# INTERMEDIATE EXAMINATION

## GROUP I

## (SYLLABUS 2012)

### SUGGESTED ANSWERS TO QUESTIONS
### DECEMBER 2016

### Paper- 8: COST ACCOUNTING AND FINANCIAL MANAGEMENT

**Time Allowed : 3 Hours**                                                        **Full Marks : 100**

*The figures in the margin on the right side indicate full marks.*

*All sections are compulsory. Each section contains instructions regarding the number of questions to be answered within the section.*
*All working notes must form part of your answers.*
*Wherever necessary, candidates may make appropriate assumptions and clearly state them.*

*No Present value factor table or other table will be provided along with this question paper.*

## Section – A

*Question No. 1 is compulsory. Answer all questions under each sub division.*

1.   (A) Answer the following questions. Each question carries two marks.                **2×5=10**

   (i) In a factory, number of employees at the beginning of 2015 was 380 and at the end 420. During the year 18 employees resigned, 6 were discharged and out of them 16 were replaced. Find the Labour Turnover Ratio of the factory under Flux Method.

   (ii) At EOQ total ordering cost per annum is ₹ 4,000. Find EOQ in units if carrying cost per unit per annum is ₹ 2.

   (iii) Find the actual overhead for the month of October 2016, when actual machine hours worked is 10000 and there is under-recovery of overhead of ₹ 30,000 by using machine hour rate of ₹30.

   (iv) If Discounted Pay Back period is 5 years and cost of capital is 12%, find IRR when the life of the project is also 5 years.

   (v) You find that a firm has margin of safety = 25% of sales. Find the Degree of Operating Leverage.

   (B) State whether the following are true or false (Legibly write only the Roman numeral and whether true or false):                                                                **1×5=5**

   (i) Blanket overhead absorption rate is also known as single factory wide overhead absorption rate.

   (ii) The cost of in-warranty after sale service is treated as selling and distribution overhead.

   (iii) JIT reduces the working capital requirement.

   (iv) The shares underlying the GDR carry voting rights.

   (v) Cost of capital is required for calculating IRR.

**(C) Fill in the blanks (Legibly write only the Roman numeral and the content filling the blank):**
1×5=5

(i) According to Net Income approach, greater the proportion of debt capital, _____ shall be the overall cost of capital.

(ii) Most of the venture capital funds provide financial support to entrepreneurs in the form of _____.

(iii) The charging of discrete, identifiable items of cost to cost centers is called _____.

(iv) A _____ is a record which contains the relevant details pertaining to the plants and equipments.

(v) CAS-2 deals with the principles and methods of determining the _____ of a manufacturing facility of an entity.

**(D) Match the following (You may opt to write the Roman numeral and the matched alphabet instead of copying contents into the answer books):**
1×5=5

| (i) | Bin Card | (a) | Dividend Yield |
|---|---|---|---|
| (ii) | Opportunity cost | (b) | CAS 16 |
| (iii) | Joint costs | (c) | Cost of alternative resources |
| (iv) | Present value of cash inflows/ Present value of cash outflows | (d) | Labour turnover |
| (v) | Dividend/Stock price | (e) | Profitability Index |
| | | (f) | Value of alternatives forgone by employing resources in a specific manner |
| | | (g) | Perpetual inventory system |
| | | (h) | CAS 19 |

**Answer:**

1. (A) (i) Addition = 420 – (380 – 18 – 6) = 64; replacement = 16;
LTR (Flux) = [0.5 * (64 + 16)]/[380 + 420)/2] = 10%.

(ii) At EOQ, total carrying cost = total ordering cost = ₹ 4000
Total carrying cost = (carrying cost per unit pa) x (EOQ/2)
Or, ₹ 2×EOQ/2 = ₹ 4000
Or, EOQ= 4000 units.

(iii)

| Overhead absorbed = machine hour rate * actual machine hours = 30×10000 | ₹ 3,00,000 |
|---|---|
| Under-recovery | ₹ 30,000 |
| Actual overhead for the month | ₹ 3,30,000 |

(iv) IRR = 12%; When Discounted Pay Back period = Life of the project, NPV = 0.
When NPV = 0, Cost of Capital (k) = IRR = 12%.

(v) Margin of Safety = 25% of sales implies that 100% reduction in profits (EBIT) for 25% reduction in sales;
DOL = % Change in EBIT/%Change in Sales; Thus DOL = 100/25 = 4.

(B) (i) True
(ii) True
(iii) True
(iv) False
(v) False

(C) (i)   Lower,
(ii)  Equity
(iii) Cost Allocation
(iv)  Plant Register
(v)   Capacity

(D)

| | |
|---|---|
| i | g |
| ii | f |
| iii | h |
| iv | e |
| v | a |

## Section – B

Answer any three questions from question numbers 2, 3, 4 and 5.
Each question carries 15 marks.

2. The Modern Ltd. has three production departments and two service departments. The following are the extracts from the records of the company for the year 2016:

| | ₹ | Production | | | Service | |
|---|---|---|---|---|---|---|
| | | X | Y | Z | P | Q |
| Rent and Rates | 26,400 | | | | | |
| Lighting | 5,000 | | | | | |
| Direct Wages ₹ | | 40,000 | 50,000 | 25,000 | 3,000 | 2,000 |
| Indirect Wages (allocated) ₹ | | 7,136 | 8,359 | 3,455 | 400 | 250 |
| Power | 12,000 | | | | | |
| Direct Materials ₹ | | 80,000 | 40,000 | 50,000 | | |
| Machine Hours | | 3000 | 8000 | 4000 | | |
| Light Points | | 25 | 35 | 25 | 5 | 10 |
| Floor Area sq. mts | | 2400 | 1200 | 3000 | 1800 | 4800 |
| Machine Value ₹ | | 1,00,000 | 2,00,000 | 80,000 | | |
| Service Departments are providing services to others as follows: | | | | | | |
| P(%) | | 20 | 30 | 50 | | |
| Q(%) | | 20 | 50 | 10 | 20 | |

Depreciation is 10% of Machine Value.
**(a)** Calculate Machine Hour Rate for each production department.                    9
**(b)** Calculate Factory Cost of articles A and B using the following additional information:    6

| Article | A | B |
|---|---|---|
| Prime Costs ₹ | 12,000 | 3,000 |
| Machine hours consumed in Production Departments | | |
| X | 400 | |
| Y | 240 | 300 |
| Z | | 100 |

**Answer:**

2. (a)

(amount in ₹)

| | Total | Production | | | Service | |
|---|---|---|---|---|---|---|
| | ₹ | X | Y | Z | P | Q |

| | | | | | | |
|---|---|---|---|---|---|---|
| Rent and rates (Floor Area) | 26400 | 4800 | 2400 | 6000 | 3600 | 9600 |
| Lighting (Light Points) | 5000 | 1250 | 1750 | 1250 | 250 | 500 |
| Direct wages (For Service Depts only) | 5000 | | | | 3000 | 2000 |
| Indirect wages (Allocated) | 19600 | 7136 | 8359 | 3455 | 400 | 250 |
| Power (Machine Hours) | 12000 | 2400 | 6400 | 3200 | | |
| Depreciation (Asset Value) | 38000 | 10000 | 20000 | 8000 | | |
| Primary Distribution of Production Overheads | 106000 | 25586 | 38909 | 21905 | 7250 | 12350 |
| Secondary   Distribution   Q (in ratio 2:5:1:2) | 12350 | 2470 | 6175 | 1235 | 2470 | (12350) |
| | | 28056 | 45084 | 23140 | 9720 | NIL |
| Secondary Distribution P (in ratio 2:3:5) | 9720 | 1944 | 2916 | 4860 | (9720) | |
| Production Overheads | | 30000 | 48000 | 28000 | NIL | |
| Machine Hours | | 3000 | 8000 | 4000 | | |
| Machine Hour Rate | | 10 | 6 | 7 | | |

(b)

| Articles | Depts. | MHR ₹ | Machine Hours Consumed | | A | B |
|---|---|---|---|---|---|---|
| | | | A | B | | |
| | | | | | | |
| Prime Costs | | | | | 12000 | 3000 |
| Overheads absorbed | X | 10 | 400 | | 4000 | |
| | Y | 6 | 240 | 300 | 1440 | 1800 |
| | Z | 7 | | 100 | | 700 |
| Factory Costs ₹ | | | | | 17440 | 5500 |

3. **(a)** **From the following details you are required to value the closing inventory at the end of Day 5 under (i) FIFO method, (ii) LIFO method and (iii) Weighted Average method of pricing issues.**
   **Opening Balance: Nil.**
   **Day 1 Received 2000 units @ 12 per unit;**
   **Day 2 Received 3000 units @ 13 per unit:**
   **Day 3 Issued 1000 units;**
   **Day 4 Received 1000 units @ 14 per unit;**
   **Day 5 Issued 3000 units.**                                                             **3×3=9**

   **(b)** **Your factory holds 600kg of raw materials in store at the beginning of the month of December 2016. You are provided with the following further information:**
   **Per day consumption of material is constant at 50kg and the time span between placing orders and receiving materials varies within 6-10 days, ordering cost per order is ₹ 4,000 and carrying cost per kg per day is ₹ 0.064.**
   **(i)   At what level of stock you should place your next order?**
   **(ii)  What quantity you should order each time? and**
   **(iii) At what time interval you would continue placing orders for materials?**       **2+2+2=6**

**Answer:**

**3.** (a) (i)  FIFO

| Day | Receipts | | | Issues | | | Balance | |
|---|---|---|---|---|---|---|---|---|
| | Units | Rate ₹ | Amount ₹ | Units | Rate ₹ | Amount ₹ | Units | Amount ₹ |
| 1 | 2000 | 12 | 24000 | | | | 2000 | 24000 |
| 2 | 3000 | 13 | 39000 | | | | 5000 | 63000 |
| 3 | | | | 1000 | 12 | 12000 | 4000 | 51000 |
| 4 | 1000 | 14 | 14000 | | | | 5000 | 65000 |
| 5 | | | | 1000 | 12 | 12000 | 4000 | 53000 |
| 5 | | | | 2000 | 13 | 26000 | 2000 | 27000 |

Closing inventory value ₹ 27000

(ii) LIFO

| Day | Receipts | | | Issues | | | Balance | |
|-----|-------|------|----------|-------|------|----------|-------|----------|
| | Units | Rate ₹ | Amount ₹ | Units | Rate ₹ | Amount ₹ | Units | Amount ₹ |
| 1 | 2000 | 12 | 24000 | | | | 2000 | 24000 |
| 2 | 3000 | 13 | 39000 | | | | 5000 | 63000 |
| 3 | 1000 | | | 1000 | 13 | 13000 | 4000 | 50000 |
| 4 | 1000 | 14 | 14000 | | | | 5000 | 64000 |
| 5 | 3000 | | | 1000 | 14 | 14000 | 4000 | 50000 |
| 5 | | | | 2000 | 13 | 26000 | 2000 | 24000 |

Closing inventory value ₹ 24000

(iii) Weighted Average

| Day | Receipts | | | Issues | | | Balances | |
|-----|-------|------|----------|-------|------|----------|-------|----------|
| | Units | Rate ₹ | Amount ₹ | Units | Rate ₹ | Amount ₹ | Units | Amount ₹ |
| 1 | 2000 | 12 | 24000 | | | | 2000 | 24000 |
| 2 | 3000 | 13 | 39000 | | | | 5000 | 63000 |
| 3 | 1000 | | | 1000 | 12.6 | 12600 | 4000 | 50400 |
| 4 | 1000 | 14 | 14000 | | | | 5000 | 64400 |
| 5 | 3000 | | | 3000 | 12.88 | 38640 | 2000 | 25760 |

Closing inventory value ₹ 25760

(b) (i)  ROL = 50×10 = 500 kg.

   (ii) EOQ = $\sqrt{\dfrac{(2 \times 50 \times 4000)}{0.064}}$ ) =2500 kg

   (iii) Time interval = ordering quantity/daily consumption = 2500/50 = 50 days.

4. **(a) Four men work as a group. When weekly production of the group exceeds standard production of 250 units per hour, bonus is payable to each member of the group as computed below:**
   **Bonus for the week = hours worked in the week x half the percentage by which group production exceeds the standard x weighted average hourly wage rate of the group.**
   **Bonus rate per hour for each member = half the percentage by which group production exceeds the standard x hourly wage rate.**

   **Following is the record of the group for a week:**

   | Members of the group | Hourly wage rate (₹) | Hours worked |
   |----------------------|----------------------|--------------|
   | A | 48 | 40 |
   | B | 40 | 48 |
   | C | 52 | 50 |
   | D | 56 | 46 |

   **Actual Production for the week: 55,200 units**
   **(i)  Compute the weighted average hourly wage rate for the week.**
   **(ii) Compute the hourly bonus rate for the group and for each employee.**
   **(iii) Compute the total bonus for the group for the week.**
   **(iv) Compute the total pay for the week for each of the members of the group.**

   **1+(2+2)+1+4=10**

   **(b) You have been provided with the following information on costs related to a machine:**
   **(i)  Annual standing charges: ₹ 1,40,000.**
   **(ii) Wages of operator is ₹ 240 for 8 hours' day. The operator attends one machine when it is under set up and three machines while under operation.**

**(iii) Estimated production hours 3600 pa.**
**(iv) Estimated set up time: 400 hours pa.**
**(v) Power consumption: ₹ 5 per hour of operation**
**Compute machine hour rates for production and for set up and find the costs of the following Jobs:**

| | Job 1103 | Job 1043 |
|---|---|---|
| Set up time Hours | 50 | 20 |
| Operation time Hours | 150 | 180 |
| Total Hours | 200 | 200 |

[2+3]

**Answer:**

4. (a)

| Members of the group | Hourly wage rate | Hours worked | Total wages | Hourly bonus (ii) (10% of wage) | Weekly Bonus (iii) | Total Pay (iv) |
|---|---|---|---|---|---|---|
| Name | ₹ | | ₹ | ₹ | ₹ | ₹ |
| A | 48 | 40 | 1920 | 4.8 | 192 | 2112 |
| B | 40 | 48 | 1920 | 4 | 192 | 2112 |
| C | 52 | 50 | 2600 | 5.2 | 260 | 2860 |
| D | 56 | 46 | 2576 | 5.6 | 257.6 | 2833.6 |
| Total | | 184 | 9016 | 4.90 | 901.6 | 9917.6 |

(i) Weighted Avg. Hourly Wage Rate = 9016/184 = ₹49
Std Production for the week = 184×250 = 46000 units
Actual Production 55200 units
Group production in excess of standard = 55200 - 46000 = 9200
Percentage in excess of Standard = 9200×100/46000 = 20

(ii) Bonus rate per hour for the group half of 20%× 49 = 10%×49 = ₹4.90

(iii) Total bonus for the group = 4.90×184 = ₹901.60.

(b)

| Machine Hour Rate | | Setup ₹ | Production ₹ |
|---|---|---|---|
| Standing Charges per hour ₹ | 140000/4000 | 35 | 35 |
| Operator's Wages per hour ₹ | | 30 | 10 |
| Power ₹ | | 0 | 5 |
| Machine Hour Rate ₹ | | 65 | 50 |

| | Machine Hour Rate ₹ | Job 1103 Hours | Job 1043 Hours | Job 1103 Amount ₹ | Job 1043 Amount ₹ |
|---|---|---|---|---|---|
| Setup | 65 | 50 | 20 | 3250 | 1300 |
| Production | 50 | 150 | 180 | 7500 | 9000 |
| Cost of the Jobs | | | | 10750 | 10300 |

5. **(a) Your advertising firm has got an offer for an advertisement job. You are required to submit a quotation for the job for which relevant data are provided below:**

**Material requirements for the job:** (Amount in ₹)
**Paper 12 reams at a price of ₹ 1,500 per ream**
**Paints, ink and other printing materials** 12,000
**Binding materials and other consumables** 8,000
**Primary packing materials** 6,000
**Labour requirements:**

**Services of following employees will be required for the job:**

|  | Required hours | [Monthly Pay (₹)] |
|---|---|---|
| Artist | 80 | 18,000 |
| Painter | 96 | 10,000 |
| Copywriter | 60 | 12,000 |
| Client servicing | 120 | 8,000 |

**Further, you need to hire service of a photographer for 7 days at a charge of ₹ 1,500 per day. Besides, overhead costs are to be considered as follows:**
**Production overheads are 40% of Direct Cost and Selling & Distribution Overheads are 25% of Production Cost. You keep 12.5% margin on quoted price. Your firm works 20 days a month and 8 hours a day.** **12**

**(b) How do you treat normal idle time in Cost Accounting as per CAS-7?** **3**

**Answer:**

5. (a)

| Cost items | Amount ₹ | Amount ₹ |
|---|---|---|
| Material Costs: |  |  |
| Paper =12×1500 | 18000 |  |
| Paints | 12000 |  |
| Binding | 8000 |  |
| Packing | 6000 |  |
| Total Material Cost (A) |  | 44000 |
| Labor Costs: |  |  |
| Artist=80× 18000/(20×8) | 9000 |  |
| Painter=96× 10000/(20×8) | 6000 |  |
| Copywriter=60× 12000/(20×8) | 4500 |  |
| Client servicing=120×8000/(20×8) | 6000 |  |
| Photographer=7× 1500 | 10500 |  |
| Total Labour Cost (B) |  | 36000 |
| Direct Cost (A+B) |  | 80000 |
| Production Overhead = 40% of Direct Cost (C) |  | 32000 |
| Production Cost (A+B+C) |  | 112000 |
| Selling &Distribution Overhead 25% of Production Cost(D) |  | 28000 |
| Cost of Sales |  | 140000 |
| Profit 12.5% on Quoted Price |  | 20000 |
| Quoted Price |  | 160000 |

(b) As per CAS-7,
Normal Idle Time is booked to factory or works overhead. For the purpose of effective control, each type of idle time, i.e., idle time classified according to the causes is allocated to a separate Standing Order Number.

## Section - C

**Answer any two questions from question numbers 6, 7 and 8.**
**Each question carries 15 marks.**

6. From the financial statements for the year ended on 31-03-2016 of Mountain Ltd. you collected the following information:

| Particulars | Amount in ₹ |
|---|---|
| Profits before tax | 2,60,000 |
| Depreciation, Amortization and Impairment | 60,000 |
| Loss on sale of machine debited to Profit and Loss A/C | 22,000 |
| Provision for Tax | 1,60,000 |
| Preliminary expenses written off | 8,000 |
| Interest on Debenture | 12,000 |
| Tax paid | 1,10,000 |
| Dividend paid (last year) | 15,000 |
| Purchase of Fixed Assets | 2,50,000 |
| Purchase of Investments | 75,000 |
| Sale proceeds of Fixed Assets | 1,50,000 |
| Loan taken | 3,00,000 |
| Increase in Receivables | 30,000 |
| Decrease in Creditors | 16,000 |
| Cash and cash equivalents at the beginning of the Financial Year | 60,000 |
| Increase in Bills Payable | 30,000 |
| Decrease in Stocks | 64,000 |

(a) Prepare cash flow statement for the year ended on 31-03-2016. **11**

(b) Cash and cash equivalents of ₹ 50,000 are considered comfortable for the similar firms in the industry. Do you think the financing activity of the firm is managed with prudence?

**4**

**Answer:**

6. (a)

Cash flow Statement

| | Amount ₹ | Amount ₹ |
|---|---|---|
| Profits before tax | 260000 | |
| Add: | | |
| Depreciation, amortization and impairment | 60000 | |
| Loss on sale of machine | 22000 | |
| Preliminary expenses written off | 8000 | |
| Interest on Debenture | 12000 | |
| Decrease in Working Capital (30000+16000-30000-64000) | 48000 | |
| Cash from Operating activities before tax | 410000 | |
| Tax paid | (110000) | |
| Cash from Operating activities after tax | | 300000 |
| Purchase of fixed assets | (250000) | |
| Purchase of investments | (75000) | |
| Sale proceeds of fixed assets | 150000 | |
| Cash used in Investing activities | | (175000) |
| Loan taken | 300000 | |
| Dividend paid | (15000) | |
| Interest on Debenture | (12000) | |
| Cash from Financing activities | | 273000 |
| Total Cash Flows | | 398000 |
| Cash and cash equivalents at the beginning of the financial year | | 60000 |

| | |
|---|---|
| Cash and cash equivalents at the end of the financial year | 458000 |

(b) Closing cash and cash equivalents are far in excess of the comfortable balance in the industry. The firm should not have taken any loan, rather it could repay existing loan, if any. The financial activity of the firm appears not to be managed with prudence.

**7. (a) Examine the relevance of dividend decision for a normal firm (r = k) under Walter's model. 3**

**(b) Land Company Ltd. has randomly fluctuating cash balance managed under Miller-Orr model. You are required to calculate (a) the Return Point and (b) the Upper Limit of the cash balance and (c) to state their relevance to cash management actions. The size of sale of marketable securities in each transaction is ₹ 44,814 as per Miller-Orr model. The lower Limit fixed by management is ₹ 40,000. Transaction cost per transaction is ₹ 1,600. The standard deviation of the change in daily cash balance is ₹ 5,000. Annual yield available on marketable securities is 12% for 360 days a year.**

**2+2+2=6**

**(c) At zero per cent debt, the overall cost of capital of a company is 12%. Using NI and NOI approaches find cost of equity and overall cost of capital of the company, if cost of debt capital is 9% and debt to total capital ratio is 60%. 6**

**Answer:**

7. (a) (1) Let value of a share is V, dividend per share is D, earning per share is E. As per Walter

$V = \{D + r/k \, (E-D)\}/k$
   $= \{D + k/k \, (E-D)\}/k$ since, r = k
   $= \{D + E - D\}/k$
   $= E/k$.

As V is independent of D, Dividend decision is irrelevant for maximizing share value.

(b)

(i) RP = ₹(40000+ 44814) = ₹ 84814
(ii) UL = ₹(84814 + 2×44814 = ₹174442
(iii) Whenever cash balance reaches LL (UL), marketable securities would be sold (purchased) of the fixed amount ₹ 44,814 (89628) so as to bring the cash balance to Return Point.

[The size of sale of marketable securities in each transaction under Miller-Orr model = $\sqrt[3]{(3*1600*5000*5000)/(4*.00033)}$ = ₹ 44814 is given in the problem, hence it is unnecessary to work out using formula.]

(c)

| Approaches | Net Income (NI) | | Net Operating Income (NOI) | |
|---|---|---|---|---|
| | No Debt | 60% Debt | No Debt | 60% Debt |
| Ko = Overall Cost of Capital | 0.12 | 0.102[2] | 0.12 | 0.12[3] |
| Kd = Cost of Debt | | 0.09 | | 0.09 |
| D/(E+D) = Debt proportion | | 0.6 | | 0.6 |
| Ke = Cost of Equity | 0.12* | 0.12[1] | | 0.165[4] |

*At zero leverage Ko = Ke = 0.12
[1]Under NI, Ke remains unchanged with leverage. Ke = 0.12
[2]Under NI, Ko = {E/(E+D)}×Ke + { D/(E+D)}×Kd = 0.4×0.12 + 0.6×0.09 = 0.102
[3]Under NOI, Ko remains unchanged with leverage. Ko = 0.12
[4]Under NOI, {E/(E+D)}×$K_e$ = $K_o$ - { D/(E+D)}×$K_d$

$$0.4 \times Ke = 0.12 - 0.6 \times 0.09$$
$$Ke = 0.066/0.4 = 0.165.$$

8. **(a)** Star Brothers currently sells at a cash discount on terms of '1/10, net 30' (Credit period 30 days, 1% discount if paid within 10 days), where 20% of the customers avail discount. The firm is considering to increase the rate of discount to 2%. It expects rise in sales by 10%, fall in bad debt from 2% to 1% of sales and 80% of the customers to avail discount. Provided that existing annual sales are ₹ 6,00.000 (all sales are on credit), proportion of variable cost to sales is 0.8 and opportunity cost of funds is 12% pa. [Assume 360 days a year]

   Find: **(i)** Average collection period before and after the change in discount policy.
   **(ii)** Saving in expected bad debt and additional discount costs.
   **(iii)** Saving in opportunity cost of investment in receivables.
   **(iv)** Advise whether discount rate should be increased as proposed. 2+2+3+2=9

   **(b)** Information about two projects are given below:

   (₹ '000)

   | Project | A | B |
   |---|---|---|
   | **Cash Flows:** | | |
   | Yr. 1 | 50 | 116 |
   | Yr. 2 | 300 | 50 |
   | Yr. 3 | 360 | 20 |
   | Yr. 4 | 208 | - |
   | **Initial Investment** | 535 | 135 |
   | **Additional information:** | | |
   | PV of project A Cash Flows at 22% rate of discounting | 535 | |
   | PV of project B Cash Flows at 25% rate of discounting | | 135 |

   Cost of capital is 10% pa. Decide which project is more desirable based on NPV and IRR.
   **6**

**Answer**

8. (a) (i)

| At 1% Discount | Days | Prob. | Weighted Days |
|---|---|---|---|
| Discount availed Payment in 10 days | 10 | 0.2 | 2.00 |
| Discount not availed Payment in 30 days | 30 | 0.8 | 24.00 |
| Average collection period | | | 26.00 |

| At 2% Discount | Days | Prob. | Weighted Days |
|---|---|---|---|
| Discount availed Payment in 10 days | 10 | 0.8 | 8.00 |
| Discount not availed Payment in 30 days | 30 | 0.2 | 6.00 |
| Average collection period | | | 14.00 |

(ii) [amount in ₹]

| | Sales | Bad Debt |
|---|---|---|
| 1% Disc. : 2% on Sales | 600000 | 12000 |
| 2% Disc. : 1% on Sales | 660000 | 6600 |
| Saving in Bad debt (12000 - 6600) | | 5400 |

| | Sales | Proportion | Discount |
|---|---|---|---|
| 1% Disc. | 600000 | 0.2 | 1200 |
| 2% Disc. | 660000 | 0.8 | 10560 |
| Additional Discount cost | | | 9360 |

$\left[ 660000 \times 0.8 \times \dfrac{2}{100} \right.$

(iii) Change in Investment in Receivables = Change in Investment in Receivables for Existing Sales + Change in Investment in Receivables for Additional Sales

[amount in ₹]

|  |  | Collection Period (days) | Existing Sales | Additional sales | Total |
|---|---|---|---|---|---|
|  |  |  | 600000 | 60000 |  |
| 1% Disc. | Receivables | 26 | 43333.33[1] |  |  |
| 2% Disc. | Receivables | 14 | 23333.33[1] | 2333.33[1] |  |
|  | Change in investment |  | -20000.00 | 1866.67[2] | -18133.33 |
|  | Saving in Opportunity Cost |  |  |  | 2176[3] |

[1]Receivable = annual sales ×collection period in days/360 [assuming 360 days a year].
[2]Additional Investment in Receivables for Additional Sales = Receivable for Additional Sales ×Variable Cost proportion = 2333.33×0.8 = 1866.67.
[3]Saving in Opportunity Costs = Reduction in Investment in Receivables× Opportunity Cost rate = 18133.33×0.12 = 2176.

(iv)

|  | ₹ |
|---|---|
| Saving in Bad debt | 5400 |
| Saving in Opp. Cost | 2176 |
| Additional Discount | (9360) |
| Additional Contribution (60000*.2) | 12000 |
| Net Gain | 10216 |

Since discount rate increase results in Net Gain of ₹10216 it should be done.

(b)

(₹ '000)

| Project | A | B | Discounting factor at 10% | DCFA | DCFB |
|---|---|---|---|---|---|
| Cash Flows: |  |  |  |  |  |
| Yr1 | 50 | 116 | 0.909091 | 45.45 | 105.45 |
| Yr2 | 300 | 50 | 0.826446 | 247.93 | 41.32 |
| Yr3 | 360 | 20 | 0.751315 | 270.47 | 15.03 |
| Yr4 | 208 | - | 0.683013 | 142.07 |  |
| Present Value |  |  |  | 705.93 | 161.80 |
| Initial Investment | 535 | 135 |  | 535.00 | 135.00 |
| NPV |  |  |  | 170.93 | 26.80 |
| PV of project A Cash Flows at 22% rate of discounting | 535 |  |  |  |  |
| PV of project B Cash Flows at 25% rate of discounting |  | 135 |  |  |  |
| IRR is the discounting rate at which PV = Cost of Investment |  |  |  | 22% | 25% |
| Based NPV more desirable project is |  |  |  | A |  |
| Based on IRR more desirable project is |  |  |  |  | B |