

## Gurukripa's Guideline Answers to May 2016 Exam Questions CA Inter (IPC) Cost Accounting & Financial Management

Question No.1 is compulsory ( $4 \times 5 = 20$  Marks).

Answer **any five** questions from the **remaining six** questions ( $16 \times 5 = 80$  Marks). [Answer any 4 out of 5 in Q.7]

Working Notes should form part of the answers.

**Note:** Numbers for Page References are given as under –

| Book Title   | Referred as     |
|--|-----------------|
| Padhuka's Students <b>Handbook</b> on Cost Accounting and Financial Management | Handbook        |
| Padhuka's Cost Accounting and Financial Management – A <b>Practical Guide</b>  | Practical Guide |

**Question 1(a): OH – Machine Hour Rate**

**5 Marks**

The following particulars refer to process used in the treatment of Material subsequently, incorporated in a component forming part of an electrical appliance:

- (i) The Original Cost of the Machine used (Purchased in June 2008) was ₹ 10,000. Its estimated life is 10 years, the estimated scrap value at the end of its life is ₹ 1,000 and the estimated working time per year (50 weeks of 44 hours) is 2,200 hours of which machine maintenance, etc. is estimated to take up 200 hours.  
No other loss of working time expected, setting up time, estimated at 100 hours, is regarded as productive time. (Holiday to be ignored).
- (ii) Electricity used by the machine during production is 16 units per hour at cost of a 9 paise per unit. No current is taken during maintenance or setting up.
- (iii) The Machine requires a chemical solution which is replaced at the end of week at a cost of ₹ 20 each time.
- (iv) The estimated cost of maintenance per year is ₹ 1,200.
- (v) Two Attendants control the operation of the Machine together with five other identical Machines. Their combined Weekly Wages, Insurance and the Employer's Contribution to Holiday Pay amount ₹ 120.
- (vi) Departmental and General Works Overhead allocated to this Machine for the current year amount to ₹ 2,000.

You are required to calculate the Machine Hour Rate of operating the machine.

**Solution:** Similar to Page 4.22, Q.No.26 M 05 Qn of Practical Guide

| Particulars                                   | Computation   | ₹                 |
|---|---|-------------------|
| (a) Depreciation of Machine                   | $(₹ 10,000 - ₹ 1,000) \div 10 \text{ years}$                                | 900               |
| (b) Power Costs                               | $(2200 - 300 - 100) \times 16 \text{ units} \times ₹ 0.09 \text{ per unit}$ | 2,736             |
| (c) Special Chemical Solution Costs           | $50 \text{ weeks} \times ₹ 20$  | 1,000             |
| (d) Maintenance Cost                          | (Given)   | 1,200             |
| (e) Operators' Wages                          | $\frac{(₹ 120 \times 50 \text{ weeks})}{6 \text{ machines}}$                | 1,000             |
| (f) Departmental & General Works OH allocated | (Given)   | 2,000             |
| 1. Total Overheads relating to the Machine    | <b>Total of above</b>   | 8,836             |
| 2. Effective Machine Hours                    | (2200 – 200)  | 2,000 m/c hrs     |
| 3. Machine Hour Rate                          | $\frac{₹ 8,836}{2,000 \text{ Hours}}$                                       | <b>₹ 4.418 ph</b> |

**Question 1(b): Marginal Costing – BEP with different VC & FC**

**5 Marks**

A Dairy Product Company manufacturing Baby Food with a shelf life of one year furnishes the following information:

- (i) On 1<sup>st</sup> January 2016, the Company has an Opening Stock of 20,000 packets whose Variable Cost is ₹ 180 per packet.
- (ii) In 2015, production was 1,20,000 packets and the expected production in 2016 is 1,50,000 packets. Expected Sales for 2016 is 1,60,000 packets.
- (iii) In 2015, Fixed Cost per unit was ₹ 60 and it is expected to increase by 10% in 2016. The Variable Cost is expected to increase by 25%. Selling Price for 2016 has been Fixed at ₹ 300 per packet.

You are required to calculate the Break-Even Volume in units for 2016.

**Solution:**

**Similar to CA Final RTP, N 15 Qn.**

To achieve BEP in 2016, Required Contribution = 2016 Fixed Cost = Year 2015 Fixed Cost + 10% increase  
 = (1,20,000 units × ₹ 60 pu) + 10%  
 = ₹ 79,20,000 to be earned by sale out of –

|                                | Opening Stock                     | Current Production                    |
|--------------------------------|-----------------------------------|---------------------------------------|
| (a) Selling price pu (₹)       | 300                               | 300                                   |
| (b) Variable Cost pu Given (₹) | (Given) 180                       | 180 + 25% = 225                       |
| (c) Contribution pu (a-b) (₹)  | 120                               | 75                                    |
| (d) Quantity                   | (Given) 20,000 units              | $\frac{55,20,000}{75} = 73,600$ units |
| (e) Total Contribution         | $120 \times 20,000 = ₹ 24,00,000$ | $79,20,000 - 24,00,000 = 55,20,000$   |

So, BEQ = 20,000 + 73,600 = 93,600 units

**Question 1(c): Time Value of Money – Sinking Fund**

**5 Marks**

- (i) What is a Sinking Fund and how is it calculated?
- (ii) A Company has purchased a Plant for ₹ 10,00,000 with a useful life of 6 years. It expects that ₹ 15,00,000 will be required to replace the Plant after 6 years. To ensure that money is available at the time of replacement, the Company has created a Sinking Fund. You are required to determine the amount to be deposited annually, if the Fund earns interest at 8% per annum. Given  $CVFA_{0.08,6} = 7.336$

**Solution: Refer Page 19.6, Para 19.2.2 for Principles and Page 19.7, Illustration 16 of Handbook**

$$\text{Sinking Fund Instalment} \times \frac{[(1+R)^n - 1]}{R} = \text{Sinking Fund Instalment} \times \frac{[(1+0.08)^6 - 1]}{0.08} = ₹ 15,00,000.$$

So, Instalment × 7.336 = 15,00,000. Hence, Sinking Fund Instalment = ₹ 2,04,470 p.a. (App.)

**Question 1(d): Leverage – Computation**

**5 Marks**

A Company had the following Balance Sheet as on 31<sup>st</sup> March, 2015.

| Liabilities                       | Amount ₹           | Assets             | Amount ₹           |
|-----------------------------------|--------------------|--------------------|--------------------|
| Equity Share Capital of ₹ 10 each | 40,00,000          | Fixed Assets (Net) | 1,28,00,000        |
| Reserve & Surplus                 | 8,00,000           | Current Assets     | 32,00,000          |
| 15% Debentures                    | 80,00,000          |                    |                    |
| Current Liabilities               | 32,00,000          |                    |                    |
| <b>Total</b>                      | <b>1,60,00,000</b> | <b>Total</b>       | <b>1,60,00,000</b> |

The additional information given is as under:

|   |             |                             |     |
|---|-------------|-----------------------------|-----|
| Fixed Cost per annum (excluding Interest) | ₹ 32,00,000 | Total Assets Turnover Ratio | 2.5 |
| Variable Operating Cost Ratio             | 70%         | Income Tax Rate             | 30% |

Calculate – (i) Operating Leverage, (ii) Financial Leverage, (iii) Combined Leverage, (iv) Earning per Share

**Solution:**

**Similar to Page 17.14, Q.No.11, N 06 Qn of Handbook**

1. Total Assets T/O Ratio =  $\frac{\text{Turnover, i.e. Sales}}{\text{Total Assets}} = \frac{\text{Sales}}{1,60,00,000} = 2.5$ . So, Sales = 1,60,00,000 × 2.5 = ₹ 4,00,00,000

**2. Profitability Statement:**

| Particulars                                 | ₹                |
|---|------------------|
| Sales                                       | 4,00,00,000      |
| <b>Less:</b> Variable Costs at 70% of Sales | 2,80,00,000      |
| Contribution                                | 1,20,00,000      |
| <b>Less:</b> Fixed Costs (Given)            | 32,00,000        |
| EBIT  | 88,00,000        |
| <b>Less:</b> Interest (15% × 80,00,000)     | 12,00,000        |
| EBT   | 76,00,000        |
| <b>Less:</b> Tax at 30%                     | 22,80,000        |
| <b>PAT = Residual Earnings</b>              | <b>53,20,000</b> |

3. **Computation of Ratios:**

| Particulars                          | Formula & Computation   | Answer                  |
|--------------------------------------|---|-------------------------|
| (a) Earnings per Share <b>(Note)</b> | $= \frac{\text{Residual Earnings}}{\text{No. of Equity Shares}} = \frac{53,20,000}{4,00,000}$ | <b>₹ 13.3 Per Share</b> |
| (b) Operating Leverage               | $= \frac{\text{Contribution}}{\text{EBIT}} = \frac{1,20,00,000}{88,00,000}$                   | <b>1.36 times</b>       |
| (c) Financial Leverage               | $= \frac{\text{EBIT}}{\text{EBT}} = \frac{88,00,000}{76,00,000}$                              | <b>1.16 times</b>       |
| (d) Combined Leverage                | $= \frac{\text{Contribution}}{\text{EBT}} = \frac{1,20,00,000}{76,00,000}$                    | <b>1.58 times</b>       |

**Note:** No. of Shares =  $\frac{\text{Share Capital}}{\text{Face Value per Share}} = \frac{₹40,00,000}{₹10} = 4,00,000$  Shares.

**Question 2(a): Cost Accounting Systems – Missing Figures – Reverse Working** 8 Marks

The following information is available from a Company's records for March 2016:

- |   |            |
|---|------------|
| (a) Opening Balance of Creditors Account  | ₹ 25,000   |
| (b) Closing Balance of Creditors Account  | ₹ 40,000   |
| (c) Payment made to Creditors   | ₹ 5,80,000 |
| (d) Opening Balance of Stores Ledger Control Account  | ₹ 40,000   |
| (e) Closing Balance of Stores Ledger Control Account  | ₹ 65,000   |
| (f) Wages Paid (for 8,000 hours)<br>20% relate to Indirect Workers  | ₹ 4,00,000 |
| (g) Various Indirect Expenses incurred  | ₹ 60,000   |
| (h) Opening Balance of WIP Control Account  | ₹ 50,000   |
| (i) Inventory of WIP at the end of the month includes Material worth ₹ 35,000 on which 400 Labour Hours have been booked. |            |
| (j) Factory Overhead is charged to production at budgeted rate based on Direct Labour Hours.                              |            |
| (k) Budgeted Overhead Cost is ₹ 20,80,000, for Budgeted Direct Labour Hours of 1,04,000.                                  |            |

Prepare Creditors A/c, Stores Ledger Control A/c, WIP Control A/c, Wages Control A/c and Factory Overhead Control A/c.

**Solution:** Similar to Page 5.18, Q.No.7 – RTP Qn, M 97 (Modified) Qn of Handbook

**Working Notes:**

- (a) OH Rate p.u =  $\frac{₹ 20,80,000}{1,04,000 \text{ hrs}} = ₹ 20 \text{ per hour}$       (b) Wage Rate ph =  $\frac{₹ 4,00,000}{8,000 \text{ hrs}} = ₹ 50 \text{ ph}$
- Value of Closing WIP** = Direct Material + Direct Labour + Applied POH  
= 35,000 + (400 hrs × ₹ 50) + (400 hrs × ₹ 20) = **₹ 63,000**

**Ledger Accounts:**

**1. Sundry Creditors Account**

| Particulars        | ₹               | Particulars  | ₹               |
|--------------------|-----------------|--|-----------------|
| To Bank (Payments) | 5,80,000        | By balance b/d                                     | 25,000          |
| To balance c/d     | 40,000          | By Stores Ledger Control a/c (Purchases) (bal.fig) | 5,95,000        |
| <b>Total</b>       | <b>6,20,000</b> | <b>Total</b>                                       | <b>6,20,000</b> |

**2. Stores Ledger Control Account**

| Particulars              | ₹               | Particulars                              | ₹               |
|--------------------------|-----------------|--|-----------------|
| To balance b/d – given   | 40,000          | By WIP Control – A/c Transfer (bal. fig) | 5,70,000        |
| To Creditors – Purchases | 5,95,000        | By balance c/d                           | 65,000          |
| <b>Total</b>             | <b>6,35,000</b> | <b>Total</b>                             | <b>6,35,000</b> |

**3. Wages Control Account**

| Particulars    | ₹               | Particulars                                    | ₹               |
|----------------|-----------------|--|-----------------|
| To Cash / Bank | 4,00,000        | By WIP Control A/c – Direct Wages – (bal. fig) | 3,20,000        |
|                |                 | By POH Control – 20% Indirect Wages            | 80,000          |
| <b>Total</b>   | <b>4,00,000</b> | <b>Total</b>                                   | <b>4,00,000</b> |

**4. Factory OH Control Account**

| Particulars                           | ₹               | Particulars                                | ₹               |
|---------------------------------------|-----------------|--|-----------------|
| To Cash / Bank / – POH paid (given)   | 60,000          | By WIP Control [8,000 hrs × ₹ 20] (WN.1 a) | 1,60,000        |
| To Wages Control A/c – Indirect Wages | 80,000          | – absorbed OH transfer                     |                 |
| To balance c/d (assumed carried fwd)  | 20,000          |  |                 |
| <b>Total</b>                          | <b>1,60,000</b> | <b>Total</b>                               | <b>1,60,000</b> |

**5. WIP Control Account**

| Particulars                            | ₹                | Particulars                           | ₹                |
|--|------------------|---------------------------------------|------------------|
| To balance b/d                         | 50,000           | By Finished Goods Control – (bal.fig) | 10,37,000        |
| To Stores Ledger Control – RM Consumed | 5,70,000         |                                       |                  |
| To Wages Control                       | 3,20,000         |                                       |                  |
| To POH Control – Absorbed              | 1,60,000         | By balance c/d (WN 2)                 | 63,000           |
| <b>Total</b>                           | <b>11,00,000</b> | <b>Total</b>                          | <b>11,00,000</b> |

**Question 2(b): Ratio Analysis – Preparation of Financial Statements**

8 Marks

With the following ratios and further information given below prepare a Trading Account, Profit and Loss Account and Balance Sheet of ABC Company.

|                      |             |                                     |     |
|----------------------|-------------|-------------------------------------|-----|
| Fixed Assets         | ₹ 40,00,000 | Net Profit to Capital               | 1/5 |
| Closing Stock        | ₹ 4,00,000  | Capital to Total Liabilities        | 1/2 |
| Stock Turnover Ratio | 10          | Fixed Assets to Capital             | 5/4 |
| Gross Profit Ratio   | 25 percent  | Fixed Assets / Total Current Assets | 5/7 |
| Net Profit Ratio     | 20 percent  |                                     |     |

**Solution:** Similar to Illustrations 15, 16 in Handbook and Illustration 14, 15 in Practical Guide

**Trading and Profit & Loss Account of ABC Company**

| Particulars                           | ₹                | Particulars              | ₹                |
|---------------------------------------|------------------|--------------------------|------------------|
| To Opening Stock (WN 8)               | 80,000           | By Sales (WN 5)          | 32,00,000        |
| To Purchases (bal.fig)                | 27,20,000        | By Closing Stock (given) | 4,00,000         |
| To Gross Profit (WN 6) (25% on Sales) | 8,00,000         |                          |                  |
| <b>Total</b>                          | <b>36,00,000</b> | <b>Total</b>             | <b>36,00,000</b> |
| To Expenses (bal. fig)                | 1,60,000         | By Gross Profit b/d      | 8,00,000         |
| To Net Profit (WN 4)                  | 6,40,000         |                          |                  |
| <b>Total</b>                          | <b>8,00,000</b>  | <b>Total</b>             | <b>8,00,000</b>  |

**Balance Sheet of ABC Company**

| Capital & Liabilities    | ₹                | Assets                                    | ₹                |
|--------------------------|------------------|---|------------------|
| Capital (WN 1)           | 32,00,000        | Fixed Assets (Given)                      | 40,00,000        |
| Other Liabilities (WN 3) | 64,00,000        | Current Assets                            |                  |
|                          |                  | Stock (Given)                             | 4,00,000         |
|                          |                  | Other Current Assets (bal. fig out of CA) | 52,00,000        |
| <b>Total</b>             | <b>96,00,000</b> | <b>Total</b>                              | <b>96,00,000</b> |

**Working Notes and Calculations**

- $\frac{\text{Fixed Assets}}{\text{Capital}} = \frac{40,00,000}{\text{Capital}} = \frac{5}{4}$ . Hence Capital = ₹ 32,00,000
- $\frac{\text{Fixed Assets}}{\text{Total Current Assets}} = \frac{40,00,000}{\text{Current Assets}} = \frac{5}{7}$  So, Total Current Assets = ₹ 56,00,000
- $\frac{\text{Capital}}{\text{Other Liabilities}} = \frac{32,00,000}{\text{Other Liabilities}} = \frac{1}{2}$ . Hence, Other Liabilities = ₹ 64,00,000

**Note:** 'Total Liabilities' is taken / assumed, as "External Liabilities", i.e. excluding Capital, to consider all the data in the question harmoniously.

4.  $\frac{\text{Net Profit}}{\text{Capital}} = \frac{\text{Net Profit}}{32,00,000} = \frac{1}{5}$ . Net Profit = ₹ 6,40,000
5. Net Profit Ratio =  $\frac{\text{Net Profit}}{\text{Sales}} = \frac{6,40,000}{\text{Sales}} = 20\%$ . Hence, Sales = ₹ 32,00,000
6. Gross Profit Ratio = 25%. Hence Gross Profit = 32,00,000 × 25% = ₹ 8,00,000
7. Cost of Goods Sold = Sales (-) Gross Profit = ₹ 32,00,000 (-) ₹ 8,00,000 = ₹ 24,00,000
8. Stock Turnover Ratio =  $\frac{\text{Cost of Goods Sold}}{\text{Average Stock}} = \frac{24,00,000}{\text{Average Stock}} = 10$ . Hence, Average Stock = ₹ 2,40,000
9. Average Stock =  $\frac{\text{Opening Stock} + \text{Closing Stock}}{2} = \frac{\text{Opening Stock} + 4,00,000}{2} = ₹ 2,40,000$ . So, Opening Stock = ₹ 80,000

**Question 3(a): Process Costing and Standard Costing – Equi. Production & Variances** 8 Marks

X Associates undertake to prepare Income Tax Returns for individuals for a fee. They use the Weighted Average Method and Actual Costs for the financial reporting purposes. However, for internal reporting, they use a standard costs system. The standards, based on equivalent performance, have been established as follows:

Labour per Return 5 hrs @ ₹ 240 per hour; Overhead per Return 5 hrs @ ₹ 20 per hours

For March 2015 performance, Budgeted Overhead is ₹ 98,000 for standard labour hours allowed. The following additional information pertains to the month of March 2015:

|          |                                  |         |
|----------|----------------------------------|---------|
| March 1  | Return-in-Process (25% complete) | 200 Nos |
|          | Return started in March          | 825 Nos |
| March 31 | Return-in-Process (80% complete) | 125 Nos |

Cost Data:

|          |                    |             |            |
|----------|--------------------|-------------|------------|
| March 1  | Return-in-Process  | - Labour    | ₹ 12,000   |
|          |                    | - Overheads | ₹ 5,000    |
| March 31 | Labour: 4000 hours |             | ₹ 1,78,000 |
|          | Overheads          |             | ₹ 90,000   |

You are required to compute:

- (a) For each element, equivalent units of performance and the Actual Cost per equivalent unit.
- (b) Actual Cost of Return-in-Process on March 31.
- (c) The Standard Cost per Return.
- (d) The Labour Rate and Labour Efficiency Variance, as well as Overhead Volume and Overhead Expenditure Variance.

**Solution:**

**1. Computation of Equivalent Units (e.u)**

| Input         |              | Output      |              | Percentage | e.u          |
|---------------|--------------|-------------|--------------|------------|--------------|
| Opening WIP   | 200          | Completed   | 900          | 100%       | 900          |
| Fresh Returns | 825          | Closing WIP | 125          | 80%        | 100          |
|               | <b>1,025</b> |             | <b>1,025</b> |            | <b>1,000</b> |

**2. Computation of Cost per e.u. (using WAC Method)**

|              | Opening WIP   | Current Cost    | Total Cost      | e.u   | Cost per e.u |
|--------------|---------------|-----------------|-----------------|-------|--------------|
| Labour       | 12,000        | 1,78,000        | 1,90,000        | 1,000 | 190          |
| Overhead     | 5,000         | 90,000          | 95,000          | 1,000 | 95           |
| <b>Total</b> | <b>17,000</b> | <b>2,68,000</b> | <b>2,85,000</b> |       | <b>285</b>   |

3. **Actual Cost** of Returns in Process = 100 Equivalent Returns × ₹ 285 Actual Cost per Return = **Total ₹ 28,500**

4. **Standard Cost Per Return** = Labour + Overhead = (5 hrs × ₹ 40) + (5 hrs × ₹ 20) = ₹ 200 + ₹ 100 = **₹ 300**

**Note:** In the following computation of Variances, it is assumed that –

- (a) Only Current Cost of Labour & Overheads are considered,
- (b) Monthly Budget is for completing 1,000 Returns (assumed).

Alternative assumptions / treatments are possible.

**5. Computation of Labour Variances** [Note: SH =  $\frac{₹ 98,000}{₹ 20} = 4,900$  hours]

| SH × SR  | AH × SR                            | AH × AR   |
|--|------------------------------------|---|
| 4,900 Hours × ₹ 40<br>= ₹ 1,96,000                                   | 4,000 Hours × ₹ 40<br>= ₹ 1,60,000 | Given<br>₹ 1,78,000   |
| Labour Efficiency Variance = ₹ 1,96,000 – ₹ 1,60,000<br>= ₹ 36,000 F |                                    | Labour Rate Variance: = ₹ 1,60,000 – ₹ 1,78,000<br>= ₹ 18,000 A |

**6. Computation of Overhead Variance**

| AO × SR = SH × SR                                      | BFOH  | AFOH   |
|--|---|--|
| Given for Standard Hours<br>= ₹ 98,000                 | (Assumed) 1,000 Returns × 5 hrs × 20 ph<br>= ₹ 1,00,000 | Given<br>₹ 90,000  |
| Volume Variance = ₹ 98,000 – ₹ 1,00,000<br>= ₹ 2,000 A |   | Expenditure Variance = ₹ 1,00,000 – ₹ 90,000<br>= ₹ 10,000 F |

**Question 3(b): Working Capital Management – Debtors Decision**

8 Marks

A Trader whose current Sale are ₹ 4,20,000 per annum and an Average Collection Period of 30 days, wants to pursue a more liberal policy to improve sales. A study made by a Management Consultant reveals the following information:

| Credit Policy | Increase in Collection Period | Increase in Sales | Present default anticipated |
|---------------|-------------------------------|-------------------|-----------------------------|
| I             | 10 days                       | ₹ 21,000          | 1.5%                        |
| II            | 30 days                       | ₹ 52,500          | 3%                          |
| III           | 45 days                       | ₹ 63,000          | 4%                          |

The Selling Price per unit is ₹ 3. Average Cost per unit is ₹ 2.25 and Variable Cost per unit is ₹ 2. The current Bad-Debts Loss is 1%. Required Return on Additional Investment is 20%. Assume a 360 days year.

Which of the above policies would you recommend for adoption?

**Solution:**

**Similar to Page 16.37, Q.No.40 – Practical Guide  
Evaluation of Alternative Credit Policies (Amount in ₹)**

| Particulars                                       | Present  | Policy I | Policy II | Policy III |
|---|----------|----------|-----------|------------|
| 1. Sales  | 4,20,000 | 4,41,000 | 4,72,500  | 4,83,000   |
| 2. Variable Cost at 2/3 <sup>rd</sup>             | 2,80,000 | 2,94,000 | 3,15,000  | 3,22,000   |
| 3. Contribution (1–2)                             | 1,40,000 | 1,47,000 | 1,57,500  | 1,61,000   |
| 4. Fixed Costs (Note)                             | 35,000   | 35,000   | 35,000    | 35,000     |
| 5. Profit (3 – 4)                                 | 1,05,000 | 1,12,000 | 1,22,500  | 1,26,000   |
| 6. Cost of Debtors p.a. = Total Costs = (2+4)     | 3,15,000 | 3,29,000 | 3,50,000  | 3,57,000   |
| 7. Collection Period                              | 30 days  | 40 days  | 60 days   | 75 days    |
| 8. Average Debtors = $\frac{(6) \times (7)}{360}$ | 26,250   | 36,556   | 58,333    | 74,375     |
| 9. Interest on Avg Debtors [(8) × 20%]            | 5,250    | 7,311    | 11,667    | 14,875     |
| 10. Bad Debts                                     | 4,200    | 6,615    | 14,175    | 19,320     |
| 11. Net Benefit (5 – 9 – 10)                      | 95,550   | 98,074   | 96,658    | 91,805     |

**Note:** Present Sale Quantity =  $\frac{₹ 4,20,000}{₹ 3 \text{ p.u.}} = 1,40,000$  units. Also, Fixed Costs p.u. = Total Costs 2.25 less Variable Costs 2

= ₹ 0.25 p.u. Hence, Total Fixed Costs at present = 1,40,000 × ₹ 0.25 = ₹ 35,000, which remain constant.

**Conclusion:** Policy I gives maximum Net Benefit, and may be chosen.

**Question 4(a): Joint & By Products – By Product Accounting** 8 Marks

A Factory producing Article A also produces a By-Product B which is further processed into finished product. The Joint Cost of manufacture is given below and Subsequent Costs are given below:

|              | Joint Cost      | Subsequent Cost |              |
|--------------|-----------------|-----------------|--------------|
|              |                 | A               | B            |
| Material     | ₹ 5,000         | 3,000           | 1,500        |
| Labour       | ₹ 3,000         | 1,400           | 1,000        |
| Overhead     | ₹ 2,000         | 600             | 500          |
| <b>Total</b> | <b>₹ 10,000</b> | <b>5,000</b>    | <b>3,000</b> |

Selling Prices are A ₹ 16,000, B ₹ 8,000 Estimated Profit on Selling Prices is 25% for A and 20% for B.

Assume that Selling and Distribution Expenses are in proportion of Sales Prices. Show how you would apportion Joint Costs of manufacture, and prepare statement showing Costs of Production of A and B.

**Solution:** Similar to Page 7.14, Q.No.12 – Practical Guide

| Product                                       | A                      | B                 | Total                 |
|---|------------------------|-------------------|-----------------------|
| Nature  | Main Product           | By-Product        |                       |
| Sales Value (given)                           | 16,000                 | 8,000             | 24,000                |
| <b>Less:</b> Profit Margin (based on % given) | 4,000                  | 1,600             | 5,600                 |
| Cost of Sales                                 | 12,000                 | 6,400             | 18,400                |
| <b>Less:</b> S & D Overheads [See Note]       | 267                    | 133               | (bal.fig.) 400        |
| Cost of Production                            | 11,733                 | 6,267             | 18,000                |
| <b>Less:</b> Further Processing Costs (given) | 5,000                  | 3,000             | 8,000                 |
| Net Balance                                   | <b>6,733</b>           | <b>3,267</b>      | (given) <b>10,000</b> |
| This Net Balance represents                   | Cost Share of Main Pdt | NRV of By Product | Joint Costs           |

**Note:**

- In the Total Column, since Joint Costs are given, S & D OH constitutes the balancing figure, which is apportioned to Products A & B in 2:1 Sales Ratio.
- Thereafter, Costs of Production are derived and NRV of By-Products are determined.
- Balance Joint Costs are identified with the Main Product (i.e. 10,000 – 3,267 = ₹ 6,733).

**Question 4(b): Capital Budgeting – Reverse Working with IRR, PI, NPV** 8 Marks

Given below are the data on a capital project 'C':

|                         |            |
|-------------------------|------------|
| Cost of the Project     | ₹ 2,28,400 |
| Useful Life             | 4 years    |
| Profitability Index     | 1.0417     |
| Internal Rate of Return | 15%        |
| Salvage Value           | 0          |

Calculate– (i) Annual Cash Flow, (ii) Cost of Capital, (iii) Net Present Value (NPV), (iv) Discounted Payback Period

Given the following table of Discount Factors:

| Discount Factor | 15%   | 14%   | 13%   | 12%   |
|-----------------|-------|-------|-------|-------|
| 1 Year          | 0.869 | 0.877 | 0.885 | 0.893 |
| 2 Years         | 0.756 | 0.769 | 0.783 | 0.797 |
| 3 Years         | 0.658 | 0.675 | 0.693 | 0.712 |
| 4 Years         | 0.572 | 0.592 | 0.613 | 0.636 |

**Solution:** Similar to Page 20.15, Q.7 M 12 Qn. of Handbook & M 09 Qn. of Page 20.6, Q.No.5 Practical Guide

|   |  |
|---|--|
| 1. Since IRR = 15%, Discounted Cash Inflows at 15% = Initial Investment in the Project.<br>So, Cost of Project = Initial Investment = CFAT p.a. × Cum. PVF at 15% for 4 years<br>₹ 2,28,400 = CFAT p.a. × 2.855. solving, CFAT p.a. = | <b>₹ 80,000</b>                          |
| 2. Profitability Index = $\frac{\text{Total DCFAT}}{\text{Initial Investment}}$ = 1.0417 (given). So, Total DCFAT = PI × Initial Investment   | 1.0417 × 2,28,400<br>= <b>₹ 2,37,924</b> |





**Analysis & Conclusion:**

- Indifference Point =  $\frac{\text{Change in Fixed Costs}}{\text{Change in Contribution pu}} = \frac{30,00,000 - 21,00,000}{8 - 6} = \frac{9,00,000}{2} = 4,50,000 \text{ units.}$
- Since Anticipated Sales (4,00,000 units) is below the Indifference Point (4,50,000 units), the option with the Lower Fixed Cost is preferable. Hence, Process B is preferable. (as reflected by higher anticipated profit)
- No change in answer even if capacity of Process A increases, since Anticipated Sales is only 4,00,000 units.

**Question 6(a)(ii): Budgeting – Theory Question**

4 Marks

State the difference between Fixed Budget and Fixed Budget.

**Solution: Refer Page 12.5, Para 12.2.1 Point 3 of Handbook – N 75, N 76, N 78, N 89, N 96, M 02, N 11 Qn**

**Question 6(b): Cost of Capital – Cost of Equity, Debt, Preference, WACC, Marginal WACC**

8 Marks

The X Company has following Capital Structure at 31<sup>st</sup> March 2015, which is considered to be optimum.

|                          |                    |
|--------------------------|--------------------|
| 14% Debentures           | ₹ 3,00,000         |
| 11% Preference Shares    | ₹ 1,00,000         |
| Equity (1,00,000 Shares) | ₹ 16,00,000        |
| <b>Total</b>             | <b>₹ 20,00,000</b> |

The Company's Share has a current Market Price of ₹ 23.60 per Share. The expected Dividend per Share next year is 50% of 2015 EPS. The following are the Earning Per Share figure for the Company during preceding ten years. The past trends are expected to continue.

| Year | EPS (₹) | Year | EPS (₹) |
|------|---------|------|---------|
| 2006 | 1.00    | 2011 | 1.61    |
| 2007 | 1.10    | 2012 | 1.82    |
| 2008 | 1.21    | 2013 | 1.95    |
| 2009 | 1.33    | 2014 | 2.15    |
| 2010 | 1.46    | 2015 | 2.36    |

The Company issued new Debentures carrying 16% Rate of Interest and the Current Market Price of Debenture is ₹ 96. Preference Share ₹ 9.20 (which Dividend of ₹ 1.1 per Share) were also issued. The Company is in 50% tax bracket.

- Calculate after-tax cost of (a) New Debt, (b) New Preference Share (c) New Equity Share (assuming New Equity from Retained Earning)
- Calculate Marginal Cost of Capital when no New Shares was issued.
- How much can be spent for Capital Investment before New Ordinary Shares must be sold? Assuming the Retained Earning for next year's investment are 50% of 2015.
- What will be the Marginal Cost of Capital when the funds exceeds the amount calculated in (iii), assuming New Equity is issued at ₹ 20 per Share?

**Solution: Similar to Page 18.14, Q.No.25 of Practical Guide, and Page 18.26 Q. No. 24 M 05 Qn. of Handbook**

**1. Computation of Cost of Additional Capital (component wise)**

1. (a) After Tax Cost of New Debt  $K_d = \frac{\text{Interest} \times (100\% - \text{Tax Rate})}{\text{Net Proceeds of Issue}} = \frac{16 \times (100\% - 50\%)}{96} = 8.33\% \text{ (Note 1)}$

1. (b) After Tax Cost of New Preference Share Capital  $K_p = \frac{\text{Preference Dividend}}{\text{Net Proceeds of Issue}} = \frac{1.10}{9.20} = 11.96\%$

1. (c) After Tax Cost of Ordinary Equity  $K_e = \frac{\text{DPS}}{\text{MPS}} + g = \frac{50\% \times 2.36}{23.60} + 10\% = 15\% \text{ (Note 2)}$

**Notes:**

- It is assumed that Current Market Price of **New Debentures** is ₹ 96 (with Face Value ₹ 100). Alternatively, if it is assumed that Market Price of Existing 14% Debentures is ₹ 96, then, the Company can sell New 16% Debentures at  $\frac{₹ 96}{14\%} \times 16\% = ₹ 109.70$ . Then, the After Tax Cost of Debt = 7.29% and other figures will get modified accordingly.

2. "g" i.e. Growth Rate under Realised Yield Method = Past Average Growth Rate = **10%**, in the following manner –

| Year              | 2006 | 2007   | 2008   | 2009  | 2010  | 2011   | 2012   | 2013  | 2014   | 2015  |
|-------------------|------|--------|--------|-------|-------|--------|--------|-------|--------|-------|
| EPS (₹)           | 1.00 | 1.10   | 1.21   | 1.33  | 1.46  | 1.61   | 1.82   | 1.95  | 2.15   | 2.36  |
| Additional EPS    | —    | 0.10   | 0.11   | 0.12  | 0.13  | 0.15   | 0.21   | 0.13  | 0.20   | 0.21  |
| % increase in EPS | —    | 10.00% | 10.00% | 9.91% | 9.77% | 10.27% | 13.04% | 7.14% | 10.25% | 9.76% |

% Increase in EPS =  $\frac{\text{Additional EPS}}{\text{Previous Year EPS}}$ , e.g.  $\frac{0.10}{1.00}$ , etc. An Average of **10% Growth Rate** is considered.

2. **Marginal Cost of Capital:** Since the present Capital Structure is optimum (*Refer 1<sup>st</sup> sentence in the question*), the additional funds will be raised in the same ratio in order to maintain the capital structure. Hence, the Marginal Cost of Capital is **13.85%**, computed as under:

| Component          | ₹                | %           | Individual Cost                  | WACC          |
|--------------------|------------------|-------------|----------------------------------|---------------|
| Debt               | 3,00,000         | 15%         | $K_d = 8.33\%$                   | 1.25%         |
| Preference Capital | 1,00,000         | 5%          | $K_p = 12.00\%$                  | 0.60%         |
| Equity Capital     | 16,00,000        | 80%         | $K_e = 15.00\%$                  | 12.00%        |
| <b>Total</b>       | <b>20,00,000</b> | <b>100%</b> | <b>WACC = <math>K_0 =</math></b> | <b>13.85%</b> |

3. **Retained Earnings available for further investments** = 50% of 2015 EPS

$$= 50\% \times ₹ 2.36 \times 1,00,000 \text{ Shares} = ₹ 1,18,000$$

Hence, amount to be used by way of Retained Earnings, before selling New Ordinary Shares = ₹ 1,18,000.

$$\text{As Equity} = 80\% \text{ of Total Funds, the Total Capital before issuing fresh Equity Shares} = \frac{1,18,000}{80\%} = ₹ 1,47,500$$

4. **Revised Marginal Cost of Capital** if the Company spends in excess of ₹ 1,47,500 it will have to issue New Shares:

**Note:** Revised Cost of Ordinary Equity  $K_e = \frac{\text{DPS}}{\text{MPS}} + g = \frac{1.18}{20} + 10\% = 15.9\%$

| Component          | ₹                | %           | Individual Cost                  | WACC          |
|--------------------|------------------|-------------|----------------------------------|---------------|
| Debt               | 3,00,000         | 15%         | $K_d = 8.33\%$                   | 1.25%         |
| Preference Capital | 1,00,000         | 5%          | $K_p = 12.00\%$                  | 0.60%         |
| Equity Capital     | 16,00,000        | 80%         | $K_e = 15.90\%$                  | 12.72%        |
| <b>Total</b>       | <b>20,00,000</b> | <b>100%</b> | <b>WACC = <math>K_0 =</math></b> | <b>14.57%</b> |

**Question 7: Various Topics – Theory Questions**

4 × 4 = 16 Marks

|     | Question  | Page Reference in Handbook   |
|-----|---|--|
| (a) | What is Cost plus Contract? What are its advantages?  | Page 6.10, Para 6B.1.4 – RTP, N 96, N 00, M 08, N 08, N 09 Qn  |
| (b) | Narrate the objectives of Cost Accounting.  | Page 1.2, Para 1.1.3 – RTP, M 01, M 09, M 10 Qn  |
| (c) | State, which of the following would result in Inflow/ Outflow of Funds, if the funds were defined as Working Capital.<br>(i) Purchase of a Fixed Asset on credit of two months.<br>(ii) Sale of a Fixed Asset (Book Value ₹ 8,000) at a loss of ₹ 7,000.<br>(iii) Payment of Final Dividend already declared.<br>(iv) Writing off Bad Debts against a Provision for Doubtful Debts. | <b>Refer Principles in Ch.15</b><br>(i) No<br>(ii) Inflow ₹ 1,000<br>(iii) Outflow, if Dividend Payable is excluded from Current Liabilities.<br>(iv) No |
| (d) | State the principles that should be followed while designing the capital structure of a Company.  | Pg 18.7, 18.8, Para 18.3.4, 18.3.5, RTP, N 03, M 06, N 07, N 12, N 13 Qn   |
| (e) | Explain what do you mean by:<br>(i) Leveraged Lease<br>(ii) Profit Centres.   | Page 21.6, Para 21.3.7–N 07 Qn<br>Page 1.13, Para 1.3.4  |