

MAY 2015

Roll No. INTERMEDIATE (IPC)
GROUP I - PAPER 3
Total No. of Questions - 7 COST ACCOUNTING
& FINANCIAL MANAGEMENT Total No. of Printed Pages - 24
Time Allowed - 3 Hours Maximum Marks - 100

MRN - H

Answers are to be given only in English except in the case of Candidates who have opted for Hindi Medium. If a candidate has not opted for Hindi Medium, his/her answers in Hindi will not be valued.

Question No. 1 is compulsory.

Answer any five questions from the remaining six questions.

Working notes should form part of the answers.

1. Answer the following : Marks
4×5
=20
- (a) ABC Limited started its operations in the year 2013 with a total production capacity of 2,00,000 units. The following information, for two years, are made available to you :

	Year	Year
	2013	2014
Sales (units)	80,000	1,20,000
Total Cost (₹)	34,40,000	45,60,000

There has been no change in the cost structure and selling price and it is anticipated that it will remain unchanged in the year 2015 also.

Selling price is ₹ 40 per unit.

MRN - H

P.T.O.

(2)

MRN – H

Marks

Calculate :

- (i) Variable cost per unit.
- (ii) Profit Volume Ratio.
- (iii) Break-Even Point (in units)
- (iv) Profit if the firm operates at 75% of the capacity.

- (b) X Y Z Limited is drawing a production plan for its two products – Product 'xml' and 'Product 'yml' for the year 2015-16. The company's policy is to maintain closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month.

The following are the estimated data for the two products :

	xml	yml
Budgeted Production (in units)	2,00,000	1,50,000
Direct Material (per unit)	₹ 220	₹ 280
Direct Labour (per unit)	₹ 130	₹ 120
Direct Manufacturing Expenses	₹ 4,00,000	₹ 5,00,000

The estimated units to be sold in the first four months of the year 2015-16 are as under :

	April	May	June	July
xml	8,000	10,000	12,000	16,000
yml	6,000	8,000	9,000	14,000

Prepare :

- (i) Production Budget (Month wise)
- (ii) Production cost Budget (for first quarter of the year)

MRN – H

- (c) A new customer has approached a firm to establish new business connection. The customer require 1.5 month of credit. If the proposal is accepted, the sales of the firm will go up by ₹ 2,40,000 per annum. The new customer is being considered as a member of 10% risk of non-payment group.

The cost of sales amounts to 80% of sales. The tax rate is 30% and the desired rate of return is 40% (after tax).

Should the firm accept the offer ? Give your opinion on the basis of calculations.

- (d) Following information are related to four firms of the same industry :

FIRM	Change in Revenue	Change in Operating Income	Change in Earning per Share
P	27%	25%	30%
Q	25%	32%	24%
R	23%	36%	21%
S	21%	40%	23%

Find out :

- (i) degree of operating leverage, and
- (ii) degree of combined leverage for all the firms.

2. (a) QS Limited has furnished the following information :

8

Standard overhead absorption rate per unit	₹ 20
Standard rate per hour	₹ 4
Budgeted production	12000 units
Actual production	15560 units
Actual working hours	74000

Actual overheads amounted to ₹ 2,95,000, out of which ₹ 62,500 are fixed. Overheads are based on the following flexible budget :

Production (units)	Total Overheads (₹)
8,000	1,80,000
10,000	2,10,000
14,000	2,70,000

Calculate following overhead variances on the basis of hours :

- (i) Variable overhead efficiency variance.
- (ii) Variable overhead expenditure variance.
- (iii) Fixed overhead efficiency variance.
- (iv) Fixed overhead capacity variance.

(5)

MRN – H

Marks

- (b) SSR Ltd. has furnished the following ratios and information relating to the year ended 31st March, 2015. 8

Sales	₹ 60 Lacs
Return on Net worth	25%
Rate of Income tax	50%
Share Capital to reserves	7 : 3
Current Ratio	2
Net-Profit to Sales (after tax)	6.25%
Inventory Turnover	12
(Based on cost of goods sold and closing stock)	
Cost of goods sold	₹ 18 Lacs
Interest on Debentures (@ 15%)	₹ 60,000
Sundry Debtors	₹ 2 Lacs
Sundry Creditors	₹ 2 Lacs

You are required to :

- (i) Calculate the operating expenses for the year ended 31st March, 2015.
- (ii) Prepare a Balance Sheet as on 31st March, 2015.

MRN – H

P.T.O.

3. (a) A mini-bus, having a capacity of 32 passengers, operates between two places – 'A' and 'B'. The distance between the place 'A' and place 'B' is 30 km. The bus makes 10 round trips in a day for 25 days in a month. On an average, the occupancy ratio is 70% and is expected throughout the year. 8

The details of other expenses are as under :

	Amount (₹)	
Insurance	15,600	Per annum
Garage Rent	2,400	Per quarter
Road Tax	5,000	Per annum
Repairs	4,800	Per quarter
Salary of operating staff	7,200	Per month
Tyres and Tubes	3,600	Per quarter
Diesel : (one litre is consumed for every 5 km)	13	Per litre
Oil and Sundries	22	Per 100 km run
Depreciation	68,000	Per annum

Passenger tax @ 22% on total taking is to be levied and bus operator requires a profit of 25% on total taking.

Prepare operating cost statement on the annual basis and find out the cost per passenger kilometer and one way fare per passenger.

MRN – H

(b) Given below are the data on a capital project 'M'.

8

Annual cash inflows ₹ 60,000

Useful life 4 years

Internal rate of return 15%

Profitability index 1.064

Salvage value 0

You are required to calculate for this project M :

- (i) Cost of project
- (ii) Payback period
- (iii) Cost of capital
- (iv) Net present value

PV factors at different rates are given below :

Discount factor	15%	14%	13%	12%
1 year	0.869	0.877	0.885	0.893
2 year	0.756	0.769	0.783	0.797
3 year	0.658	0.675	0.693	0.712
4 year	0.572	0.592	0.613	0.636

4. (a) A company manufactures one main product (M_1) and two by-products B_1 and B_2 . For the month of January 2015, following details are available :

Total cost upto separation point ₹ 2,12,400.

	M_1	B_1	B_2
Cost after separation	–	₹ 35,000	₹ 24,000
No. of Units produced	4,000	1,800	3,000
Selling Price per unit	₹ 100	₹ 40	₹ 30
Estimated net profit as percentage to Sales Value	–	20%	30%
Estimated selling expenses as percentage to Sales Value	20%	15%	15%

There are no opening or closing inventories.

Prepare statement showing :

- (i) Allocation of Joint Cost; and
- (ii) Product-wise and overall profitability of the company for January, 2015.

- (b) A Ltd. wishes to raise additional finance of ₹ 30 lakhs for meeting its investment plans. The company has ₹ 6,00,000 in the form of retained earnings available for investment purposes. 8

The following are the further details :

- Debt equity ratio – 30 : 70
- Cost of debt – at the rate of 11% (before tax) upto ₹ 3,00,000 and 14% (before tax) beyond that.
- Earnings per share – ₹ 15.
- Dividend payout – 70% of earnings.
- Expected growth rate in dividend – 10%.
- Current market price per share – ₹ 90.
- Company's tax rate is 30% and shareholder's Personal tax rate is 20%.

You are required to :

- (i) Calculate the post tax average cost of additional debt.
 - (ii) Calculate the cost of retained earnings and cost of equity.
 - (iii) Calculate the overall weighted average (after tax) cost of additional finance.
5. (a) Explain 'Sunk Cost' and 'Opportunity Cost'. 4×4
=16
- (b) Write notes on 'Escalation Clause'.
- (c) Explain 'Sales and Lease Back'.
- (d) Explain 'Miller-Orr Cash Management model'.

6. (a) A machine shop cost centre contains three machines of equal capacities. 8
 Three operators are employed on each machine, payable ₹ 20 per hour each. The factory works for 48 hours in a week which includes 4 hours set up time. The work is jointly done by operators. The operators are paid fully for the 48 hours. In addition, they are also paid a bonus of 10% of productive time. Costs are reported for this company on the basis of thirteen, four-weekly period.

The company, for the purpose of computing machine hour rate includes the direct wages of the operator and also recoups the factory overheads allocated to the machines. The following details of factory overheads applicable to the cost centres are available :

Original Cost of each machine	– ₹ 52,000
Depreciation on the original cost of the machine	– 10% p.a.
Maintenance & Repair per week per machine	– ₹ 60
Consumable Stores per week per machine	– ₹ 75
Power : 20 units per hour per machine	– 80 paise per unit

Apportionment to the cost centre :

Rent per annum	₹ 5,400
Heat and Light per annum	₹ 9,720
Foreman's Salary per annum	₹ 12,960

Calculate :

- the cost of running one machine for a four week period.
- machine hour rate.

- (b) The following information is provided by the DVP Ltd. for the year ending 31st March, 2015. 8

Raw Material storage period	50 days
Work in progress conversion period	18 days
Finished Goods storage period	22 days
Debt Collection period	45 days
Creditors' payment period	55 days
Annual Operating Cost	₹ 21 Lacs

(Including depreciation of ₹ 2,10,000)

(1 year = 360 days)

You are required to calculate :

- (i) Operating Cycle period.
- (ii) Number of Operating Cycles in a year.
- (iii) Amount of working capital required for the company on a cash cost basis.
- (iv) The company is a market leader in its product, there is virtually no competitor in the market. Based on a market research, it is planning to discontinue sales on credit and deliver products based on pre-payments. Thereby, it can reduce its working capital requirement substantially. What would be the reduction in working capital requirement due to such decision ?

7. Answer any four of the following :

4×4
=16

- (a) Define 'Cost Centre' and state its types.
 - (b) State benefits of Integrated Accounting.
 - (c) Differentiate between 'Factoring' and 'Bill discounting'.
 - (d) Discuss the conflicts in Profit versus Wealth maximization principle of the firm.
 - (e) Define 'Present Value' and 'Perpetuity'.
-

उन परीक्षार्थियों को छोड़कर जिन्होंने हिन्दी माध्यम चुना है, प्रश्नों के उत्तर केवल अंग्रेजी में ही देना है।

वह परीक्षार्थी जिसने हिन्दी माध्यम नहीं चुना है, यदि हिन्दी में उत्तर देता है,

तो उसके हिन्दी में दिये गये उत्तरों का मूल्यांकन नहीं होगा।

प्रश्न संख्या 1 अनिवार्य है।

शेष छः प्रश्नों में से किन्हीं पाँच प्रश्नों के उत्तर दीजिए।

कार्य टिप्पणियाँ (Working Notes) उत्तर के भाग होने चाहिए।

Marks

1. निम्नलिखित के उत्तर दीजिए :

**4×5
=20**

(अ) ए.बी.सी. लिमिटेड ने 2,00,000 इकाइयों की कुल उत्पादन क्षमता के साथ वर्ष 2013 में अपना संचालन प्रारम्भ किया। दो वर्षों की निम्नलिखित सूचनाएँ आपको उपलब्ध करायी जाती हैं :

	वर्ष	वर्ष
	2013	2014
विक्रय (इकाइयों में)	80,000	1,20,000
कुल लागत (₹ में)	34,40,000	45,60,000

लागत संरचना एवं विक्रय मूल्य में कोई परिवर्तन नहीं हुआ है और यह अनुमानित है कि वर्ष 2015 में भी यह अपरिवर्तनीय रहेगा।

विक्रय मूल्य ₹ 40 प्रति इकाई है।

MRN – H

P.T.O.

गणना कीजिए :

- (i) परिवर्तनशील लागत प्रति इकाई
 - (ii) लाभ मात्रा अनुपात
 - (iii) सम-विच्छेद बिंदु (इकाइयों में)
 - (iv) लाभ, यदि संस्था क्षमता के 75% पर संचालित होती है
- (ब) एक्स वाई जेड लिमिटेड वर्ष 2015-16 के लिए अपने दो उत्पादों - उत्पाद 'XML' और उत्पाद 'YML' के उत्पादन के लिये उत्पादन आयोजन तैयार कर रही है। कम्पनी की नीति आगामी माह के लिए अनुमानित विक्रय के 25% के बराबर निर्मित माल का अंतिम रहतिया रखने की है।

दोनों उत्पादों के लिए अनुमानित आँकड़े निम्नवत् हैं :

	XML	YML
बजट उपादन (इकाइयों में)	2,00,000	1,50,000
प्रत्यक्ष सामग्री (प्रति इकाई)	₹ 220	₹ 280
प्रत्यक्ष श्रम (प्रति इकाई)	₹ 130	₹ 120
प्रत्यक्ष निर्माण व्यय	₹ 4,00,000	₹ 5,00,000

वर्ष 2015-16 के पहले चार माह में विक्रय की जाने वाली अनुमानित इकाइयाँ निम्नवत् हैं :

	अप्रैल	मई	जून	जुलाई
XML	8,000	10,000	12,000	16,000
YML	6,000	8,000	9,000	14,000

तैयार कीजिए :

- (i) उत्पादन बजट (मासिक आधार पर)
- (ii) उत्पादन लागत बजट (वर्ष के प्रथम तिमाही के लिए)

- (स) एक नये ग्राहक ने नया व्यावसायिक संबंध स्थापित करने के लिए संस्था से सम्पर्क किया है। ग्राहक 1.5 माह की साख की अपेक्षा रखता है। यदि यह प्रस्ताव स्वीकार कर लिया जाय तो संस्था की बिक्री ₹ 2,40,000 प्रति वर्ष से बढ़ जायेगी। नया ग्राहक भुगतान न करने की 10% जोखिम वाले समूह के सदस्य के रूप में माना जा रहा है।

विक्रय की लागत विक्रय का 80% है। कर की दर 30% है तथा प्रत्याय की वांछित दर 40% (कर के पश्चात) है।

क्या संस्था को यह प्रस्ताव स्वीकार करना चाहिये? गणनाओं के आधार पर अपनी राय दें।

- (द) निम्नलिखित सूचनाएँ, एक उद्योग की चार संस्थाओं से संबंधित हैं :

संस्था	आगम में परिवर्तन	संचालन आय में परिवर्तन	प्रति अंश अर्जन में परिवर्तन
P	27%	25%	30%
Q	25%	32%	24%
R	23%	36%	21%
S	21%	40%	23%

ज्ञात कीजिए :

- परिचालन लीवरेज की मात्रा, तथा
- संयुक्त लीवरेज की मात्रा सभी संस्थाओं के लिए।

2. (अ) व्यू एस लिमिटेड ने निम्न सूचनाएँ प्रस्तुत की हैं :

8

मानक उपरिव्यय अवशोषण दर (प्रति इकाई)	₹ 20
मानक दर प्रति घन्टा	₹ 4
बजटेड उत्पादन	12,000 इकाइयों
वास्तविक उत्पादन	15,560 इकाइयों
वास्तविक कार्यशील घण्टे	74,000

वास्तविक उपरिव्यय ₹ 2,95,000 थे जिसमें ₹ 62,500 स्थायी हैं । उपरिव्यय निम्नलिखित परिवर्तनशील बजट पर आधारित हैं :

उत्पादन (इकाइयों)	कुल उपरिव्यय (₹)
8,000	1,80,000
10,000	2,10,000
14,000	2,70,000

निम्नलिखित उपरिव्यय विचरणांशों की गणना घण्टे के आधार पर कीजिए :

- (i) परिवर्तनशील उपरिव्यय कार्यकुशलता (efficiency) विचरणांश
- (ii) परिवर्तनशील उपरिव्यय व्यय (expenditure) विचरणांश
- (iii) स्थायी उपरिव्यय कार्यकुशलता (efficiency) विचरणांश
- (iv) स्थायी उपरिव्यय क्षमता (capacity) विचरणांश

- (ब) एस एस आर लिमिटेड ने, 31 मार्च, 2015 को समाप्त होने वाले वर्ष से संबंधित, निम्न 8 सूचनाओं एवं अनुपातों को प्रस्तुत किया है :

विक्रय	-	₹ 60 लाख
शुद्ध मूल्य (net worth) पर प्रत्याय	-	25%
आयकर दर	-	50%
अंश पूँजी संचय अनुपात	-	7:3
चालू अनुपात	-	2
विक्रय पर शुद्ध लाभ (करोपरान्त)	-	6.25%
स्कंध आवर्त	-	12
(विक्रीत माल की लागत व अंतिम रहतिया पर आधारित)	-	
विक्रीत माल की लागत	-	₹ 18 लाख
ऋणपत्रों पर ब्याज (15% की दर से)	-	₹ 60,000
विभिन्न देनदार	-	₹ 2 लाख
विभिन्न लेनदार	-	₹ 2 लाख

आपसे अपेक्षित है :

- (i) 31 मार्च, 2015 को समाप्त होने वाले वर्ष के संचालन व्ययों की गणना कीजिए ।
- (ii) 31 मार्च, 2015 की तिथि पर आर्थिक चिह्न तैयार कीजिए ।

3. (अ) एक छोटी बस जिसकी क्षमता 32 यात्रियों की है, दो स्थानों 'अ' और 'ब' के मध्य संचालित होती है। स्थान 'अ' और स्थान 'ब' के बीच की दूरी 30 किलोमीटर है। बस एक दिन में 10 चक्र (Trip), प्रति माह के 25 दिन लगाती है। औसत आधार पर क्षमता उपभोग (Occupancy) अनुपात 70% है और पूरे वर्ष में यही रहने का अनुमान है।

अन्य व्ययों का विवरण निम्नवत है :

	धनराशि (₹)
बीमा	- 15,600 प्रति वर्ष
गैरेज का किराया	- 2,400 प्रति तिमाही
रोड टैक्स	- 5,000 प्रति वर्ष
मरम्मत	- 4,800 प्रति तिमाही
संचालन कर्मचारियों का वेतन	- 7,200 प्रति माह
टायर व ट्यूब्स	- 3,600 प्रति तिमाही
डीजल	- 13 प्रति लीटर
(प्रत्येक 5 किलोमीटर के लिए 1 लीटर का उपभोग)	
तेल एवं अन्य	- 22 प्रति 100 किमी चलने पर
हास	- 68,000 वार्षिक

कुल किराये पर 22% यात्री कर अधिभारित किया जाना है तथा बस संचालक कुल किराये पर 25% लाभ की अपेक्षा करता है।

वार्षिक आधार पर परिचालन लागत विवरण तैयार कीजिए तथा प्रति यात्री किलोमीटर लागत और प्रति यात्री एक तरफ का भाड़ा ज्ञात कीजिए।

(ब) निम्नलिखित सूचनाएँ पूँजी निवेश (Capital project) M से संबंधित हैं :

8

वार्षिक रोकड़ अन्तर्प्रवाह	-	₹ 60,000
उपयोगी जीवन	-	4 वर्ष
आन्तरिक प्रत्याय दर	-	15%
लाभदायकता सूचकांक	-	1.064
अविशिष्ट मूल्य	-	0

इस प्रोजेक्ट 'M' के लिए गणना कीजिए :

- (i) प्रोजेक्ट की लागत
- (ii) पुनर्भुगतान अवधि
- (iii) पूँजी की लागत
- (iv) शुद्ध वर्तमान मूल्य

विभिन्न दरों पर ₹ 1 के वर्तमान मूल्य निम्नवत हैं :

बढ़ा गुणक	15%	14%	13%	12%
1 वर्ष	0.869	0.877	0.885	0.893
2 वर्ष	0.756	0.769	0.783	0.797
3 वर्ष	0.658	0.675	0.693	0.712
4 वर्ष	0.572	0.592	0.613	0.636

4. (अ) एक कम्पनी एक मुख्य उत्पाद (M_1) और दो उप-उत्पाद B_1 और B_2 का निर्माण करती है। 8

वर्ष 2015 के जनवरी माह के लिए निम्न विवरण उपलब्ध हैं :

पृथक्कीकरण बिंदु तक कुल लागत ₹ 2,12,400 है।

	M_1	B_1	B_2
पृथक्कीकरण के उपरान्त लागत	-	₹ 35,000	₹ 24,000
उत्पादित इकाइयों की संख्या	4,000	1,800	3,000
विक्रय मूल्य प्रति इकाई	₹ 100	₹ 40	₹ 30
विक्रय मूल्य पर अनुमानित शुद्ध लाभ	-	20%	30%
विक्रय मूल्य पर अनुमानित विक्रय व्यय	20%	15%	15%

कोई प्रारम्भिक अथवा अंतिम रहतिया नहीं हैं।

निम्न को प्रदर्शित करते हुए विवरण तैयार कीजिए :

- (i) संयुक्त लागत का अभिभाजन, तथा
(ii) जनवरी 2015 के लिए उत्पादानुसार और कम्पनी की कुल लाभदायकता।

- (ब) ए लिमिटेड अपने निवेश आयोजन हेतु ₹ 30 लाख के अतिरिक्त वित्त की व्यवस्था करने की इच्छुक है। कम्पनी के पास निवेश हेतु प्रतिधारित आय के रूप में ₹ 6,00,000 उपलब्ध हैं।

अन्य सूचनाएँ निम्नवत हैं :

ऋण समता अनुपात	-	30:70
ऋण की लागत	-	11% (कर पूर्व) ₹ 3,00,000 के ऋण तक 14% (कर पूर्व) उक्त सीमा के बाद
प्रति अंश आय	-	₹ 15
लाभांश भुगतान	-	आय का 70%
लाभांश में अनुमानित विकास दर	-	10%
प्रति अंश बाजार मूल्य	-	₹ 90
निगम आय कर	-	30%
अंशधारी की आयकर दर	-	20%

अपेक्षित है :

- (i) अतिरिक्त ऋण की करोपरान्त औसत लागत की गणना कीजिए ।
- (ii) प्रतिधारित आय तथा समता की लागत ज्ञात कीजिए ।
- (iii) अतिरिक्त वित्त की करोपरान्त समग्र भारित औसत लागत ज्ञात कीजिए ।

5. (अ) 'दूबत लागत' और 'अवसर लागत' को समझाइये ।

4×4
=16

(ब) 'वृद्धि वाक्यांश' (Escalation clause) पर टिप्पणी लिखिये ।

(स) 'विक्रय एवं पट्टा वापसी' (Sale and lease back) को समझाइये ।

(द) 'मिलर-ओर रोकड़ प्रबंधन मॉडल' को समझाइये ।

6. (अ) एक मशीन शॉप लागत केन्द्र में समान क्षमता की तीन मशीनें हैं । प्रत्येक मशीन पर तीन ऑपरेटर कार्यरत हैं । प्रत्येक को ₹ 20 प्रति घण्टे की दर से भुगतान किया जाता है । कारखाने में एक सप्ताह में 48 घंटे कार्य होता है जिसमें 4 घण्टे सेटअप समय के सम्मिलित हैं । ऑपरेटरों के द्वारा संयुक्त रूप से कार्य किया जाता है । ऑपरेटरों को 48 घण्टे के लिए भुगतान किया जाता है । इसके अतिरिक्त उन्हें उत्पादक समय के 10% के बराबर बोनस भी दिया जाता है । इस कम्पनी की लागते तेरह, चार सप्ताह की अवधि के आधार पर प्रस्तुत की जाती हैं ।

8

कम्पनी मशीन घण्टा दर की गणना के उद्देश्य से ऑपरेटरों की प्रत्यक्ष मजूदरी को सम्मिलित करती है साथ मशीन पर अभिभाजित कारखाना उपरिव्ययों की भी पूर्ति करती है। लागत केन्द्रों के संदर्भ में कारखाना उपरिव्ययों का विवरण निम्नवत है :

प्रत्येक मशीन की मूल लागत	-	₹ 52,000
मशीन की मूल लागत पर ह्रास	-	10% वार्षिक
प्रत्येक मशीन का साप्ताहिक अनुरक्षण एवं मरम्मत	-	₹ 60
प्रत्येक मशीन के लिए साप्ताहिक उपभोग्य सामग्री	-	₹ 75
शक्ति : प्रत्येक मशीन पर एक घण्टे में 20 यूनिट	-	₹ 0.80 प्रति यूनिट

लागत केन्द्र पर अभिभाजन

किराया ₹ 5,400 वार्षिक

ताप एवं विद्युत ₹ 9,720 वार्षिक

फ़ोरमैन का वेतन ₹ 12,960 वार्षिक

गणना कीजिए :

- (i) चार सप्ताह की अवधि के लिए एक मशीन की संचालन लागत।
- (ii) मशीन घण्टा दर।

- (ब) 31 मार्च, 2015 को समाप्त होने वाले वर्ष के लिए, डी.वी.पी. लिमिटेड द्वारा निम्नलिखित 8 जानकारी उपलब्ध करायी गयी है :

कच्चा माल संग्रहण अवधि	50 दिन
चालू कार्य परिवर्तन अवधि	18 दिन
तैयार माल संग्रहण अवधि	22 दिन
देनदार संग्रहण अवधि	45 दिन
लेनदार भुगतान अवधि	55 दिन
वार्षिक संचालन लागत	₹ 21 लाख

(₹ 2,10,000 के हास को सम्मिलित करते हुए)

(1 वर्ष = 360 दिवस)

आपको गणना करनी है :

- (i) परिचालन चक्र अवधि
- (ii) वर्ष में परिचालन चक्रों की संख्या
- (iii) रोकड़ के आधार पर कम्पनी की कार्यशील पूँजी की आवश्यकता
- (iv) कम्पनी अपने उत्पाद में बाजार का नेतृत्व करती है । वास्तव में बाजार में कोई प्रतिस्पर्धी नहीं है ।

बाजार शोध के आधार पर कम्पनी उधार आधारित विक्रय समाप्त कर, उत्पाद को पूर्व भुगतान पर आपूर्ति करने की योजना बना रही है जिसके द्वारा कम्पनी अपनी कार्यशील पूँजी की आवश्यकता को महत्वपूर्ण रूप से कम कर सकती है ।

इस निर्णय के परिणामस्वरूप कार्यशील पूँजी की आवश्यकता में क्या कमी होगी ?

7. निम्नलिखित में से किन्हीं चार के उत्तर दीजिए :

4×4
=16

- (अ) लागत केन्द्र को परिभाषित कीजिए तथा इसके प्रकारों का उल्लेख कीजिए ।
- (ब) एकीकृत लेखांकन के लाभों का उल्लेख कीजिए ।
- (स) 'फैक्टरिंग' व 'बिल डिस्काउन्टिंग' में अन्तर कीजिए ।
- (द) संस्था के लाभ अधिकतमीकरण विरुद्ध धन अधिकतमीकरण के सिद्धान्त में विवाद को समझाइये ।
- (य) 'वर्तमान मूल्य' और 'निरंतरता' को परिभाषित कीजिए ।
-

DISCLAIMER

The Suggested Answers hosted in the website do not constitute the basis for evaluation of the students' answers in the examination. The answers are prepared by the Faculty of the Board of Studies with a view to assist the students in their education. While due care is taken in preparation of the answers, if any errors or omissions are noticed, the same may be brought to the attention of the Director of Studies. The Council of the Institute is not in anyway responsible for the correctness or otherwise of the answers published herein.

PAPER – 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

Question No. 1 is compulsory.

Attempt any **five** questions from the remaining **six** questions.

Working notes should form part of the answers.

Question 1

- (a) ABC Limited started its operations in the year 2013 with a total production capacity of 2,00,000 units. The following information, for two years, are made available to you:

	Year	Year
	2013	2014
Sales (units)	80,000	1,20,000
Total Cost (₹)	34,40,000	45,60,000

There has been no change in the cost structure and selling price and it is anticipated that it will remain unchanged in the year 2015 also.

Selling price is ₹ 40 per unit.

Calculate :

- (i) Variable cost per unit.
(ii) Profit Volume Ratio.
(iii) Break-Even Point (in units)
(iv) Profit if the firm operates at 75% of the capacity.
- (b) X Y Z Limited is drawing a production plan for its two products - Product 'xml' and 'Product 'yml' for the year 2015-16. The company's policy is to maintain closing stock of finished goods at 25% of the anticipated volume of sales of the succeeding month.

The following are the estimated data for the two products:

	xml	yml
Budgeted Production (in units)	2,00,000	1,50,000
Direct Material (per unit)	₹ 220	₹ 280
Direct Labour (per unit)	₹ 130	₹ 120
Direct Manufacturing Expenses	₹ 4,00,000	₹ 5,00,000

The estimated units to be sold in the first four months of the year 2015-16 are as under:

	April	May	June	July
xml	8,000	10,000	12,000	16,000
yml	6,000	8,000	9,000	14,000

Prepare:

- (i) Production Budget (Month wise)
- (ii) Production cost Budget (for first quarter of the year)
- (c) A new customer has approached a firm to establish new business connection. The customer require 1.5 month of credit. If the proposal is accepted, the sales of the firm will go up by ₹ 2,40,000 per annum. The new customer is being considered as a member of 10% risk of non-payment group.

The cost of sales amounts to 80% of sales. The tax rate is 30% and the desired rate of return is 40% (after tax).

Should the firm accept the offer? Give your opinion on the basis of calculations.

- (d) Following information are related to four firms of the same industry :

FIRM	Change in Revenue	Change in Operating Income	Change in Earning per Share
P	27%	25%	30%
Q	25%	32%	24%
R	23%	36%	21%
S	21%	40%	23%

Find out:

- (i) degree of operating leverage, and
- (ii) degree of combined leverage for all the firms. (4 × 5 = 20 Marks)

Answer

$$\begin{aligned}
 \text{(a) (i) Variable Cost per unit} &= \frac{\text{Change in total cost}}{\text{Change in sales volume}} \\
 &= \frac{\text{₹ } 45,60,000 - \text{₹ } 34,40,000}{1,20,000 \text{ units} - 80,000 \text{ units}} \\
 &= \frac{\text{₹ } 11,20,000}{40,000 \text{ units}} = \text{₹ } 28
 \end{aligned}$$

$$(ii) \text{ Profit Volume Ratio} = \frac{\text{Contribution per unit}}{\text{Selling price per unit}} \times 100$$

$$= \frac{\text{₹ } 40 - \text{₹ } 28}{\text{₹ } 40} \times 100 = 30\%$$

$$(iii) \text{ Break-Even Point (in units)} = \frac{\text{Fixed cost}}{\text{Contribution per unit}}$$

$$\begin{aligned} \text{Fixed Cost} &= \text{Total Cost in 2013} - \text{Total Variable Cost in 2013} \\ &= \text{₹ } 34,40,000 - (\text{₹ } 28 \times 80,000 \text{ units}) \\ &= \text{₹ } 34,40,000 - \text{₹ } 22,40,000 \\ &= \text{₹ } 12,00,000 \end{aligned}$$

$$\text{Therefore, Break-Even Point} = \frac{\text{₹ } 12,00,000}{\text{₹ } 12} = 1,00,000 \text{ units}$$

(iv) Profit if the firm operates at 75% of the capacity:

$$\text{Number of units to be produced and sold} = 2,00,000 \text{ units} \times 75\% = 1,50,000 \text{ units}$$

$$\text{Profit} = \text{Total contribution} - \text{Fixed Cost}$$

$$\text{Or,} = \text{₹ } 12 \times 1,50,000 \text{ units} - \text{₹ } 12,00,000$$

$$\text{Or,} = \text{₹ } 18,00,000 - \text{₹ } 12,00,000$$

$$\text{Or, Profit} = \text{₹ } 6,00,000$$

(b) (i) **Production Budget of Product 'xml' and 'yml' (monthwise in units)**

	April		May		June		Total	
	xml	yml	xml	yml	xml	yml	xml	yml
Sales	8,000	6,000	10,000	8,000	12,000	9,000	30,000	23,000
Add: Closing Stock (25% of next month's sale)	2,500	2,000	3,000	2,250	4,000	3,500	9,500	7,750
Less: Opening Stock	2,000*	1,500*	2,500	2,000	3,000	2,250	7,500	5,750
Production units	8,500	6,500	10,500	8,250	13,000	10,250	32,000	25,000

* Opening stock of April is the closing stock of March, which is as per company's policy 25% of next month's sale.

(ii) Production Cost Budget (for first quarter of the year)

Element of cost	Rate (₹)		Amount (₹)	
	xml (32,000 units)	yml (25,000 units)	xml	yml
Direct Material	220	280	70,40,000	70,00,000
Direct Labour	130	120	41,60,000	30,00,000
Manufacturing Overhead				
(₹ 4,00,000 ÷ 2,00,000 × 32,000)			64,000	
(₹ 5,00,000 ÷ 1,50,000 × 25,000)				83,333
			1,12,64,000	1,00,83,333

(c) Evaluation of Credit proposal to new business connection

		Amount (₹)
A.	Calculation of profit on additional sales:	
	Increase in Sales	2,40,000
	Less: Cost of Sales	(1,92,000)
		48,000
	Less: Risk of non-payment (10% of ₹ 2,40,000)	24,000
	Profit Before Tax	24,000
	Tax (30% of ₹ 24,000)	7,200
	Profit After Tax	16,800
B.	Opportunity cost of Investment on Receivable	
	$\frac{₹ 1,92,000}{8} \times 40\%$	9,600
C.	Net Benefit (A – B)	7,200

$$* \text{Receivable Turnover} = \frac{12 \text{ months}}{1.5 \text{ months}} = 8 \text{ times}$$

Since estimated PAT on additional sales (i.e. ₹ 16,800) is more than the opportunity cost of investment on receivable (i.e. ₹ 9,600), the firm should accept the offer.

(d) Calculation of Degree of Operating leverage and Degree of Combined leverage

Firm	Degree of Operating Leverage (DOL) = $\frac{\% \text{ change in Operating Income}}{\% \text{ change in Revenue}}$	Degree of Combined Leverage (DCL) = $\frac{\% \text{ change in EPS}}{\% \text{ change in Revenue}}$
P	$\frac{25\%}{27\%} = 0.926$	$\frac{30\%}{27\%} = 1.111$
Q	$\frac{32\%}{25\%} = 1.280$	$\frac{24\%}{25\%} = 0.960$
R	$\frac{36\%}{23\%} = 1.565$	$\frac{21\%}{23\%} = 0.913$
S	$\frac{40\%}{21\%} = 1.905$	$\frac{23\%}{21\%} = 1.095$

Question 2

(a) QS Limited has furnished the following information:

Standard overhead absorption rate per unit	₹ 20
Standard rate per hour	₹ 4
Budgeted production	12000 units
Actual production	15560 units
Actual working hours	74000

Actual overheads amounted to ₹ 2,95,000, out of which ₹ 62,500 are fixed. Overheads are based on the following flexible budget:

Production (units)	Total Overheads (₹)
8,000	1,80,000
10,000	2,10,000
14,000	2,70,000

Calculate following overhead variances on the basis of hours :

- Variable overhead efficiency variance.
- Variable overhead expenditure variance.
- Fixed overhead efficiency variance.
- Fixed overhead capacity variance.

- (b) SSR Ltd. has furnished the following ratios and information relating to the year ended 31st March, 2015.

Sales	₹ 60 Lacs
Return on Net worth	25%
Rate of Income tax	50%
Share Capital to reserves	7:3
Current Ratio	2
Net-Profit to Sales (after tax)	6.25%
Inventory Turnover	12
<i>(Based on cost of goods sold and closing stock)</i>	
Cost of goods sold	₹ 18 Lacs
Interest on Debentures (@ 15%)	₹ 60,000
Sundry Debtors	₹ 2 Lacs
Sundry Creditors	₹ 2 Lacs

You are required to :

- (i) Calculate the operating expenses for the year ended 31st March, 2015.
(ii) Prepare a Balance Sheet as on 31st March, 2015. (8 Marks)

Answer

(a) Workings:

- (a) Variable Overhead rate per unit

$$= \frac{\text{Difference of Overhead at two level}}{\text{Difference in Production units}} = \frac{₹2,10,000 - ₹1,80,000}{10,000 \text{ units} - 8,000 \text{ units}} = ₹15$$

- (b) Fixed Overhead = ₹1,80,000 – (8,000 units × ₹ 15) = ₹ 60,000

- (c) Standard hours per unit of production = $\frac{\text{Std. Overhead Absorption Rate}}{\text{Std. Rate per hour}}$
= $\frac{₹20}{₹4} = 5 \text{ hours}$

$$(d) \text{ Standard Variable Overhead Rate per hour} = \frac{\text{Variable Overhead per unit}}{\text{Std. hour per unit}}$$

$$= \frac{\text{₹15}}{5 \text{ hours}} = \text{₹3}$$

$$(e) \text{ Standard Fixed Overhead Rate per hour} = \text{₹4} - \text{₹3} = \text{₹1}$$

$$(f) \text{ Actual Variable Overhead} = \text{₹2,95,000} - \text{₹62,500} = \text{₹2,32,500}$$

$$(g) \text{ Actual Variable Overhead Rate per Hour} = \frac{\text{₹2,32,500}}{74,000 \text{ hours}} = \text{₹3.1419}$$

$$(h) \text{ Budgeted hours} = 12,000 \text{ units} \times 5 \text{ hours} = 60,000 \text{ hours}$$

$$(i) \text{ Standard Hours for Actual Production} = 15,560 \text{ units} \times 5 \text{ hours} = 77,800 \text{ hours}$$

(i) Variable Overhead Efficiency Variance:

$$= \text{Std. Rate per hour (Std. Hours - Actual Hours)}$$

$$= \text{₹3} (77,800 \text{ hours} - 74,000 \text{ hours})$$

$$= \text{₹11,400 (F)}$$

(ii) Variable Overhead Expenditure Variance:

$$= \text{Actual Hours (Std. Rate - Actual Rate)}$$

$$= 74,000 \text{ hours} (\text{₹3} - \text{₹3.1419})$$

$$= \text{₹10,500 (A)}$$

(iii) Fixed Overhead Efficiency Variance:

$$= \text{Std. Rate per Hour (Std. Hours - Actual Hours)}$$

$$= \text{₹1} (77,800 \text{ hours} - 74,000 \text{ hours})$$

$$= \text{₹3,800 (F)}$$

(iv) Fixed Overhead Capacity Variance:

$$= \text{Std. Rate per Hour (Actual Hours - Budgeted Hours)}$$

$$= \text{₹1} (74,000 \text{ hours} - 60,000 \text{ hours})$$

$$= \text{₹14,000} - \text{₹0} = \text{₹14,000 (F)}$$

(b) Workings:

$$1. \text{ Net Profit} = 6.25\% \text{ of } \text{₹60,00,000} = \text{₹3,75,000}$$

$$2. \text{ Net worth} = \text{₹3,75,000} \times \frac{100}{25} = \text{₹15,00,000}$$

$$\text{Share Capital} = ₹ 15,00,000 \times \frac{7}{10} = ₹ 10,50,000$$

$$\text{Reserve} = ₹ 15,00,000 \times \frac{3}{10} = ₹ 4,50,000$$

$$\text{Debentures} = ₹ 60,000 \times \frac{100}{15} = ₹ 4,00,000$$

3. Sundry Creditors = ₹ 2,00,000

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = 2$$

$$\text{Current Assets} = 2 \text{ Current Liabilities}$$

$$= 2 \times ₹ 2,00,000 \text{ (assumed creditors is the only current liabilities)}$$

$$= ₹ 4,00,000$$

4. Inventory Turnover = $\frac{\text{Cost of Goods Sold}}{\text{Closing Stock}} = 12$

$$\text{Hence, Closing Stock} = \frac{₹ 18,00,000}{12} = ₹ 1,50,000$$

Calculation of Earnings Before Interest and Tax (EBIT)

Particulars	Amount (₹)
Net Profit	3,75,000
Tax @50%	3,75,000
Profit Before Tax	7,50,000
Add: Interest on Debentures	60,000
Earnings Before Interest and Tax (EBIT)	8,10,000

(i) Calculation of Operating Expenses for the year ended 31st March 2015

Particulars	Amount (₹)	Amount (₹)
Sales		60,00,000
Less: Cost of Goods Sold	18,00,000	
EBIT	8,10,000	26,10,000
Operating Expenses		33,90,000

(ii) Balance Sheet as on 31st March, 2015

Liabilities	Amount (₹)	Amount (₹)	Assets	Amount (₹)	Amount (₹)
Share capital		10,50,000	Fixed Assets (balancing figure)		17,00,000
Reserve		4,50,000	Current Assets:		
Debentures 15%		4,00,000	Closing stock	1,50,000	
Sundry Creditors		2,00,000	Debtors	2,00,000	
			Cash	50,000	4,00,000
		21,00,000			21,00,000

Question 3

- (a) A mini-bus, having a capacity of 32 passengers, operates between two places - 'A' and 'B'. The distance between the place 'A' and place 'B' is 30 km. The bus makes 10 round trips in a day for 25 days in a month. On an average, the occupancy ratio is 70% and is expected throughout the year.

The details of other expenses are as under:

	Amount (₹)	
Insurance	15,600	Per annum
Garage Rent	2,400	Per quarter
Road Tax	5,000	Per annum
Repairs	4,800	Per quarter
Salary of operating staff	7,200	Per month
Tyres and Tubes	3,600	Per quarter
Diesel: (one litre is consumed for every 5 km)	13	Per litre
Oil and Sundries	22	Per 100 km run
Depreciation	68,000	Per annum

Passenger tax @ 22% on total taking is to be levied and bus operator requires a profit of 25% on total taking.

Prepare operating cost statement on the annual basis and find out the cost per passenger kilometer and one way fare per passenger. (8 Marks)

(b) Given below are the data on a capital project 'M'.

Annual cash inflows	₹ 60,000
Useful life	4 years
Internal rate of return	15%
Profitability index	1.064
Salvage value	0

You are required to calculate for this project M :

- (i) Cost of project
- (ii) Payback period
- (iii) Cost of capital
- (iv) Net present value

PV factors at different rates are given below:

Discount factor	15%	14%	13%	12%
1 year	0.869	0.877	0.885	0.893
2 year	0.756	0.769	0.783	0.797
3 year	0.658	0.675	0.693	0.712
4 year	0.572	0.592	0.613	0.636

(8 Marks)

Answer

(a) **Operating Cost Statement**

	Particulars	Total Cost Per annum (₹)
A.	Fixed Charges:	
	Insurance	15,600
	Garage rent (₹ 2,400 × 4 quarters)	9,600
	Road Tax	5,000
	Salary of operating staff (₹ 7,200 × 12 months)	86,400
	Depreciation	68,000
	Total (A)	1,84,600
B.	Variable Charges:	
	Repairs (₹ 4,800 × 4 quarters)	19,200

Tyres and Tubes (₹ 3,600 × 4 quarters)	14,400
Diesel {(1,80,000 km. ÷ 5 km.) × ₹13}	4,68,000
Oil and Sundries {(1,80,000 km. ÷ 100 km.) × ₹22}	39,600
Total (B)	5,41,200
Total Operating Cost (A+B)	7,25,800
Add: Passenger tax (Refer to WN-1)	3,01,275
Add: Profit (Refer to WN-1)	3,42,359
Total takings	13,69,434

Calculation of Cost per passenger kilometre and one way fare per passenger:

$$\begin{aligned} \text{Cost per Passenger-Km.} &= \frac{\text{Total Operating Cost}}{\text{Total Passenger – Km.}} \\ &= \frac{\text{₹ 7,25,800}}{40,32,000 \text{ Passenger – Km.}} = \text{₹ 0.18} \end{aligned}$$

$$\begin{aligned} \text{One way fare per passenger} &= \frac{\text{Total Takings}}{\text{Total Passenger – Km.}} \times 30 \text{ Km.} \\ &= \frac{\text{₹ 13,69,434}}{40,32,000 \text{ Passenger – Km.}} \times 30 \text{ km} = \text{₹ 10.20} \end{aligned}$$

Working Notes:

- Let total taking be X then Passenger tax and profit will be as follows:

$$X = \text{₹ 7,25,800} + 0.22 X + 0.25 X$$

$$X - 0.47 X = \text{₹ 7,25,800}$$

$$X = \frac{\text{₹ 7,25,800}}{0.53} = \text{₹ 13,69,434}$$

$$\text{Passenger tax} = \text{₹ 13,69,434} \times 0.22 = \text{₹ 3,01,275}$$

$$\text{Profit} = \text{₹ 13,69,434} \times 0.25 = \text{₹ 3,42,359}$$

- Total Kilometres to be run during the year
= 30 km. × 2 sides × 10 trips × 25 days × 12 months = 1,80,000 Kilometres
- Total passenger Kilometres
= 1,80,000 km. × 32 passengers × 70% = 40,32,000 Passenger- km.

(b) (i) Cost of Project 'M'

At 15% internal rate of return (IRR), the sum of total cash inflows = cost of the project i.e initial cash outlay

Annual cash inflows = ₹ 60,000

Useful life = 4 years

Considering the discount factor table @ 15%, cumulative present value of cash inflows for 4 years is 2.855 (0.869 + 0.756 + 0.658 + 0.572)

Hence, Total Cash inflows for 4 years for Project M is

₹ 60,000 × 2.855 = ₹ 1,71,300

Hence, Cost of the Project = ₹ 1,71,300

(ii) Payback Period

Payback period = $\frac{\text{Cost of the Project}}{\text{Annual Cash Inflows}}$

= $\frac{₹ 1,71,300}{₹ 60,000}$ = 2.855 years

(iii) Cost of Capital

Profitability index = $\frac{\text{Sum of Discounted Cash inflows}}{\text{Cost of the Project}}$

1.064 = $\frac{\text{Sum of Discounted Cash inflows}}{₹ 1,71,300}$

∴ Sum of Discounted Cash inflows = ₹ 1,82,263.20

Since, Annual Cash Inflows = ₹ 60,000

Hence, cumulative discount factor for 4 years = $\frac{₹ 1,82,263.20}{₹ 60,000}$

From the discount factor table, at discount rate of 12%, the cumulative discount factor for 4 years is 3.038 (0.893 + 0.797 + 0.712 + 0.636)

Hence, Cost of Capital = 12%

(iv) Net Present Value (NPV)

NPV = Sum of Present Values of Cash inflows – Cost of the Project

= ₹ 1,82,263.20 – ₹ 1,71,300 = ₹ 10,963.20

Net Present Value = ₹10,963.20

Question 4

- (a) A company manufactures one main product (M_1) and two by-products B_1 and B_2 . For the month of January 2015, following details are available:

Total cost upto separation point ₹ 2,12,400.

	M_1	B_1	B_2
Cost after separation	-	₹ 35,000	₹ 24,000
No. of Units produced	4,000	1,800	3,000
Selling Price per unit	₹ 100	₹ 40	₹ 30
Estimated net profit as percentage to Sales Value	-	20%	30%
Estimated selling expenses as percentage to Sales Value	20%	15%	15%

There are no opening or closing inventories.

Prepare statement showing:

- (i) Allocation of Joint Cost; and
 - (ii) Product-wise and overall profitability of the company for January, 2015. (8 Marks)
- (b) A Ltd. wishes to raise additional finance of ₹ 30 lakhs for meeting its investment plans. The company has ₹ 6,00,000 in the form of retained earnings available for investment purposes.

The following are the further details:

- Debt equity ratio - 30 : 70
- Cost of debt - at the rate of 11 % (before tax) upto ₹ 3,00,000 and 14% (before tax) beyond that.
- Earnings per share - ₹ 15.
- Dividend payout - 70% of earnings.
- Expected growth rate in dividend - 10%.
- Current market price per share - ₹ 90.
- Company's tax rate is 30% and shareholder's Personal tax rate is 20%.

You are required to :

- (i) Calculate the post tax average cost of additional debt.
- (ii) Calculate the cost of retained earnings and cost of equity.
- (iii) Calculate the overall weighted average (after tax) cost of additional finance.

(8 Marks)

Answer

(a) (i) Statement showing allocation of Joint Cost

Particulars	B ₁	B ₂
No. of units Produced	1,800	3,000
Selling Price Per unit (₹)	40	30
Sales Value (₹)	72,000	90,000
Less: Estimated Profit (B ₁ -20% & B ₂ -30%)	(14,400)	(27,000)
Cost of Sales	57,600	63,000
Less: Estimated Selling Expenses (B ₁ -15% & B ₂ -15%)	(10,800)	(13,500)
Cost of Production	46,800	49,500
Less: Cost after separation	(35,000)	(24,000)
Joint Cost allocated	11,800	25,500

(ii) Statement of Profitability

Particulars	M ₁ (₹)	B ₁ (₹)	B ₂ (₹)
Sales Value (A)	4,00,000 (4,000 × ₹100)	72,000	90,000
Less:- Joint Cost	1,75,100 (2,12,400 - 11,800 - 25,500)	11,800	25,500
- Cost after separation	-	35,000	24,000
- Selling Expenses (M ₁ -20%, B ₁ -15% & B ₂ -15%)	80,000	10,800	13,500
(B)	2,55,100	57,600	63,000
Profit (A - B)	1,44,900	14,400	27,000
Overall Profit = ₹1,44,900 + ₹14,400 + ₹27,000 = ₹1,86,300			

(b)

Pattern of raising capital	=	0.30 × 30,00,000
Debt	=	9,00,000
Equity	=	21,00,000
Equity fund (₹ 21,00,000)		
Retained earnings	=	₹ 6,00,000

Equity (additional)	=	₹15,00,000
Total	=	₹ 21,00,000
Debt fund (₹ 9,00,000)		
11% debt	=	₹ 3,00,000
14% debt	=	₹ 6,00,000
Total	=	₹ 9,00,000

$$(i) K_d = \frac{\text{Total Interest}(1-t)}{\text{₹ 9,00,000}} \times 100$$

$$= \frac{(\text{₹ 33,000} + \text{₹ 84,000})(1-0.3)}{\text{₹ 9,00,000}} \times 100$$

$$\text{or} = \frac{\text{₹ 81,900}}{\text{₹ 9,00,000}} \times 100 = 9.10\%$$

$$(ii) K_e^* = \left[\frac{(\text{EPS} \times \text{Payout})(1+g)}{M_p} \times 100 \right] + g = \left[\frac{(\text{₹}15 \times 0.7) \times 1.1}{\text{₹ 90}} \times 100 \right] + 10\%$$

$$= \left[\frac{\text{₹ 11.55}}{\text{₹ 90}} \times 100 \right] + 10\% = 22.83\%$$

$$K_r = K_e (1 - t_p) = 22.83\% (1 - 0.2) = 18.26\%$$

(iii) **Weighted average cost of capital**

Sources of Capital	Amount (₹)	Weight	After tax Cost	Weighted Cost (in percentage)
Equity Capital	15,00,000	0.5	22.83%	11.415
Retained earning	6,00,000	0.2	18.26%	3.652
Debt	9,00,000	0.3	9.10%	2.730
Total	30,00,000	1.00		17.797

* K_e is calculated based on dividend growth model

K_d = Cost of capital; K_e = Cost of equity; K_r = Cost of retained earnings; M_p = Market price; g = growth; t_p = Shareholder's personal tax; K_o = Cost of overall capital

Note: Cost of retained earnings (K_r) and Cost of equity (K_e) can also be calculated in the same way without considering shareholder's personal tax. In that case K_e and K_r will be same and accordingly K_o can be calculated.

Question 5

- (a) Explain 'Sunk Cost' and 'Opportunity Cost'.
 (b) Write notes on 'Escalation Clause'.
 (c) Explain 'Sales and Lease Back'.
 (d) Explain 'Miller-Orr Cash Management model'. (4 x 4 = 16 Marks)

Answer

- (a) **Sunk cost:** Historical costs or the costs incurred in the past are known as sunk cost. They play no role in the current decision making process and are termed as irrelevant costs. For example, in the case of a decision relating to the replacement of a machine, the written down value of the existing machine is a sunk cost, and therefore, not considered.

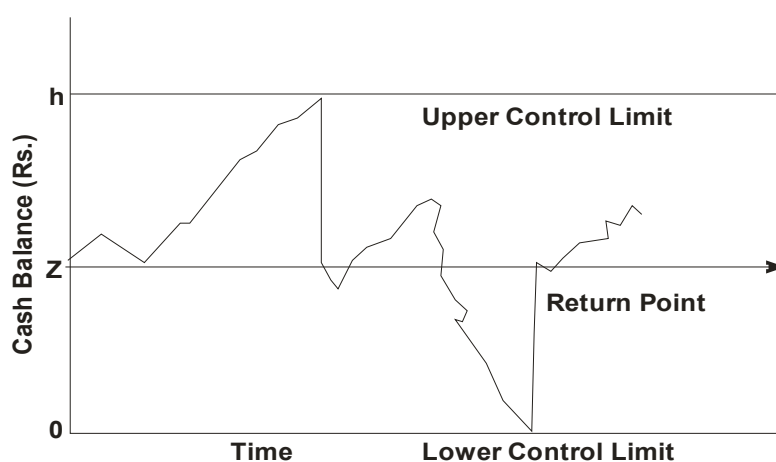
Opportunity cost: It refers to the value of sacrifice made or benefit of opportunity foregone in accepting an alternative course of action. For example, a firm financing its expansion plan by withdrawing money from its bank deposits. In such a case the loss of interest on the bank deposit is the opportunity cost for carrying out the expansion plan.

- (b) **Escalation Clause:** This clause is usually provided in the contracts as a safeguard against any likely changes in the price or utilization of material and labour. If during the period of execution of a contract, the prices of materials or labour rise beyond a certain limit, the contract price will be increased by an agreed amount. Inclusion of such a term in a contract deed is known as an 'escalation clause'.

An escalation clause usually relates to change in price of inputs, it may also be extended to increased consumption or utilization of quantities of materials, labour etc (where it is beyond the control of the contractor). In such a situation the contractor has to satisfy the contractee that the increased utilization is not due to his inefficiency.

- (c) **Sales and Lease Back:** Under this type of lease, the owner of an asset sells the asset to a party (the buyer), who in turn leases back the same asset to the owner in consideration of a lease rentals. Under this arrangement, the asset is not physically exchanged but it all happen in records only. The main advantage of this method is that the lessee can satisfy himself completely regarding the quality of an asset and after possession of the asset convert the sale into a lease agreement.

- (d) **Miller – Orr Cash Management Model:** According to this model the net cash flow is completely stochastic. When changes in cash balance occur randomly, the application of control theory serves a useful purpose. The Miller – Orr model is one of such control limit models. This model is designed to determine the time and size of transfers between an investment account and cash account. In this model control limits are set for cash balances. These limits may consist of 'h' as upper limit, 'z' as the return point and zero as the lower limit.



MILLER-ORR CASH MANAGEMENT MODEL

When the cash balance reaches the upper limit, the transfer of cash equal to 'h – z' is invested in marketable securities account. When it touches the lower limit, a transfer from marketable securities account to cash account is made. During the period when cash balance stays between (h, z) and (z, 0) i.e. high and low limits, no transactions between cash and marketable securities account is made. The high and low limits of cash balance are set up on the basis of fixed cost associated with the securities transaction, the opportunities cost of holding cash and degree of likely fluctuations in cash balances. These limits satisfy the demands for cash at the lowest possible total costs.

Question 6

- (a) A machine shop cost centre contains three machines of equal capacities. Three operators are employed on each machine, payable ₹ 20 per hour each. The factory works for 48 hours in a week which includes 4 hours set up time. The work is jointly done by operators. The operators are paid fully for the 48 hours. In addition, they are also paid a bonus of 10% of productive time. Costs are reported for this company on the basis of thirteen, four-weekly period.

The company, for the purpose of computing machine hour rate includes the direct wages of the operator and also recoups the factory overheads allocated to the machines. The following details of factory overheads applicable to the cost centres are available:

Original Cost of each machine	- ₹ 52,000
Depreciation on the original cost of the machine	- ₹ 10% p.a.
Maintenance & Repair per week per machine	- ₹ 60
Consumable Stores per week per machine	- ₹ 75
Power: 20 units per hour per machine	- 80 paise per unit

Apportionment to the cost centre:

Rent per annum	₹ 5,400
Heat and Light per annum	₹ 9,720
Foreman's Salary per annum	₹ 12,960

Calculate:

- (i) the cost of running one machine for a four week period.
(ii) machine hour rate. (8 Marks)
- (b) The following information is provided by the DVP Ltd. for the year ending 31st March, 2015.

Raw Material storage period	50 days
Work in progress conversion period	18 days
Finished Goods storage period	22 days
Debt Collection period	45 days
Creditors' payment period	55 days
Annual Operating Cost	₹ 21 Lacs

(Including depreciation of ₹ 2,10,000)

(1 year = 360 days)

You are required to calculate:

- (i) Operating Cycle period.
(ii) Number of Operating Cycles in a year.
(iii) Amount of working capital required for the company on a cash cost basis.
(iv) The company is a market leader in its product, there is virtually no competitor in the market. Based on a market research, it is planning to discontinue sales on credit and deliver products based on pre-payments. Thereby, it can reduce its working capital requirement substantially. What would be the reduction in working capital requirement due to such decision? (8 Marks)

Answer

- (a) Effective Machine hour for four-week period
= Total working hours – unproductive set-up time
= {(48 hours × 4 weeks) – {(4 hours × 4 weeks)}}
= (192 – 16) hours = 176 hours.

(i) Computation of cost of running one machine for a four week period

		(₹)	(₹)
(A)	Standing charges (per annum)		
	Rent	5,400.00	
	Heat and light	9,720.00	
	Forman's salary	12,960.00	
	Standing charges (per annum)	28,080.00	720.00
	Total expenses for one machine for four week period $\left(\frac{₹ 28,080}{3 \text{ machines} \times 13 \text{ four - week period}} \right)$		
	Wages (48 hours × 4 weeks × ₹ 20 × 3 operators) ÷ 3 machines)		3,840.00
	Bonus (176 hours × ₹ 20 × 3 operators) ÷ 3 machines) × 10%		352.00
	Total standing charges		4,912.00
(B)	Machine Expenses		
	Depreciation $= \left(₹ 52,000 \times 10\% \times \frac{1}{13 \text{ four - week period}} \right)$		400.00
	Repairs and maintenance (₹60 × 4 weeks)		240.00
	Consumable stores (₹ 75 × 4 weeks)		300.00
	Power (176 hours × 20 units × ₹ 0.80)		2,816.00
	Total machine expenses		3,756.00
(C)	Total expenses (A) + (B)		8,668.00

(ii) Machine hour rate = $\frac{₹ 8,668}{176 \text{ hours}} = ₹ 49.25$

If we assume that there are three different operators for three machines i.e. 9 operators, in that case Wages will be ₹11,520 (48 hours × 4 weeks × ₹ 20 × 3 operators), Bonus will be ₹1,056 (176 hours × ₹ 20 × 3 operators × 10%) and accordingly the Machine hour rate will be $\frac{₹17,052}{176 \text{ hours}} = ₹ 96.89$

(b) (i) Calculation of Operating Cycle Period

$$\begin{aligned}\text{Operating Cycle Period} &= R + W + F + D - C \\ &= 50 + 18 + 22 + 45 - 55 = 80 \text{ days}\end{aligned}$$

(ii) Number of Operating Cycle in a Year

$$\begin{aligned}&= \frac{360}{\text{Operating Cycle Period}} \\ &= \frac{360}{80} = 4.5\end{aligned}$$

(iii) Amount of Working Capital Required

$$\begin{aligned}&= \frac{\text{Annual Operating Cost}}{\text{Number of Operating Cycle}} = \frac{(\text{₹ } 21,00,000 - \text{₹ } 2,10,000)}{4.5} \\ &= \frac{18,90,000}{4.5} = 4,20,000\end{aligned}$$

(iv) Reduction in Working Capital

$$\begin{aligned}\text{Operating Cycle Period} &= R + W + F - C \\ &= 50 + 18 + 22 - 55 = 35 \text{ days}\end{aligned}$$

$$\text{Amount of Working Capital Required} = \frac{18,90,000}{360} \times 35 = 1,83,750$$

$$\text{Reduction in Working Capital} = 4,20,000 - 1,83,750 = 2,36,250$$

Question 7

Answer any **four** of the following:

- Define 'Cost Centre' and state its types.
- State benefits of Integrated Accounting.
- Differentiate between 'Factoring' and 'Bill discounting'.
- Discuss the conflicts in Profit versus Wealth maximization principle of the firm.
- Define 'Present Value' and 'Perpetuity'. (4 x 4 = 16 Marks)

Answer

- It is defined as a location, person or an item of equipment (or group of these) for which cost may be ascertained and used for the purpose of Cost Control.

Cost Centres are of two types,

- **Personal Cost Centre:** It consists of a person or group of persons e.g. Mr. X, supervisor, foreman, accountant, engineer, process staffs, mining staffs, doctors etc.
- **Impersonal Cost Centre:** It consists of a location or an item of equipment (or group of these) e.g. Ludhiana branch, boiler house, cooling tower, weighing machine, canteen, and generator set etc.

In a manufacturing concern there are two types of cost centres viz., Production and Service cost centres.

(b) The main advantages of Integrated Accounting are as follows:

- **No need for Reconciliation:** The question of reconciling costing profit and financial profit does not arise, as there is only one figure of profit.
- **Less efforts:** Due to use of one set of books, there is significant saving in efforts made.
- **Less time consuming:** No delay is caused in obtaining information provided in books of original entry.
- **Economical Process:** It is economical also as it is based on the concept of 'Centralization of Accounting Function'

(c) **Differentiation between Factoring and Bills Discounting**

The differences between Factoring and Bills discounting are:

- (a) Factoring is called as "Invoice Factoring" whereas Bills discounting is known as "Invoice discounting."
 - (b) In Factoring, the parties are known as the client, factor and debtor whereas in Bills discounting, they are known as drawer, drawee and payee.
 - (c) Factoring is a sort of management of book debts whereas bills discounting is a sort of borrowing from commercial banks.
 - (d) For factoring there is no specific Act, whereas in the case of bills discounting, the Negotiable Instruments Act is applicable.
- (d) **Conflict in Profit versus Wealth Maximization Principle of the Firm:** Profit maximisation is a short-term objective and cannot be the sole objective of a company. It is at best a limited objective. If profit is given undue importance, a number of problems can arise like the term profit is vague, profit maximisation has to be attempted with a realisation of risks involved, it does not take into account the time pattern of returns and as an objective it is too narrow.

Whereas, on the other hand, wealth maximisation, as an objective, means that the company is using its resources in a good manner. If the share value is to stay high, the

company has to reduce its costs and use the resources properly. If the company follows the goal of wealth maximisation, it means that the company will promote only those policies that will lead to an efficient allocation of resources.

- (e) **Present Value:** Present Value” is the current value of a “Future Amount”. It can also be defined as the amount to be invested today (Present Value) at a given rate over specified period to equal the “Future Amount”.

Perpetuity: Perpetuity is an annuity in which the periodic payments or receipts begin on a fixed date and continue indefinitely or perpetually. Fixed coupon payments on permanently invested (irredeemable) sums of money are prime examples of perpetuities.