 0 0}$ | $\mathbf{2 9 , 4 0 0}$ |
| Add : Depreciation | 10,000 | 20,000 |
| Annual Cash Inflows | $\mathbf{2 1 , 9 0 0}$ | $\mathbf{4 9 , 4 0 0}$ |

## Evaluation of Alternatives

(i) Average Rate of Return Method (ARR)

ARR $\quad=\frac{\text { Average Annual Net Savings }}{\text { Average Investment }}$
Machine I $=\frac{11,900}{35,000} \times 100=34 \%$
Machine II $=\frac{29,400}{90,000} \times 100=32.67 \%$
Alternatively, calculation of ARR can be done as below:
ARR $\quad=\frac{\text { Average Annual Net Savings }}{\text { Initial Investment }}$
Machine $\mathrm{I}=\frac{11,900}{70,000} \times 100=17 \%$
Machine II $=\frac{29,400}{1,80,000} \times 100=16.33 \%$
Decision: Machine I is better.
(ii) Present Value Index Method

| Present Value of Cash Inflow | $=$ Annual Cash Inflow x P.V. Factor @ 12\% |
| ---: | :--- |
| Machine I | $=21,900 \times 4.564$ |
|  | $=₹ 99,951.60$ |
| Machine II | $=49,400 \times 5.328$ |
|  | $=₹ 2,63,203.20$ |


| P.V. Index | $=\frac{\text { Present Value of Cashinflow }}{\text { Investment }}$ |
| :--- | :--- |
| Machine I | $=\frac{99,951.60}{70,000}=\mathbf{1 . 4 2 8}$ |
| Machine II | $=\frac{2,63,203.20}{1,80,000}=\mathbf{1 . 4 6 2}$ |

Decision: Machine II is better.

## Question 3

(a) Balance Sheet of ABC Ltd is as follows:

Balance Sheet as on 31-03-2020

| Liabilities | Amount (₹) | Assets | Amount (₹) |
| :--- | ---: | :--- | ---: | ---: |
| Share Capital | $2,00,000$ | Land and Buildings | 40,000 |
| Reserve \& Surplus | 30,000 | Plant \& Machinery 1,00,000 |  |
| Current Liabilities | 20,000 | Less: Depreciation 30,000 | 70,000 |
|  |  | Stock | 55,000 |
|  |  | Debtors | 45,000 |
|  |  | Cash \& Bank | 40,000 |
|  | $2,50,000$ |  | $2,50,000$ |

Following additional information is also provided for the year 2020-21:
(i) The company has decided for re-organisation of its total liabilities, (with the amount of share capital remaining the same) as follows:
(as \% of Total Liabilities)
Share Capital
40\%
Reserves
20\%
10\% Debentures 15\%
Trade Creditors 25\%
Debentures will be issued on ${ }^{1 \text { st }}$ April; interest will be paid annually on $31^{\text {st }}$ March.
(ii) Land and Buildings remained unchanged. Additional Plant and Machinery has been introduced and further ₹ 10,000 depreciation is to be written off on additions. (The total fixed assets then constituted $30 \%$ of total assets.)
(iii) Quick assets ratio is 1:1.
(iv) The Debtors (One fourth of the quick assets) to sales ratio represents a credit period of 1.5 month. There are no cash sales.
(v) Return on Net worth is $15 \%$.
(vi) Gross Profit is at the rate of $40 \%$ of selling price.

You are required to prepare:
(i) Projected Profit \& Loss Account for the year ended March, 2021 and
(ii) Balance Sheet as at $31^{\text {st }}$ March, 2021. (Ignore Corporate Tax)
(8 Marks)
(b) Dee Cee Limited manufactures and sells two products 'Super' and 'Deluxe'.

Dee Cee Limited's budget department gathered the following data to prepare the budgets for 2021-22:

|  | Super | Deluxe |
| :--- | ---: | ---: |
| Expected sales (in units) | 48,000 | 72,000 |
| Selling price p.u. | $₹ 750$ | $₹ 950$ |
| Expected inventory as at 01-04-2021 | 3,900 | 7,600 |
| (units) |  |  |
| Target inventory as at 31-03-2022 (units) | 10\% of production | 8\% of production |

Company uses materials A and B in the manufacture of products "Super and Deluxe". Projected data for 2021-22 with respect to direct materials are as follows:

| Material | Cost per kg <br> (₹) | Normal <br> wastage | Material required per <br> unit of output | Expected inventory <br> as at 01.04.2021 |  |
| :--- | ---: | ---: | ---: | ---: | ---: |
|  |  |  | Super | Deluxe |  |
| A | 60 | $4 \%$ | 2 kg | 4 kg | $32,500 \mathrm{~kg}$ |
| B | 80 | $4 \%$ | 3 kg | 2.4 kg | $28,800 \mathrm{~kg}$ |

Cost of opening stock of materials $A$ and $B$ is $₹ 57$ per kg and $₹ 75$ per kg respectively. Target inventory as on 31-03-2022 for material $A$ and $B$ will be $10 \%$ more than the opening inventory. Company accounts for direct materials using FIFO method.
You are required to prepare the following budgets for the year 2021-22:
(i) Production budget (in units).
(ii) Direct material usage budget (in quantities and rupees both).
(iii) Direct material purchase budget (in units).
(8 Marks)

## Answer

(a) Working Notes:

1. Calculation of Total Liabilities

| Particulars | $\%$ | (₹) |  |
| :--- | ---: | ---: | ---: |
| Share capital | $40 \%$ | $2,00,000$ |  |
| Reserves | $20 \%$ | $1,00,000$ |  |
| 10\% Debentures |  | $15 \%$ | 75,000 |
| Trade Creditors |  | $25 \%$ | $1,25,000$ |
|  | Total | $100 \%$ | $5,00,000$ |

2. Calculation of Fixed Assets \& Current assets

| Total liabilities | $=$ Total Assets $=₹ 5,00,000$ |
| ---: | :--- |
| Fixed Assets | $=30 \%$ of total assets |
|  | $=₹ 5,00,000 \times 30 / 100=₹ 1,50,000$ |
| Current assets | $=$ Total assets - Fixed assets |
|  | $=₹ 5,00,000-₹ 1,50,000=₹ 3,50,000$ |

3. Calculation of Plant \& Machinery

| Particulars | $\mathbf{₹}$ |
| :--- | ---: |
| Total Fixed assets | $1,50,000$ |
| Less: Land \& Buildings | 40,000 |
| Plant and Machinery (after providing depreciation) | $\mathbf{1 , 1 0 , 0 0 0}$ |
| Depreciation on Machinery up to $31-3-2020$ | 30,000 |
| Add: Further depreciation | 10,000 |
| Total depreciation | $\mathbf{4 0 , 0 0 0}$ |

4. Calculation of Stock \& Debtors

| Quick Assets ratio | $=\frac{\text { Current assets - stock }}{\text { Current liabilities }}=1$ |
| ---: | :--- |
| 1 | $=\frac{₹ 3,50,000-\text { stock }}{₹ 1,25,000}$ |
| $₹ 1,25,000$ | $=₹ 3,50,000-$ Stock |
| Stock | $=₹ 3,50,000-₹ 1,25,000$ |

```
    = ₹ 2,25,000
Debtors = 1/4th of quick assets
    = ₹ (3,50,000-2,25,000) ×1/4
    = ₹ 31,250
```

5. Calculation of Sales \& Gross profit

Receivables turnover ratio $=\frac{\text { Receivables }}{\text { Sales }} \times 12$ months $=1.5$ month

$$
\begin{aligned}
1.5 & =\frac{31,250}{\text { Sales }} \times 12 \\
\text { Sales } & =31,250 / 1.5 \times 12 \\
& =₹ 2,50,000
\end{aligned}
$$

Gross profit $(40 \%$ of sales) $=₹ 2,50,000 \times 40 / 100=₹ 1,00,000$
6. Calculation of Net profit

Return on Net worth $=15 \%$
Net worth $\quad=₹ 2,00,000+₹ 1,00,000$

$$
=₹ 3,00,000
$$

Net profit $=₹ 3,00,000 \times 15 / 100=₹ 45,000$
(i) Projected profit and loss account for the year ended 31 ${ }^{\text {st }}$ March, 2021

| Particulars | $₹$ | Particulars | $₹$ |
| :--- | ---: | :--- | ---: |
| To cost of goods sold (b/f) | $1,50,000$ | By sales | $2,50,000$ |
| To gross profit c/d | $1,00,000$ |  |  |
|  | $2,50,000$ |  | $2,50,000$ |
| To debenture interest <br> $(75,000 \times 10 \%)$ | 7,500 | By gross profit b/d | $1,00,000$ |
| To depreciation | 10,000 |  |  |
| To Other expenses (b/f) | 37,500 |  |  |
| To net profit | 45,000 |  |  |
|  | $1,00,000$ |  | $1,00,000$ |

Projected Balance Sheet as at $31^{\text {st }}$ March, 2021

| Liabilities | ₹ | Assets | ₹ | ₹ |
| :--- | ---: | :--- | ---: | ---: |
| Share capital | $2,00,000$ | Fixed assets |  |  |
| Reserves \& Surplus | $1,00,000$ | Land \& buildings |  | 40,000 |
| 10\% Debentures | 75,000 | Plant \& machinery | $1,50,000$ |  |
| Current liabilities |  | Less: Depreciation | 40,000 | $1,10,000$ |
| Trade creditors | $1,25,000$ | Current assets |  |  |
|  |  | Stock | $2,25,000$ |  |
|  |  | Debtors | 31,250 |  |
|  |  | Bank (b/f) | 93,750 | $3,50,000$ |
|  |  |  |  | $5,00,000$ |

(b) Working Notes:

1. Calculation of units to be produced and Closing Inventory

As we know, Opening Inventory + Production = Sales + Closing Inventory
For 'Super' product (in units)
$3,900+$ Production $=48,000+10 \%$ of Production
$90 \%$ of Production $=44,100$
So, Production $=49,000$ units
Closing Inventory $=10 \%$ of 49,000 units $=4,900$ units
For 'Deluxe' product (in units)
$7,600+$ Production $=72,000+8 \%$ of Production
$92 \%$ of Production =64,400
So, Production $=70,000$ units
Closing Inventory $=8 \%$ of 70,000 units $=5,600$ units
2. Total Consumption of Direct Material $A$ and $B$ (in kg)

|  | A | B |
| :--- | :---: | :---: |
| Productive Consumption in <br> Super | 98,000 | $1,47,000$ |
| Productive Consumption in <br> Deluxe | $29,000$ units $\times 2 \mathrm{~kg})$ | $(49,000$ units $\times 3 \mathrm{~kg})$ |
|  | $(70,000$ units $\times 4 \mathrm{~kg})$ | $1,68,000$ |
| $(70,000$ units $\times 2.40 \mathrm{~kg})$ |  |  |


| A.Total Productive <br> Consumption | $3,78,000$ | $3,15,000$ |  |
| :--- | :--- | :---: | :---: |
| B. | Wastage (A/96 x 4) | 15,750 | 13,125 |
| C.Total Consumption <br> $($ A/96 x 100) | $3,93,750$ | $3,28,125$ |  |

(i) Production Budget (in units)

|  | Super | Deluxe |
| :--- | ---: | ---: |
| Expected Sales | 48,000 | 72,000 |
| Add: Target Closing Inventory | 4,900 | $\mathbf{5 , 6 0 0}$ |
| Total quantity required | 52,900 | 77,600 |
| Less: Opening Inventory | 3,900 | 7,600 |
| Units to be produced | $\mathbf{4 9 , 0 0 0}$ | $\mathbf{7 0 , 0 0 0}$ |

(ii) Direct Material Usage Budget (using FIFO) (in quantities \& ${ }^{\text {) }}$ )

| Material | Opening Inventory |  |  | Purchase |  |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{array}{r} \text { Qty } \\ \text { (in } \mathrm{kg} \text { ) } \end{array}$ | Cost per kg <br> (₹) | Amount | $\begin{array}{r} \text { Qty } \\ \text { (in } \mathrm{kg}) \end{array}$ | Cost per kg (₹) | Amount | $\begin{array}{r} \text { Qty } \\ \text { (in } \mathrm{kg}) \end{array}$ | Amoun |
| A | 32,500 | 57 | 18,52,500 | 3,61,250 | 60 | 2,16,75,000 | 3,93,750 | 2,35,27,500 |
| B | 28,800 | 75 | 21,60,000 | 2,99,325 | 80 | 2,39,46,000 | 3,28,125 | 2,61,06,000 |

(iii) Direct Material Purchase Budget (in units)

|  | A | B |
| :--- | ---: | ---: |
| Total Material Consumption | $3,93,750$ | $3,28,125$ |
| Add: Closing Inventory (110\% of Opening Inventory) | 35,750 | 31,680 |
| Less: Opening Inventory | 32,500 | 28,800 |
| Direct Material Purchased | $3,97,000$ | $3,31,005$ |

## Question 4

(a) M/s. GPS Private Limited is engaged in producing milk powder. The management of the company is considering for transportation of 29,952 Kilolitre (KL) of milk per month to its storage tanks that are situated 30 km away from its collection centres. Two types of milk tankers are available in the market, namely $8-K L$ and $6-K L$ of capacity.

The details of operating costs for the milk tankers are as follows:

| Particulars | $8-K L$ Tanker | $6-K L$ Tanker |
| :--- | ---: | ---: |
| Purchase Price per tanker | $₹ 18,04,000$ | $₹ 12,00,000$ |
| Estimated life | 6 years | 6 years |
| Residual value per tanker | $₹ 4,00,000$ | $₹ 3,00,000$ |
| Other fixed costs per month, per tanker | $₹ 55,980$ | $₹ 46,540$ |
| Km. per litre of diesel | 4 km. | 5 km. |

Additional Information:
(i) Cost of diesel per litre is $₹ 80$.
(ii) Each vehicle can run 6 trips (up and down) each day and can run on an average of 26 days each month.
(iii) Drivers will have to be recruited according to the number of milk tankers to be used. In addition, one extra driver for every eight milk tankers will be required for the entire fleet. Each driver will cost ₹ 15,000 per month.
(iv) Yet another possibility is to hire enough milk tankers (8-KL capacity only) from a transport company at the rate of $₹ 63,000$ per month per milk tanker. The transport company will bear other fixed costs. However, GPS Private Limited has to bear the cost of drivers and other operational costs.

You are required to prepare:
(a) Statement of operating cost for each alternative for a month.
(b) Compute the cost per kilolitre of milk transported.
(c) Advise the company on an appropriate choice among the above three alternatives.
(Note: Ignore finance cost.)
(8 Marks)
(b) JKL Limited is currently selling 90,000 units of its product @ ₹ 150 per unit. At current level of production, the cost per unit is ₹ 132 per unit. Variable cost ratio is $80 \%$ of sales. Currently all its sales are on credit basis. The company's existing credit terms are $2 / 20$, net 60 days. Generally $30 \%$ of its customers avail the cash discount facility. The current bad debt loss is $2 \%$. The opportunity cost of investment in receivables is $12 \%$.

The company is considering proposal to change the credit terms to $3 / 20$, net 60 days. As a result following is expected:
Increase in sales $30 \%$
Increase in average stock ₹ $4,00,000$
Increase in average creditors ₹ $2,40,000$
Increase in present fixed cost 10\%
Increase in \% of customers availing the Cash discount 100\%

Expected bad debt loss 1.5\%
Evaluate the proposal and give your recommendations whether the company should accept the proposal.
(Assume 360 days in a year and investment in debtors to be taken on total cost)
(8 Marks)

## Answer

(a) Working Notes:

1. Calculation of No. of tankers required

|  |  | $\mathbf{8 - K L}$ | $6-\mathrm{KL}$ |
| :--- | :--- | :---: | :---: |
| A. | Total Kilolitres (KL) of Milk to be <br> transported per month | 29,952 | 29,952 |
| B. | Capacity of transportation per vehicle <br> per month | 1,248 <br> $(6$ trips $\times 26$ days <br> $\times 8 \mathrm{KL})$ | 936 <br> $\left(\begin{array}{l}\text { trips } \\ \times 26 \text { days } \\ \times 6 \mathrm{KL})\end{array}\right.$ <br> C. No. of Vehicles required (A/B) |
| $\mathbf{2 4}$ | $\mathbf{3 2}$ |  |  |

2. Calculation of Total Distance (in km.) covered per month

| Type of Tanker | No. of <br> Vehicles | Km. <br> per trip | Trips per day <br> (up \& down) | Days per <br> month | Km. per <br> month |
| :--- | :---: | :---: | :---: | :---: | :---: |
| $8-\mathrm{KL}$ | 24 | 30 | $12(6 \times 2)$ | 26 | $2,24,640$ |
| $6-\mathrm{KL}$ | 32 | 30 | $12(6 \times 2)$ | 26 | $2,99,520$ |

(a) Statement of Operating Cost for each alternative for a month

| Particulars | 8-KL <br> (24 Vehicles) (₹) | $6-\mathrm{KL}$ <br> (32 Vehicles) (₹) | Hired 8-KL <br> (24 Vehicles) <br> (₹) |
| :---: | :---: | :---: | :---: |
| (i) Running Costs |  |  |  |
| Diesel Cost | $\begin{gathered} 44,92,800 \\ \left(\frac{2,24,640 \mathrm{~km}}{4 \mathrm{~km}} \times ₹ 80\right) \end{gathered}$ | $\begin{gathered} 47,92,320 \\ \left(\frac{2,99,520 \mathrm{~km}}{5 \mathrm{~km}} \times ₹ 80\right) \end{gathered}$ | 44,92,800 |
| Cost of Driver | $\begin{gathered} 4,05,000 \\ {[₹ 15,000 \times(24+3)]} \end{gathered}$ | $\begin{gathered} 5,40,000 \\ {[₹ 15,000 \times(32+4)]} \end{gathered}$ | 4,05,000 |
|  | 48,97,800 | 53,32,320 | 48,97,800 |


| (ii) Standing charges |  |  |  |
| :---: | :---: | :---: | :---: |
| Depreciation | $\begin{gathered} 4,68,000 \\ \left\lfloor\left(\frac{₹ 18,04,000-₹ 4,00,000}{6 \text { years }}\right) \times \frac{1}{12} \times 24\right\rfloor \end{gathered}$ | $\left\lfloor\left[\left(\frac{₹, 00,000}{}\left[\frac{12,00,000-₹ 3,00,000}{6 \text { years }}\right) \times \frac{1}{12} \times 32\right\rfloor\right.\right.$ |  |
| Other fixed cost | $\begin{gathered} 13,43,520 \\ \text { (₹ } 55,980 \times 24) \end{gathered}$ | $\begin{gathered} 14,89,280 \\ (₹ 46,540 \times 32) \end{gathered}$ |  |
|  | 18,11,520 | 18,89,280 |  |
| (iii) Hire charges | - | - | $\begin{array}{r} 15,12,000 \\ (₹ 63,000 \times 24) \end{array}$ |
| Total Cost $[(\mathrm{i})+(\mathrm{ii})+(\mathrm{iii})]$ | 67,09,320 | 72,21,600 | 64,09,800 |

(b) Calculation of Cost Per KL

Cost per KL = Total Cost/ Total Kiloliters (KL)
8-KL $\quad=$ ₹ $67,09,320 / 29,952 \mathrm{KL}=₹ 224$
6 -KL = ₹ $72,21,600 / 29,952 \mathrm{KL}=$ ₹ $\mathbf{2 4 1 . 1 1}$
Hired 8-KL = ₹ $64,09,800 / 29,952 \mathrm{KL}=₹ 214$
(c) Advise: It is advisable to hire the milk tankers from transport company since the cost per KL is lowest i.e. ₹ 214.
Alternatively, if we consider "cost of hire" as ₹ 65,000 as given in the Hindi version, operating Cost for "Hired 8 -KL" for a month will change, However, there will be no impact on working notes i.e. on Calculation of No. of tankers required and Calculation of Total Distance (in km.) covered per month.

The alternative solution of the relevant part is given below:
(a) Statement of operating Cost for each alternative for a month

| Particulars | 8-KL <br> (24 Vehicles) <br> (₹) | 6- KL <br> (32 Vehicles) <br> (₹) | Hired 8-KL <br> (24 Vehicles) <br> (₹) |
| :---: | :---: | :---: | :---: |
| (i) Running Costs |  |  |  |
| Diesel Cost | $\begin{gathered} 44,92,800 \\ \left(\frac{2,24,640 \mathrm{~km}}{4 \mathrm{~km}} \times ₹ 80\right) \end{gathered}$ | $\begin{gathered} 47,92,320 \\ \left(\frac{2,99,520 \mathrm{~km}}{5 \mathrm{~km}} \times ₹ 80\right) \end{gathered}$ | 44,92,800 |
| Cost of Driver | $\begin{gathered} 4,05,000 \\ {[₹ 15,000 \times(24+3)]} \end{gathered}$ | $\begin{gathered} 5,40,000 \\ {[₹ 15,000 \times(32+4)]} \end{gathered}$ | 4,05,000 |
|  | 48,97,800 | 53,32,320 | 48,97,800 |


| (ii) Standing charges |  |  |  |
| :---: | :---: | :---: | :---: |
| Depreciation | $\left\lfloor\left(\frac{₹, 68,000}{6 \text { years }}\right)\right\rfloor$ | $\left\lfloor\left(\frac{₹, 00,000}{6 \text { years } 2,00,000-₹ 3,00,000}\right) \times \frac{1}{12} \times 32\right\rfloor$ |  |
| Other fixed cost | $\begin{gathered} 13,43,520 \\ (₹ 55,980 \times 24) \end{gathered}$ | $\begin{gathered} 14,89,280 \\ (₹ 46,540 \times 32) \end{gathered}$ | - |
|  | 18,11,520 | 18,89,280 |  |
| (iii) Hire charges | - | - | $\begin{gathered} 15,60,000 \\ (₹ 65,000 \times \\ 24) \end{gathered}$ |
| $\begin{aligned} & \text { Total } \\ & {\left[\begin{array}{l} \text { Cost } \\ {[(\text { iii) }} \end{array}+\text { (ii) }+\right.} \\ & \left(\begin{array}{l} \text { (ii) } \end{array}\right. \\ & \hline \end{aligned}$ | 67,09,320 | 72,21,600 | 64,57,800 |

(b) Calculation of Cost Per KL

Cost per KL = Total Cost/ Total Kiloliters (KL)
8-KL $\quad=$ ₹ $67,09,320 / 29,952 \mathrm{KL}=$ ₹ 224
6-KL = ₹ $72,21,600 / 29,952 \mathrm{KL}=$ ₹ $\mathbf{2 4 1 . 1 1}$
Hired 8-KL =₹ $64,57,800 / 29,952 \mathrm{KL}=₹ 215.60$
(c) Advise: It is advisable to hire the milk tankers from transport company since the cost per KL is lowest i.e. ₹ $\mathbf{2 1 5 . 6 0}$
(b) Working Notes:
(i) Calculation of Cash Discount

Cash Discount $=$ Total credit sales $\times \%$ of customers who take up discount $\times$ Rate
Present Policy $=1,35,00,000 \times 0.30 \times 0.02=₹ 81,000$
Proposed Policy $=1,75,50,000 \times(0.30 \times 2) \times 0.03=₹ 3,15,900$
(ii) Opportunity Cost of Investment in Receivables

Opportunity Cost
$=$ Total Cost of Credit Sales $\times \frac{\text { Average collection period }}{360} \times \frac{\text { Rate of return }}{100}$
Present Policy $=1,18,80,000 \times \frac{48^{*}}{360} \times 12 \%=₹ 1,90,080$
Funds required for Proposed Policy $=1,52,28,000 \times \frac{36^{*}}{360} \quad=15,22,800$

| Add: Increase in average Stock | $=4,00,000$ |
| :--- | :--- |
| Less: Increase in average Creditors | $=2,40,000$ |
|  | $\underline{₹} 16,82,800$ |

Proposed policy $=16,82,800 \times 12 \%=₹ 2,01,936$

* Weighted average collection period $=(20$ days $\times 0.30)+(60$ days $\times 0.70)=48$ days
\# Weighted average collection period $=(20$ days $\times 0.60)+(60$ days $\times 0.40)=36$ days
Statement showing Evaluation of Credit Policies

| Particulars | Present <br> Policy <br> $(₹)$ | Proposed <br> Policy <br> $(₹)$ |
| :--- | ---: | ---: |
| Credit Sales (A) | $1,35,00,000$ | $1,75,50,000$ |
| $(90,000$ units $\times 150) ;(90,000$ units $\times 150 \times 1.3)$ |  |  |
| Variable Cost @ 80\% of sales | $1,08,00,000$ | $1,40,40,000$ |
| Fixed Cost | $10,80,000$ |  |
| $(90,000$ units $\times 12)$ |  | $11,88,000$ |
| $(10,80,000 \times 1.1)$ | $1,18,80,000$ | $1,52,28,000$ |
| Total Cost other than Bad Debts and Cash Discount (B) | $16,20,000$ | $23,22,000$ |
| Profit before Bad Debts and Cash Discount (A) - (B) | $16,70,000$ | $2,63,250$ |
| Less: Bad Debts @ 2\% and 1.5\% | 81,000 | $3,15,900$ |
| Less: Cash Discount | $12,69,000$ | $17,42,850$ |
| Expected profit | $1,90,080$ | $2,01,936$ |
| Less: Opportunity Cost of Investment in Receivables | $\mathbf{1 0 , 7 8 , 9 2 0}$ | $\mathbf{1 5 , 4 0 , 9 1 4}$ |
| Net Benefit |  |  |

Advise: Proposed policy should be adopted since the net benefit is increased by ₹ $4,61,994$ (₹ $15,40,914$ - ₹ $10,78,920$ )

Alternatively, the question can be solved based on incremental approach as below:

## Working Notes:

## (i) Calculation of Cash Discount

Cash Discount $=$ Total credit sales $\times \%$ of customers who take up discount $\times$ Rate
Present Policy $=1,35,00,000 \times 0.30 \times 0.02=₹ 81,000$
Proposed Policy $=1,75,50,000 \times(0.30 \times 2) \times 0.03=₹ 3,15,900$

## (ii) Opportunity Cost of Investment in Receivables

Opportunity Cost
$=$ Total Cost of Credit Sales $\frac{\text { Average collection period }}{360} \times \frac{\text { Rate of return }}{100}$
Present Policy $\quad=1,18,80,000 \times \frac{48^{*}}{360} \times 12 \%=₹ 1,90,080$

| Funds required for Proposed Policy $=1,52,28,000 \times \frac{36^{*}}{360}$ | $=15,22,800$ |
| :--- | ---: |
| Add: Increase in average Stock | $=4,00,000$ |
| Less: Increase in average Creditors | $=2,40,000$ |
|  |  |

Opportunity Cost of Investment of Proposed policy $=16,82,800 \times 12 \%$ = ₹ $2,01,936$
*Weighted average collection period $=(20$ days $\times 0.30)+(60$ days $\times 0.70)$
$=48$ days
\#Weighted average collection period $=(20$ days $\times 0.60)+(60$ days $\times 0.40)$ $=36$ days

## Statement showing Evaluation of Credit Policies

| $₹$ |  |  |  |
| :--- | ---: | ---: | ---: |
| Particulars | Present policy | Proposed policy | Incremental |
| Sales | $1,35,00,000$ | $1,75,50,000$ |  |
| Less: Variable cost | $1,08,00,000$ | $1,40,40,000$ |  |
| Contribution | $27,00,000$ | $35,10,000$ | $8,10,000$ |
| Fixed cost | $10,80,000$ | $11,88,000$ | $\mathbf{- 1 , 0 8 , 0 0 0}$ |
| cash discount | 81,000 | $3,15,900$ | $\mathbf{- 2 , 3 4 , 9 0 0}$ |
| Savings in Bad debt | $2,70,000$ | $2,63,250$ | 6,750 |
| Saving in Opportunity cost | $1,90,080$ | $2,01,936$ | $\mathbf{- 1 1 , 8 5 6}$ |
| Net benefit |  |  | $\mathbf{4 , 6 1 , 9 9 4}$ |

Advise: Proposed policy should be adopted since the net benefit is increased by ₹ $4,61,994$

## Question 5

(a) What is virtual banking? State it's any three advantages.
(b) Write any four differences between Financial Accounting and Cost Accounting.
(c) Explain the following terms:
(i) Bridge Finance
(ii) Leveraged lease
(d) Explain First in First out (FIFO) and replacement price method of material issue. Also, state the circumstances of each method in which they are used.
( $4 \times 4=16$ Marks)

## Answer

(a) Virtual Banking and its Advantages

Virtual banking refers to the provision of banking and related services through the use of information technology without direct recourse to the bank by the customer.

The advantages of virtual banking services are as follows:
> Lower cost of handling a transaction.
> The increased speed of response to customer requirements.
> The lower cost of operating branch network along with reduced staff costs leads to cost efficiency.
> Virtual banking allows the possibility of improved and a range of services being made available to the customer rapidly, accurately and at his convenience.
(b) Difference between financial accounting and cost accounting is as follows:

|  | Basis | Financial Accounting | Cost Accounting |
| :--- | :--- | :--- | :--- |
| (i) | Objective | It provides information <br> about the financial <br> performance. | It provides information of <br> ascertainment of cost for <br> the purpose of cost control <br> and decision making. |
| (ii) | Nature | It classifies records, <br> presents and interprets <br> transactions in terms of <br> money. | It classifies, records, <br> presents, and interprets in <br> a significant manner the <br> material, labour and <br> overheads cost. |
| (iii) | Recording of data | It records Historical data. | It makes use of both the <br> historical costs and pre- <br> determined costs. |


| (iv) | Users of information | The users of financial <br> accounting statements <br> are shareholders, <br> creditors, financial <br> analysts and government <br> and its agencies, etc. | The cost accounting <br> information is used by <br> internal management. |
| :--- | :--- | :--- | :--- |
| (v) | Analysis of costs <br> and profits | It shows the either Profit <br> or loss of the <br> organization. | It provides the details of <br> cost and profit of each <br> product, process, job, <br> contracts, etc. |
| (vi) | Time period | Financial Statements are <br> prepared usually for a a <br> year. | lts reports and statements <br> are prepared as and when <br> required. |
| (vii) | Presentation <br> information$\quad$ of | A set format is used for <br> presenting financial <br> information. | There are no set formats <br> for presenting cost <br> information. |

(c) (i) Bridge finance: Bridge finance refers, normally, to loans taken by the business, usually from commercial banks for a short period, pending disbursement of term loans by financial institutions, normally it takes time for the financial institution to finalise procedures of creation of security, tie-up participation with other institutions etc. even though a positive appraisal of the project has been made. However, once the loans are approved in principle, firms in order not to lose further time in starting their projects arrange for bridge finance. Such temporary loan is normally repaid out of the proceeds of the principal term loans. It is secured by hypothecation of moveable assets, personal guarantees and demand promissory notes. Generally, rate of interest on bridge finance is higher as compared with that on term loans.
(ii) Leveraged Lease: Under this lease, a third party is involved beside lessor and lessee. The lessor borrows a part of the purchase cost (say $80 \%$ ) of the asset from the third party i.e., lender and asset so purchased is held as security against the loan. The lender is paid off from the lease rentals directly by the lessee and the surplus after meeting the claims of the lender goes to the lessor. The lessor is entitled to claim depreciation allowance.
(d) First-in-First out Method (FIFO): It is a method of pricing the issues of materials, in the order in which they are purchased. In other words, the materials are issued in the order in which they arrive in the store or the items longest in stock are issued first. Thus each issue of material only recovers the purchase price which does not reflect the current market price.
Circumstances: This method is considered suitable in times of falling price because the material cost charged to production will be high while the replacement cost of materials will be low.

Replacement Price Method: Replacement price is defined as the price at which it is possible to purchase an item, identical to that which is being replaced or revalued. Under this method, materials issued are valued at the replacement cost of the items. This method pre-supposes the determination of the replacement cost of materials at the time of each issue; viz., the cost at which identical materials could be currently purchased. The product cost under this method is at current market price, which is the main objective of the replacement price method.
Circumstances: This method is useful to determine true cost of production and to value material issues in periods of rising prices, because the cost of material considered in cost of production would be able to replace the materials at the increased price.

## Question 6

(a) In a manufacturing unit, a gang of employees usually consists of 20 skilled employees and 15 unskilled employees, paid at standard hourly rates of ₹ 65 and ₹ 55 , respectively. In a normal working week of 50 hours, the gang is expected to produce 5000 units of output.
In a certain week, the gang consisted of 25 skilled employees and 20 unskilled employees. Actual hourly rates paid were ₹ 70 and ₹ 50 respectively. Five hours were lost due to abnormal idle time and 5500 units of outputs were produced.
You are required to calculate the following variances showing adverse (A) or favourable (F):
(a) Labour Cost Variance
(b) Labour Rate Variance
(c) Labour Efficiency Variance
(d) Labour Idle Time Variance
(b) The capital structure of Ess Vee Limited is given below:

|  | Amount (₹) |
| :--- | ---: |
| Equity share capital (6 lakh shares of ₹ 10 each) | $60,00,000$ |
| Reserve and surplus | $48,00,000$ |
| 12\% Preference share capital | $25,00,000$ |
| $9 \%$ Debentures | $20,00,000$ |

Company wants to raise ₹ $50,00,000$ for its expansion project which will raise the existing return (EBIT) on capital employed from $14 \%$ to $15 \%$.
It is considering the following alternatives:
(i) Issue equity shares at a premium of ₹ 15 each for the entire amount.
(ii) Issue equity shares of ₹ $24,00,000$ at a premium of ₹ 20 per share and issue $10 \%$ debentures for the balance amount.

## Corporate tax rate is $25 \%$.

Required:
(i) Evaluate the two alternatives and advice the company as to which alternative the company should choose.
(ii) Assume that the company choses best option as under point (i) above. It wants to pay dividend to equity shareholders at $15 \%$ and keep the total dividend pay-out (equity and preference dividend) at $80 \%$. What level of EBIT the company should achieve to meet its commitments?
(8 Marks)

## Answer

(a) Working Notes:

1. Calculation of Standard and Actual Cost

| Category <br> of <br> Employees | Standard |  | Actual |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Hours <br> available | SR <br> $(₹)$ | AH paid | AR <br> $(₹)$ | AH x AR <br> $(₹)$ | Idle <br> hours | AH <br> Worked |
| Skilled | 1,000 <br> $(50 \times 20)$ | 65 | 1,250 <br> $(50 \times 25)$ | 70 | 87,500 | 125 <br> $(5 \times 25)$ | 1,125 |
| Unskilled | 750 <br> $(50 \times 15)$ | 55 | 1,000 <br> $(50 \times 20)$ | 50 | 50,000 | 100 <br> $(5 \times 20)$ | 900 |
| Total | $\mathbf{1 , 7 5 0}$ |  | $\mathbf{2 , 2 5 0}$ |  | $\mathbf{1 , 3 7 , 5 0 0}$ | $\mathbf{2 2 5}$ | $\mathbf{2 , 0 2 5}$ |

2. Calculation of Standard hours for actual output (SH)

Skilled

$$
=\frac{1,000}{5,000} \times 5,500=1,100 \text { hours }
$$

Unskilled

$$
=\frac{750}{5,000} \times 5,500=825 \text { hours }
$$

(a) Labour Cost Variance $=(S H \times S R-A H \times A R)$

Skilled
$=(1,100 \mathrm{hrs} \times ₹ 65-₹ 87,500)=16,000(\mathrm{~A})$
Unskilled

$$
=(825 \text { hrs } \times ₹ 55-₹ 50,000)=4,625(\mathrm{~A})
$$

20,625 (A)
(b) Labour Rate Variance
= AH paid (SR - AR)

Skilled

$$
=1,250(₹ 65-₹ 70)
$$

$$
=6,250(\mathrm{~A})
$$

Unskilled

$$
=1,000 \text { (₹ } 55-₹ 50 \text { ) }
$$

| $=5,000(\mathrm{~F})$ |
| ---: |
| $1,250(\mathrm{~A})$ |

(c) Labour Efficiency Variance $=\mathrm{SR}(\mathrm{SH}-\mathrm{AH}$ worked)

| Skilled | $=₹ 65(1,100-1,125)$ | $=1,625(\mathrm{~A})$ |
| :--- | :--- | :--- |
| Unskilled | $=₹ 55(825-900)$ | $=4,125(\mathrm{~A})$ |
|  |  |  |

(d) Labour Idle time Variance $=$ Idle hours $\times$ SR
Skilled $=125 \times ₹ 65 \quad=8,125(\mathrm{~A})$
Unskilled $\quad=100 \times ₹ 55$
$=5,500(\mathrm{~A})$
13,625 (A)
(b) Working Notes:

1. Calculation of New Equity shares and Debentures

| Particulars | Alternative (i): <br> Issue Equity <br> shares only | Alternative (ii): Issue <br> Equity Shares and 10\% <br> Debentures |
| :--- | :---: | :---: |
| Number of Equity Shares (nos): <br> $-\quad$ Existing <br> $-\quad$ Newly issued | $6,00,000$ | $6,00,000$ |
|  | $2,00,000$ |  |
| $\left(\frac{₹ 50,00,000}{₹(10+15)}\right)$ | 80,000 <br> $\left(\frac{₹ 24,00,000}{₹(10+20)}\right)$ |  |
| Total | $8,00,000$ | $6,80,000$ |
| Debentures (₹) | $20,00,000$ | $20,00,000$ |
| - Existing (9\%) |  |  |
| - Newly issued (10\%) | - | $26,00,000$ |
| Total | $20,00,000$ | $46,00,000$ |

2. Calculation of Earnings before interest and tax (EBIT) before \& after expansion Project

## Before Expansion:

Capital employed $=60,00,000+48,00,000+25,00,000+20,00,000$ = ₹ $1,53,00,000$

EBIT $\quad=14 \% \times ₹ 1,53,00,000=₹ 21,42,000$
After expansion:
Capital employed = ₹ $1,53,00,000+₹ 50,00,000=₹ 2,03,00,000$
Desired EBIT $=15 \% \times$ ₹ $2,03,00,000=₹ 30,45,000$
(i) Calculation of Earnings per share under the two alternatives:

|  | Existing | Alternative <br> (i) | Alternative <br> (ii) |
| :---: | :---: | :---: | :---: |
|  | (₹) | (₹) | (₹) |
| Earnings before Interest and Tax (EBIT) | 21,42,000 | 30,45,000 | 30,45,000 |
| Less: Interest - 9\% debentures | 1,80,000 | 1,80,000 | 1,80,000 |
| - $10 \%$ debentures | - | - | 2,60,000 |
| Earnings before Tax (EBT) | 19,62,000 | 28,65,000 | 26,05,000 |
| Less: Tax @ 25\% | 4,90,500 | 7,16,250 | 6,51,250 |
| PAT | 14,71,500 | 21,48,750 | 19,53,750 |
| Less: Preference Dividend | 3,00,000 | 3,00,000 | 3,00,000 |
| Earnings available for Equity shareholders | 11,71,500 | 18,48,750 | 16,53,750 |
| No. of shares outstanding | 6,00,000 | 8,00,000 | 6,80,000 |
| Earnings per Share (EPS) | 1.953 | 2.311 | 2.432 |
| Ranking | III | II | 1 |

Advise: Ess Vee Limited should choose Alternative (ii) as it gives the highest EPS i.e. ₹ 2.432 .
(ii) Calculation of level of EBIT if Dividend pay-out is $80 \%$ in Alternative (ii)

Total Dividend = Equity share Dividend + Preference Dividend

$$
=[(₹ 10 \times 0.15) \times 6,80,000 \text { shares }]+₹ 3,00,000=₹ 13,20,000
$$

Also, Total Dividend pay-out $=80 \%=$ Total Dividend $/$ PAT

$$
\begin{array}{ll}
\quad 0.8 & =₹ 13,20,000 / \text { PAT } \\
\quad \text { PAT } & =₹ 16,50,000 \\
\text { Further, PAT } & =(\text { EBIT }- \text { Interest })(1-t) \\
₹ 16,50,000 & =(\text { EBIT }-₹ 4,40,000)(1-0.25) \\
\text { Or, } 0.75 \text { EBIT } & =₹ 16,50,000+₹ 3,30,000=₹ 19,80,000 \\
\text { EBIT } & =₹ 19,80,000 / 0.75=₹ 26,40,000
\end{array}
$$

## Question 7

Answer any four of the following:
(a) How contract price is determined under "Cost plus contract" in contract costing?

Discuss one advantages and one disadvantage of cost plus contracts.
(b) State with reasons whether following statements are true or false:
(i) $5 \%$ decrease in selling price per unit and $10 \%$ increase in sales volume will increase the $P / V$ ratio.
(ii) Decrease in the angle of incidence will increase the $P / V$ ratio.
(iii) Differential cost analysis can be made only in marginal costing and not in absorption costing.
(iv) Valuation of stock is higher in absorption costing as compared to marginal costing.
(c) Discuss any four advantages of Preference share capital as an instrument of raising funds.
(d) As an aspect of financial management explain the term - "Effective Utilisation of funds".
(e) Explain the following briefly:
(i) Systematic risk and Unsystematic risk
(ii) Treatment of Normal Process Loss \& Abnormal Process Loss in process costing.

## Answer

(a) Cost plus Contract: Under Cost plus Contract, the contract price is ascertained by adding a percentage of profit to the total cost of the work. Such types of contracts are entered into when it is not possible to estimate the contract cost with reasonable accuracy due to unstable condition of factors that affect the cost of material, labour services, etc.

Cost plus contracts have the following advantages and disadvantages:

## Advantages:

(i) The Contractor is assured of a fixed percentage of profit. There is no risk of incurring any loss on the contract.
(ii) It is useful specially when the work to be done is not definitely fixed at the time of making the estimate.
(iii) Contractee can ensure himself about 'the cost of the contract', as he is empowered to examine the books and documents of the contractor to ascertain the veracity of the cost of the contract.

Disadvantage - The contractor may not have any inducement to avoid wastages and effect economy in production to reduce cost.
(b)

| Particulars | True/False with reasons |
| :--- | :--- | :--- |
| (i)$5 \%$ decrease in selling price <br> per unit and $10 \%$ increase in <br> sales volume will increase the <br> P/V ratio. | False. <br> Reason: Increase or decrease in physical <br> sales volume will not change P/V ratio. <br> Hence, 5\% decrease in selling price per unit <br> will decrease P/V ratio. |
| (ii)Decrease in the angle of <br> incidence will increase the P/V <br> ratio. | False. <br> Reason: Angle of incidence is the angle at <br> which sales line cuts the total cost line. If it <br> is small, it indicates that the profits are <br> being made at lower rate. Hence, decrease <br> in the angle of incidence will decrease the <br> P/V ratio. |
| (iii)Differential cost analysis can be <br> made only in marginal costing <br> and not in absorption costing. | False. <br> Reason: Differential Cost represents the <br> increase or decrease in total cost that result <br> from any variation in operations. Differential <br> cost, thus, includes both fixed and variable <br> costs. Hence differential cost analysis can <br> be made both in marginal costing and <br> absorption costing. |
| (iv)Valuation of stock is higher in <br> absorption costing as compared <br> to marginal costing. | lrue <br> Reason: Both fixed and variable costs are <br> considered for inventory valuation in <br> absorption costing, whereas only variable |
| costs are considered for inventory valuation |  |
| in marginal costing. |  |

(c) Advantages of Issue of Preference Shares are:
(i) No dilution in EPS on enlarged capital base.
(ii) There is no risk of takeover as the preference shareholders do not have voting rights.
(iii) There is leveraging advantage as it bears a fixed charge.
(iv) The preference dividends are fixed and pre-decided. Preference shareholders do not participate in surplus profit as the ordinary shareholders.
(v) Preference capital can be redeemed after a specified period.
(d) Effective Utilization of Funds: The Finance Manager has to ensure that funds are not kept idle or there is no improper use of funds. The funds are to be invested in a manner such that they generate returns higher than the cost of capital to the firm. Besides this, decisions to invest in fixed assets are to be taken only after sound analysis using capital budgeting techniques. Similarly, adequate working capital should be maintained so as to avoid the risk of insolvency.
(e) (i) Unsystematic Risk \& Systematic Risk

Unsystematic Risk: This is also called company specific risk as the risk is related with the company's performance. This type of risk can be reduced or eliminated by diversification of the securities portfolio. This is also known as diversifiable risk.

Systematic Risk: It is the macro- economic or market specific risk under which a company operates. This type of risk cannot be eliminated by the diversification hence, it is non-diversifiable. The examples are inflation, Government policy, interest rate etc.
(ii) Treatment of Abnormal Process Loss \& Normal Process Loss in process costing
Abnormal Process Loss: The cost of an abnormal process loss unit is equal to the cost of a good unit. The total cost of abnormal process loss is credited to the process account from which it arises. Cost of abnormal process loss is not treated as a part of the cost of the product. In fact, the total cost of abnormal process loss is debited to costing profit and loss accounts.

Normal Process Loss: The cost of normal process loss in practice is absorbed by good units produced under the process. The amount realised by the sale of normal process loss units should be credited to the process account.

