

Test Series: February, 2012

MOCK TEST PAPER – 1
IPCC/PCC: GROUP – I/GROUP-II
PAPER – 3/4: COST ACCOUNTING AND FINANCIAL MANAGEMENT
PART – I : COST ACCOUNTING

All questions are compulsory.

Working notes should form part of the answer.

Time Allowed – 1 ½ Hours

Maximum Marks – 100

1. Answer the following:
 - (i) Define the terms 'cost centre' and 'cost unit'.
 - (ii) What is Economic Order Quantity?
 - (iii) What is the relevance of escalation clause provided in the contracts?
 - (iv) Define Explicit costs. How is it different from implicit costs?
 - (v) What is notional rent of a factory building? Give one reason why it may be included in cost accounts. (2 x 5 =10 Marks)
2. (a) A manufacturer of Durgapur purchased three Chemicals A, B and C from Howrah. The invoice gave the following information:

	₹
Chemical A : 3,000 kg @ ₹ 4.20 per kg. 3,000 kg @ ₹ 4.20 per kg.	12,600
Chemical B: 5,000 kg @ ₹ 3.80 per kg. 5,000 kg @ ₹ 3.80 per kg.	19,000
Chemical C: 2,000 kg. @ ₹ 4.75 per kg. 2,000 kg. @ ₹ 4.75 per kg.	9,500
Sales Tax	2,055
Railway Freight	<u>1,000</u>
Total Cost	<u>44,155</u>

A shortage of 200 kg in Chemical A, of 280 kg. in Chemical B and of 100 kg. in Chemical C was noticed due to breakages. At Durgapur, the manufacturer paid Octroi duty @ ₹ 0.10 per kg. He also paid cartage ₹ 22 for Chemical A, ₹ 63.12 for Chemical B and ₹ 31.80 for Chemical C. Calculate the stock rate that you would suggest for pricing issue of chemicals assuming a provision of 5% towards further deterioration.

- (b) India Chemicals Co. purchases salt and processes it into more-refined products such as caustic soda, chlorine, and PVC (Polyvinyl chloride). During the month of

April, 2011, Inorganic Chemicals purchased salt for ₹ 10,00,000. Conversion cost of ₹ 15,00,000 were incurred upto the split-off point, at which time two saleable products were produced: Caustic soda and chlorine. Chlorine can be further processed into PVC. The April production and sales information are as follows:

	Production	Sales	Sales Price per Ton
Caustic Soda	1,200 tons	1,200 tons	₹ 1,250
Chlorine	800 tons		
PVC	500 tons	500 tons	₹ 5,000

All 800 tons of chlorine were further processed, at an incremental cost of ₹ 5,00,000 to yield 500 tons of PVC. There were no byproducts or scrap from this further processing of chlorine. There were no beginning or ending inventories of caustic soda, chlorine or PVC in April.

There is an active market for chlorine. India Chemicals Co. could have sold all its April production of chlorine at ₹ 1,875 a ton.

Required:

- (i) Calculate, how the joint costs of ₹ 25,00,000 would be allocated between Caustic soda and Chlorine under each of the following methods:
 - (1) sales value at split off;
 - (2) physical measure (tone); and
 - (3) estimated net realizable value.
 - (ii) What is the gross margin percentage of Caustic soda and PVC under the three methods cited in requirement (i)? (6 + 10 = 16 Marks)
3. (a) A contractor, who prepares his account on 31st December each year, commenced a contract on 1st April 2011. The costing records concerning the said contract reveal the following information on 31st December, 2011;

	₹
Materials charged to site	2,58,100
Labour engaged	5,60,500
Foremen's salary	79,300

Plants costing ₹ 2,60,000 had been on site for 146 days. Their working life is estimated at 7 years and their final scrap value at ₹ 15,000. A supervisor, who is paid ₹ 4,000 p.m. has devoted approximately three-fourths of his time to this contract. The administrative and other expenses amount to ₹ 1,40,000. Materials in hand at site on 31st December, 2011 cost ₹ 25,400. Some of the material costing ₹ 4,500 was found unsuitable and was sold for ₹ 4,000 and a part of the plant

costing ₹ 5,500 (on 31.12.11) unsuited to the contract was sold at a profit of ₹ 1,000.

The contract price was ₹ 22,00,000 but it was accepted by the contractor for ₹ 20,00,000. On 31st December, 2011, two thirds of the contract was completed. Architect's certificate had been issued covering 50% of the contract price and ₹ 7,50,000 had so far been paid on account. Prepare contract account and state how much profit or loss should be included in the financial accounts to 31st December, 2011. Workings should be clearly given. Depreciation is charged on time basis.

Also prepare the Contractee's account and show how these accounts should appear in the Balance Sheet as on 31st December, 2011.

- (b) Calculate the earnings of a worker under (i) Halsey Plan and (ii) Rowan Plan from the following particulars:

- (1) Hourly rate of wages guaranteed 0.50 paise per hour.
- (2) Standard time for producing one dozen articles – 3 hours.
- (3) Actual time taken by the worker to produce 20 dozen articles – 48 hours.

(12 + 4 = 16 Marks)

4. The standard labour complement and the actual labour complement engaged in a week for a job are as follows:

	Skilled Workers	Semi-skilled Workers	Un Skilled workers
Standard number of workers in the gang	32	12	6
Standard wage rate per hour (₹)	3	2	1
Actual number of workers employed in the gang during the week	28	18	4
Actual wages rate per hour (₹)	4	3	2

During the 40 hours working week the gang produced 1,800 standard labour hours of work.

Calculate:

- (i) Total labour cost variance;
- (ii) Labour efficiency variance;
- (iii) Labour mix variance; and
- (iv) Rate of wages variance.

(8 Marks)

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MOCK TEST PAPER – 1
IPCC/PCC: GROUP – II/GROUP – II
PAPER – 3/4: COST ACCOUNTING AND FINANCIAL MANAGEMENT
PART – II : FINANCIAL MANAGEMENT

All questions are compulsory.

Working notes should form part of the answer.

Time Allowed – 1 ½ Hours

Maximum Marks – 50

1. Answer the following:
 - (i) Explain the limitations of profit maximization objective of Financial Management.
 - (ii) Explain the need of debt-service coverage ratio.
 - (iii) Discuss the features of deep discount bonds.
 - (iv) Explain the concept of closed and open- ended lease.
 - (v) The demand for a certain product is random. It has been estimated that the monthly demand of the product has a normal distribution with a mean of 390 units. The unit price of product is ₹25. Ordering cost is ₹40 per order and inventory carrying cost is estimated to be 35 per cent per year. You are required to calculate the Economic Order Quantity (EOQ). (5 × 2 = 10 Marks)
2. The financial statement and operating results of Alpha Limited revealed the following position as on 31st March, 2010:

— Equity share capital (₹10 fully paid share)	₹ 20,00,000
— Working capital	₹ 6,00,000
— Bank overdraft	₹ 1,00,000
— Current ratio	2.5 : 1
— Liquidity ratio	1.5 : 1
— Proprietary ratio (Net fixed assets/Proprietary fund)	.75 : 1
— Cost of sales	₹ 14,40,000
— Debtors velocity	2 months
— Stock turnover based on cost of sales	4 times
— Gross profit ratio	20% of sales
— Net profit ratio	15% of sales

Closing stock was 25% higher than the opening stock. There were also free reserves brought forward from earlier years. Current assets include stock, debtors and cash only. The current liabilities expect bank overdraft treated as creditors.

Expenses include depreciation of ₹90,000.

The following information was collected from the records for the year ended 31st March, 2011:

- Total sales for the year were 20% higher as compared to previous year.
- Balances as on 31st March, 2011 were : Stock ₹5,20,000, Creditors ₹4,15,000, Debtors ₹4,95,000 and Cash balance ₹3,10,000.
- Percentage of Gross profit on turnover has gone up from 20% to 25% and ratio of net profit to sales from 15% to 16%.
- A portion of Fixed assets was very old (book values ₹1,80,000) disposed for ₹90,000. (No depreciations to be provided on this item).
- Long-term investments were purchased for ₹2,96,600.
- Bank overdraft fully discharged.
- Percentage of depreciation to Fixed assets to be provided at the rate in the previous year.

Required:

- (i) Prepare Balance Sheet as on 31st March, 2010 and 31st March, 2011.
- (ii) Prepare the fund flow statement for the year ended 31st March, 2011.

(8 + 8 = 16 Marks)

3. (a) The following details of Beta Limited for the year ended 31st March, 2011 are given below:

Operating leverage	1.4
Combined leverage	2.8
Fixed Cost (Excluding interest)	₹ 2.04 lakhs
Sales	₹ 30.00 lakhs
12% Debentures of ₹100 each	₹ 21.25 lakhs
Equity Share Capital of ₹10 each	₹ 17.00 lakhs
Income tax rate	30 per cent

Required:

- (i) Calculate Financial leverage
- (ii) Calculate P/V ratio and Earning per Share (EPS)

- (iii) If the company belongs to an industry, whose assets turnover is 1.5, does it have a high or low assets leverage?
- (iv) At what level of sales the Earning before Tax (EBT) of the company will be equal to zero?
- (b) Theta Limited is considering investing in a project. The expected original investment in the project will be ₹2,00,000, the life of project will be 5 year with no salvage value. The expected net cash inflows after depreciation but before tax during the life of the project will be as following:

Year	1	2	3	4	5
₹	85,000	1,00,000	80,000	80,000	40,000

The project will be depreciated at the rate of 20% on original cost. The company is subjected to 30% tax rate.

Required:

- (i) Calculate pay back period and average rate of return (ARR)
- (ii) Calculate net present value and net present value index, if cost of capital is 10%.
- (iii) Calculate internal rate of return.

Note: The P.V. factors are:

Year	P.V. at 10%	P.V. at 37%	P.V. at 38%	P.V. at 40%
1	.909	.730	.725	.714
2	.826	.533	.525	.510
3	.751	.389	.381	.364
4	.683	.284	.276	.260
5	.621	.207	.200	.186

(8 + 7 = 15 Marks)

4. Answer the following:

- (a) A person is required to pay four equal annual payments of ₹4,000 each in his Deposit account that pays 10 per cent interest per year. Find out the future value of annuity at the end of 4 years.
- (b) From the information given below calculate the amount of Fixed assets and Proprietor's fund.

Ratio of fixed assets to proprietors fund = 0.75

Net Working Capital = ₹6,00,000

- (c) Z Ltd.'s operating income (before interest and tax) is ₹9,00,000. The firm's cost of debt is 10 per cent and currently firm employs ₹30,00,000 of debt. The overall cost of capital of firm is 12 per cent.

You are required to calculate the cost of equity.

(3 × 3 = 9 Marks)

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PAPER – 3/4 : COST ACCOUNTING AND FINANCIAL MANAGEMENT
PART – I : COST ACCOUNTING
SUGGESTED ANSWERS/HINTS

1. (i) **Cost Centre:** The term cost centre is defined as a location, person or an item of equipment or a group of these for which costs may be ascertained and used for the purposes of cost control. Cost centres can be personal cost centres, impersonal cost centres, operation cost centres and process cost centres.

Cost Unit: The term cost unit is defined as a unit of quantity of product, service or time (or a combination of these) in relation to which costs may be ascertained or expressed. It can be for a job, batch, or product group.

- (ii) **Economic Order Quantity:** Economic order quantity represents the size of the order for which both ordering and carrying costs together are minimum. If purchases are made in large quantities, inventory carrying cost will be high. If the order size is small, ordering cost will be high. Hence, it is necessary to determine the order quantity for which ordering and carrying costs are minimum. The formula used for determining economic order quantity is as follows:

$$EOQ = \sqrt{\frac{2AO}{C}}$$

Where:

- A is the annual consumption of material in units
 - O is the cost of placing an order (ordering cost per order)
 - C is cost of interest and storing one unit of material for one year (carrying cost per unit per annum)
- (iii) When a contract is likely to take long to complete or even to commence and the price is fixed, the contractor would like to protect his interest against a high rise in the prices of materials, wage rates etc. This he does through what is called an "escalation clause" which states the increase in the contract price for a given increase in the prices of inputs. For example, it may state that if the price of steel goes up by 10%, the contract price will increase by 1.5%. This implies that the base prices of inputs should be agreed upon and also that the date after which increase in prices will be taken into account will be fixed. The contractor is not compensated for price changes which could be avoided, for example, by completing the contract on time.

It is not necessary that the contractee must agree to the escalation clause; it is a matter of negotiation between the two parties.

- (iv) **Explicit costs:** These costs are also known as out of pocket costs. They refer to those costs which involves immediate payment of cash. Salaries, wages, postage and telegram, interest on loan etc. are some examples of explicit costs because they involve immediate cash payment. These payments are recorded in the books of account and can be easily measured.

Main points of difference: The following are the main points of difference between explicit and implicit costs.

- (i) Implicit costs do not involve any immediate cash payment. As such they are also known as imputed costs or economic costs.
 - (ii) Implicit costs are not recorded in the books of account but yet, they are important for certain types of managerial decisions such as equipment replacement and relative profitability of two alternative courses of action.
- (v) **Notional Rent:** It is a reasonable charge raised in the cost accounts for the use of owned premises. One reason for the use of such a nominal charge is to enable comparison between the cost of items made in factories which are owned and in rented factories. However, it may be noted that in the case of owned factory, cost for the same is accounted for by means of depreciation.

2. (a) **Statement showing the Issue Rate of Chemicals**

	Chemicals		
	A	B	C
	₹	₹	₹
Purchase Price	12,600	19,000	9,500
Add: Sales Tax @ 5% of purchase price (Refer to Working Note 2)	630	950	475
Add: Railway Freight in the ratio of 3:5:2 (Refer to Working Note 3)	300	500	200
Add: Octroi @ ` 0.10 per kg. On the quantity of material received (Refer to Working Note 1)	280	472	190
Add: Cartage	<u>22</u>	<u>63.12</u>	<u>31.80</u>
Total Price	<u>13,832</u>	<u>20,985.12</u>	<u>10,396.80</u>

$$\text{Rate of issue per Kg} = \frac{\text{Total price}}{\text{Qty. available for issue}} = \frac{\text{₹13,832}}{2,660\text{kg.}} = \frac{\text{₹ 0,985.12}}{4,484 \text{ Kg.}} = \frac{\text{₹ 10,396.80}}{1,805 \text{ kg.}}$$

$$(\text{Refer to Working Note 1}) = \text{₹ 5.20} = \text{₹ 4.68} = \text{₹ 5.76}$$

Working Notes:

1. Statement showing the quantity of chemicals available for issue

	Chemicals		
	A	B	C
	Kg.	Kg.	Kg.
Quantity purchased	3,000	5,000	2,000
Less: Shortage (Assumed to be normal)	<u>200</u>	<u>280</u>	<u>100</u>
Quantity received at the store	2,800	4,720	1,900
Less: Provision for further deterioration 5%	<u>140</u>	<u>236</u>	<u>95</u>
Quantity available for issue	<u>2,660</u>	<u>4,484</u>	<u>1,805</u>

2. $\text{Rate of sales Tax} = \frac{\text{Sales Tax}}{\text{Total Purchase price of Chemical}} \times 100 = \frac{\text{₹ } 2,055}{\text{₹ } 41,100} \times 100 = 5\%$

3. *Railway Freight*: It has been charged on the basis of quantity purchased i.e. A:3000 kg; B: 5000 kg; C: 2000 kg in the ratio of 3:5:2.

- (b) (1) **Statement of Joint Costs allocation between Caustic soda and Chlorine by using sales value method at split off**

Products	Caustic soda	Chlorine	Total
Sales value at split off (₹)	15,00,000 (1,200 tons x ₹ 1,250)	15,00,000 (800 tons x ₹ 1,875)	30,00,000
Weightage	0.5	0.5	
Joint costs allocated (₹)	12,50,000 (₹ 25,00,000 x 0.5)	12,50,000 (₹ 25,00,000 x 0.5)	25,00,000

- (2) **Statement of Joint Costs allocation between Caustic soda and Chlorine by using physical measure (tons) method**

Products	Caustic soda	Chlorine	Total
Physical measure (tons)	1,200	800	2,000
Weightage	0.6	0.4	
Joint costs allocated (₹)	15,00,000 (₹ 25,00,000 x 0.6)	10,00,000 (₹ 25,00,000 x 0.4)	25,00,000

(3) **Statement of Joint Costs allocation between Caustic soda and Chlorine by using estimated net realizable value method**

Products	Caustic soda	Chlorine	Total
Expected sales value of production (₹)	15,00,000 (1,200 tons x ₹ 1,250)	25,00,000 (500 tons x ₹ 5,000)	40,00,000
Less: Further processing cost (₹)	--	5,00,000	5,00,000
Estimated net realisable value at split off point (₹)	15,00,000	20,00,000	35,00,000
Weightage	3/7	4/7	
Joint cost allocated (₹)	10,71,429	14,28,571	25,00,000
	$\frac{3}{7} \times ₹ 25,00,000$	$\frac{4}{7} \times ₹ 25,00,000$	
(ii) Statement of gross margin percentage of Caustic soda and PVC under sales value, physical measure and estimated net realizable value methods			
	Sales value (at split off)	Physical Measure	Estimated net realizable value
Caustic soda:			
Sales (₹)	15,00,000	15,00,000	15,00,000
Less: Joint costs allocated (₹)	<u>12,50,000</u>	<u>15,00,000</u>	<u>10,71,429</u>
Gross margin (₹)	2,50,000	0	4,28,571
Gross margin (in %)	16.67	0	28.57
	$\frac{₹ 2,50,000}{₹ 15,00,000} \times 100$		$\frac{₹ 4,28,571}{₹ 15,00,000} \times 100$
PVC:			
Sales (₹) (500 tons x ₹ 5,000)	25,00,000	25,00,000	25,00,000
Less: Joint cost allocated (₹)	12,50,000	10,00,000	14,28,571
Less: Further processing cost (₹)	<u>5,00,000</u>	<u>5,00,000</u>	<u>5,00,000</u>
Gross margin (₹)	7,50,000	10,00,000	5,71,429
Gross margin (in %)	30	40	22.86

	$\frac{\text{₹ } 7,50,000}{\text{₹ } 25,00,000} \times 100 = \frac{3}{10}$	$\frac{\text{₹ } 10,00,000}{\text{₹ } 25,00,000} \times 100 = \frac{4}{10}$	$\frac{\text{₹ } 5,71,429}{\text{₹ } 25,00,000} \times 100 = \frac{2}{10}$
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3. (a)

Contract Account

(for the period: between 1st April and 31st Dec. 2011)

	₹		₹
To Materials	2,58,100	By Materials at site	25,400
To Labour engaged	5,60,500	By Materials sold	4,000
To Foremen's salary	79,300	By Profit & Loss A/c (Loss on material sale)	500
To Supervisor's salary (See working note 1)	27,000	By Cost of work done c/d	10,49,000
To Depreciation of plant (See working note 2)	14,000		
To Administrative and other expenses	1,40,000		
	<u>10,78,900</u>		<u>10,78,900</u>
To Cost of work done b/d	10,49,000	By Work-in-Progress Work certified	10,00,000
To Notional Profit c/d	2,13,250	Work uncertified (See Working Note 3)	2,62,250
	<u>12,62,250</u>		<u>12,62,250</u>
To Profit & Loss A/c (See Working Note 4)	1,06,625	By Notional Profit b/d	2,13,250
To Profit Reserve	<u>1,06,625</u>		
	<u>2,13,250</u>		<u>2,13,250</u>
Dr.			Cr.
	₹		₹
To Balance c/d	<u>7,50,000</u>	By Cash	<u>7,50,000</u>

Balance Sheet

(as on 31st December, 2011)

	₹		₹	₹
Profit & Loss A/c (See Working	1,07,125	Work-in-Progress Work Certified	10,00,000	

Note 4)		Work Uncertified	2,62,250	
			<u>12,62,250</u>	
		Less: Reserve	<u>1,06,625</u>	
			11,55,625	
		Less: Cash Received	<u>7,50,000</u>	4,05,625
		Material at site		25,400
		Plant at site		<u>2,40,000</u>
		(See Working Note 5)		

Working Notes

1. Supervisor's Salary = $\frac{3}{4}$ (9 months $\times$ ₹ 4,000) = ₹ 27,000
2. Depreciation of Plant = $\frac{\text{₹ } 2,60,000 - \text{₹ } 15,000}{7 \text{ years}} \times \frac{146}{365} = \text{₹ } 14,000$
3. Cost of Work Uncertified

Cost of 2/3rd of the Contract is ₹ 10,49,000

Hence the Cost of the Contract is ₹ 10,49,000 $\times \frac{3}{2} = \text{₹ } 15,73,500$.

The cost of 50% of the Contract, which has been completed and certified by the Architect is ₹ 7,86,750 (₹ 15,73,500 , 2).

The Cost of 1/6th of the contract, which has been completed but not certified by the Architect is ₹ 2,62,250 (₹ 10,49,000 – ₹ 7,86,750).

Profit & Loss A/c

	₹		₹
To Contract A/c	500	By Contract A/c	1,06,625*
(Loss on the sale of material)		(Profit transferred)	
To Balance c/d	<u>1,07,125</u>	By Profit on the Sale of Plant.	1,000
	1,07,625		<u>1,07,625</u>

* Profit transferred to P & L A/c = $\frac{2}{3} \times \text{₹ } 2,13,250 \times \text{Cash received / Work Certified}$

$$= \frac{2}{3} \times \text{₹ } 2,13,250 \times \text{₹ } 7,50,000 / \text{₹ } 10,00,000 = \text{₹ } 1,06,625$$

Plant A/c

	₹		₹
To Balance b/d	2,60,000	By Current A/c	14,000
To P & L A/c	1,000	(Depreciation)	6,500
(Profit on Sale of Plant)		By Cash Sale	2,40,500
	2,61,000	By Balance c/d	2,61,000

Note: Plant A/c can also form part of Contract A/c

(b) (i) Earnings of a Worker under Halsey Plan

Earnings = Hrs. worked × Rate per hour + $\frac{1}{2}$ Time saved hrs. × Rate per hour

= 48 hrs. × 0.50 paise + $\frac{1}{2}$ × 12 hrs. × 0.50 paise

(Refer to working note 2)

= ₹ 24 + ₹ 3 = ₹ 27

(ii) Earnings of a worker under Rowan Plan

Earnings = Hrs. worked × Rate per hour + $\frac{\text{Time saved}}{\text{Time allowed}}$ × Time taken hrs. × Rate per hour

Rate per hour

= 48 hrs. × 0.50 paise + $\frac{12}{60}$ hrs. × 48 hrs. × 0.50 paise

(Refer to working notes 1 & 2)

= ₹ 24 + ₹ 4.80 = ₹ 28.80

Working notes:

1. Time Allowed to produce 20 dozen articles

Standard time allowed for producing one dozen articles 3 hours

Standard time allowed for producing 20 dozen articles 60 hours

2. Time saved

Standard time to produce 20 dozen articles 60 hours

Actual time taken by the worker to produce 20 dozen articles 48 hours

Time saved 12 hours

4. Work produced by the gang 1,800 standard labour hours, i.e.,

$\frac{1,800}{32+12+6}$ or 36 gang hours

Standard hours of Skilled Labour 36 × 32 1,152 hours

Standard hours of Semi-skilled Labour	36 ´ 12	432 hours
Standard hours of Un-skilled Labour	36 ´ 6	216 hours
Total		1,800 hours
Actual hours of Skilled Labour	40 ´ 28	1,120 hours
Actual hours of Semi-skilled Labour	40 ´ 18	720 hours
Actual hours of Un-skilled Labour	40 ´ 4	160 hours
Total		2,000 hours

Revised Standard hours (actual hours worked expressed in standard ratio)

Skilled Labour	$\frac{1,152}{1,800} \times 2,000$	1,280 hours
Semi-skilled Labour	$\frac{432}{1,800} \times 2,000$	480 hours
Unskilled Labour	$\frac{216}{1,800} \times 2,000$	240 hours
Total		2000 hours

Standard Cost for Actual Output: ₹

Skilled Labour	1,152 hours @ ₹ 3	3,456
Semi-skilled Labour	432 hours @ ₹ 2	864
Unskilled Labour	216 hours @ ₹ 1	216
	1,800 hours	4,536

Actual Cost:

Skilled Labour	1,120 hours @ ₹ 4	4,480
Semi-skilled Labour	720 hours @ ₹ 3	2,160
Unskilled Labour	160 hours @ ₹ 2	320
	2,000 hours	6,960

(i) Total Labour Cost Variance

Standard Cost - Actual Cost	₹
₹ 4,536 – ₹ 6,960	2,424 A

(ii) Labour Efficiency Variance:

(Standard hours for Actual Output - Revised Standard hours) ´ Standard Rate

Skilled	(1,152 - 1,280) ´ ₹ 3	384 A
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Semi -skilled	(432 - 480) ´ ₹ 2	96 A	
Un-skilled	(216 - 240) ´ ₹ 1	24 A	
		504 A	504 A

(iii) Labour Mix Variance :

(Revised Standard Hours - Actual Hours) ´ Standard Rate

Skilled	(1,280 - 1,120) ´ ₹ 3	480 F	
Semi-skilled	(432 - 480) ´ ₹ 2	480 A	
Un-skilled	(216 - 240) ´ ₹ 1	80 F	
		80 F	80 F

(iv) Rate of Wage Variance:

(Standard Rate - Actual Rate) ´ Actual Hours

Skilled	(₹ 3 - ₹ 4) ´ 1,120	1,120 A	
Semi-skilled	(₹ 2 - ₹ 3) ´ 720	720 A	
Un-skilled	(₹ 1 - ₹ 1) ´ 160	160 A	
		2,000 A	2,000 A
Check : Total Labour Cost Variance = Efficiency + Mix + Rate			2,424 A

MOCK TEST PAPER – 1
IPCC/PCC: GROUP – I/GROUP-II
PAPER – 3/4 : COST ACCOUNTING AND FINANCIAL MANAGEMENT
PART – II : FINANCIAL MANAGEMENT

1. (i) Limitations of Profit Maximisation Objective of Financial Management

- (a) Time factor is ignored.
- (b) It is vague because it is not clear whether the term relates to economic profit, accounting profit, profit after tax or before tax.
- (c) The term maximization is also ambiguous.
- (d) It ignores the risk factor.

(ii) Debt Service Coverage Ratio: Lenders are interested in this ratio to judge the firm's ability to pay off current interest and installments.

$$\text{Debt service coverage ratio} = \frac{\text{Earnings available for debt service}}{\text{Interest + Instalment}}$$

Where,

Earning for debt service = Net profit

+ Non-cash operating expenses like depreciation and other amortizations

+ Non-operating adjustments like loss on sale of

+ Fixed assets + Interest on Debt Fund.

(iii) Features of Deep Discount Bonds: Deep discount bonds are a form of zero-interest bonds. These bonds are sold at discounted value and on maturity; face value is paid to the investors. In such bonds, there is no interest payout during the lock-in period. The investors can sell the bonds in stock market and realise the difference between face value and market price as capital gain.

IDBI was the first to issue deep discount bonds in India in January 1993. The bond of a face value of ₹ 1 lakh was sold for ₹ 2700 with a maturity period of 25 years.

(iv) Close-ended and Open-ended Lease: In the close-ended lease, the assets gets transferred to the lessor at the end of lease, the risk of obsolescence, residual values etc. remain with the lessor being the legal owner of the assets. In the open-ended lease, the lessee has the option of purchasing the assets at the end of lease period.

(v) Calculation of Economic Order Quantity (EOQ)

The mean of monthly demand = 390 units, Annual demand (A) = $390 \times 12 = 4,680$ units

Ordering cost (O) = ₹ 40 per order, Cost per unit = ₹ 25.

Inventory carrying cost of one unit (CC) = $₹ 25 \times 35\% = ₹ 8.75$

$$\begin{aligned} \text{EOQ} &= \sqrt{\frac{2AO}{CC}} \\ &= \sqrt{2 \times 4,680 \times \frac{40}{8.75}} = 206.85 \text{ or } 207 \text{ units} \end{aligned}$$

2. Balance Sheets of Alpha Limited

Liabilities	₹		Assets	₹	
	31 March 2010	31 March 2011		31 March 2010	31 March 2011
Equity share capital (₹ 10 each fully paid)	20,00,000	20,00,000	Fixed Assets (₹18,90,000–₹90,000)	18,00,000	15,39,000
Reserve and Surplus (balancing)	1,30,000	1,30,000	Long term investment	-	2,96,600
Profit & Loss A/c (15% of sales)	2,70,000	6,15,600	Current Assets (₹ 10,00,000)		
Current Liabilities			Stock	4,00,000	5,20,000
Bank Overdraft	1,00,000	-	Sundry Debtors	3,00,000	4,95,000
Creditors	3,00,000	4,15,000	Cash at Bank (Balancing)	3,00,000	3,10,000
Total	28,00,000	31,60,600	Total	28,00,000	31,60,600

Calculation for 31st March, 2010

(i) Calculation of Current Liabilities

Suppose that Current Liabilities = x, then current assets will be 2.5 x

Working capital = Current Assets – Current Liabilities

$$6,00,000 = 2.5x - x$$

$$x = 6,00,000 / 1.5 = ₹ 4,00,000 \text{ (C.L.)}$$

Other Current Liabilities = Current Liabilities – Bank Overdraft

(Creditors) $4,00,000 - 1,00,000 = ₹ 3,00,000$

Current Assets = $2.5 \times 4,00,000 = ₹ 10,00,000$

- (ii) Liquid Ratio = Liquid Assets / Current Liabilities or $1.5 = \text{Liquid Assets} / 4,00,000$
 $= ₹ 6,00,000$

Liquid assets = Current Assets – Stock

$6,00,000 = 10,00,000 - \text{Stock}$

So, Stock = ₹ 4,00,000

- (iii) Calculation of fixed assets: Fixed assets to proprietary fund is 0.75, working capital is therefore 0.25 of proprietary fund. So,

$6,00,000 / 0.25 \times 0.75 = ₹ 18,00,000$

- (iv) Debtors = $2 / 12 \times \text{Sales}$

$2 / 12 \times 18,00,000 = ₹ 3,00,000$

- (v) Sales = $(14,40,000 / 80) \times 100 = ₹ 18,00,000$

- (vi) Net profit = 15% of ₹ 18,00,000 = ₹ 2,70,000

Calculation for the year 31st March, 2011

- (vii) Sales = $18,00,000 + (18,00,000 \times 0.2) = 21,60,000$

- (viii) Calculation of fixed assets

	₹		₹
To Opening balance	18,00,000	By Banks (Sale)	90,000
		By Loss on sales of Fixed asset	90,000
		By P & L (Dep.) (5% as in previous year)	81,000
		By Balance b/d	<u>15,39,000</u>
Total	<u>18,00,000</u>		<u>18,00,000</u>

- (ix) Net profit for the year 2011, $16\% \times 21,60,000 = ₹ 3,45,600$

Total Profit = $2,70,000 + 3,45,600 = ₹ 6,15,600$

Calculation of fund from operation:

Net profit for the year 2011 = ₹ 3,45,600

Add: Depreciation ₹ 81,000

Loss on sale of assets ₹ 90,000 = ₹ 1,71,000

Total = ₹ 5,16,600

Fund Flow Statement

	₹		₹
Fund from operation	5,16,600	Increase in WC	3,10,000
Sales of fixed assets	<u>90,000</u>	Pur. of investment	<u>2,96,600</u>
	<u>6,06,600</u>		<u>6,06,600</u>

Schedule of Changing Working Capital

	31 March 2010	31 March 2011	Increase (+)	Decrease (-)
A. Current Assets	₹	₹	₹	₹
Stock	4,00,000	5,20,000	1,20,000	
Sundry debtors	3,00,000	4,95,000	1,95,000	
Cash at bank	3,00,000	3,10,000	10,000	
	<u>10,00,000</u>	<u>13,25,000</u>		
B. Current Liabilities				
Bank overdraft	1,00,000	-	1,00,000	
Sundry creditors	3,00,000	4,15,000		1,15,000
	<u>4,00,000</u>	<u>4,15,000</u>		
Working capital	6,00,000	9,10,000	-	
Increase in working capital	<u>3,10,000</u>			<u>3,10,000</u>
	<u>9,10,000</u>	<u>9,10,000</u>	<u>4,25,000</u>	<u>4,25,000</u>

3 (a) (i) Financial leverage

Combined Leverage = Operating Leverage (OL) × Financial Leverage (FL)

$$2.8 = 1.4 \times FL$$

$$FL = 2$$

Financial Leverage = 2

(ii) P/V Ratio and EPS

$$\text{P/V ratio} = \frac{C}{S} \times 100$$

$$\text{Operating leverage} = \frac{C}{C - F} \times 100$$

$$1.4 = \frac{C}{C - 2,04,000}$$

$$1.4 (C - 2,04,000) = C$$

$$1.4 C - 2,85,600 = C$$

$$C = \frac{2,85,600}{0.4}$$

$$C = 7,14,000$$

$$P/V = \frac{7,14,000}{30,00,000} \times 100 = 23.8\%$$

Therefore, P/V Ratio = 23.8%

$$EPS = \frac{\text{Profit after tax}}{\text{No. of equity shares}}$$

$$EBT = \text{Sales} - V - FC - \text{Interest}$$

$$= 30,00,000 - 22,86,000 - 2,04,000 - 2,55,000$$

$$= 2,55,000$$

$$PAT = EBT - \text{Tax}$$

$$= 2,55,000 - 76,500 = 1,78,500$$

$$EPS = \frac{1,78,500}{1,70,000} = 1.05$$

(iii) Assets turnover

$$\text{Assets turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{30,00,000}{38,25,000} = 0.784$$

0.784 < 1.5 means lower than industry turnover.

- (iv)** EBT zero means 100% reduction in EBT. Since combined leverage is 2.8, sales have to be dropped by $100/2.8 = 35.71\%$. Hence new sales will be

$$30,00,000 \times (100 - 35.71) = 19,28,700.$$

Therefore, at 19,28,700 level of sales, the Earnings before Tax of the company will be equal to zero.

(b)

Project	Outflow ₹ 2,00,000				
Year	1	2	3	4	5
	₹	₹	₹	₹	₹
Profit after depreciation but before tax	85,000	1,00,000	80,000	80,000	40,000
Tax (30 %)	25,500	30,000	24,000	24,000	12,000
PAT	59,500	70,000	56,000	56,000	28,000
Add: Dep	40,000	40,000	40,000	40,000	40,000
Net cash inflow	99,500	1,10,000	96,000	96,000	68,000

Average = ₹53,900

Average = ₹93,900.

Average = ₹93,900

(i) **Calculation of pay back period** 1.91 years

(ii) **Calculation of ARR**

Initial investment	2,00,000	1,60,000	1,20,000	80,000	40,000
Depreciation	40,000	40,000	40,000	40,000	40,000
Closing investment	1,60,000	1,20,000	80,000	40,000	0
Average investment	1,80,000	1,40,000	1,00,000	60,000	20,000

Average =1,00,000

ARR = Average of profit after tax / Average investment = 53.90%

(iii) **Calculation of net present Value** 10%

Net cash inflow	99,500.00	1,10,000.00	96,000.00	96,000.00	68,000.00
	0.909	0.826	0.751	0.683	0.621
Present value	90,445.50	90,860.00	72,096.00	65,568.00	42,228.00
Net present value	= ₹ 3,61,197.50 – ₹ 2,00,000 = ₹ 1,61,197.50				
Net present value index	= ₹ 1,61,197.50 / ₹ 2,00,000 = 0.81				

(iv) **Calculation of IRR**

Present value factor-Initial investment / Average annual cash inflow

2,00,000 / 93,900 = 2.13

It lies in between 38 % and 40%

Net Inflows	Cash	99,500.00	1,10,000.00	96,000.00	96,000.00	68,000.00	
Present Value Factor @ 38%		0.725	0.525	0.381	0.276	0.200	
Present value @ 38% (P1)		72,137.50	57,750.00	36,576.00	26,496.00	13,600.00	Total = 2,06,559.50
Net Inflows	Cash	99,500.00	1,10,000.00	96,000.00	96,000.00	68,000.00	
Present Value Factor @ 40%		0.714	0.510	0.364	0.260	0.186	
Present value @ 40% (P2)		71,043	56,100	34,944	24,960	12,648	Total = 1,99,695

IRR is calculated by Interpolation:

$$\begin{aligned}
 \text{IRR} &= \text{LDR} + (\text{P1} - \text{Q}) / \text{P1} - \text{P2} (\text{SDR} - \text{LDR}) \\
 &= 38 + (2,06,559.50 - 2,00,000) / (2,06,559.50 - 1,99,695) \times (40 - 38) \\
 &= 39.911137\%
 \end{aligned}$$

4 (a)
$$\text{FVA} = A \times \frac{(1+i)^n - 1}{i}$$

$$4,000 \times \frac{(1+.10)^4 - 1}{.10}$$

$$4,000 \times 4.641 = ₹ 18,564$$

Future Value of Annuity at the end of 4 years = ₹ 18,564

(b) Calculation of Fixed Assets and Proprietor's Fund

Since Ratio of Fixed Assets to Proprietor's Fund = 0.75

Therefore, Fixed Assets = 0.75 Proprietor's Fund

Net Working Capital = 0.25 Proprietor's Fund

6,00,000 = 0.25 Proprietor's Fund

Therefore, Proprietor's Fund = $\frac{\text{Rs. 6,00,000}}{0.25}$

= ₹ 24,00,000

Proprietor's Fund = ₹ 24,00,000

Since, Fixed Assets	=	0.75 Proprietor's Fund
Therefore, Fixed Assets	=	$0.75 \times 24,00,000$
	=	₹18,00,000
Fixed Assets	=	₹ 18,00,000

(c) Calculation of Cost of Equity

Calculation of value of firm (V) = $\frac{\text{EBIT}}{\text{Overall cost of capital (K}_o\text{)}}$

$$= \frac{9,00,000}{0.12} = \text{Rs. } 75,00,000$$

Market value of equity (S) = V – Debts

$$= 75,00,000 - 30,00,000 = ₹ 45,00,000$$

Market value of debts (D) = 30,00,000

$$K_e (\text{Cost of equity}) = K_o \frac{V}{V+D} - K_d \frac{D}{V+D}$$

$$= 0.12 \frac{₹75,00,000}{₹45,00,000 + ₹30,00,000} - 0.10 \frac{₹30,00,000}{₹45,00,000 + ₹30,00,000}$$

$$= 0.20 - 0.067 = 0.133 \times 100$$

$$K_e = 13.3\%$$

Test Series: March, 2012

MOCK TEST PAPER – 2
IPCC/PCC: GROUP – I/GROUP-II
PAPER – 3/4: COST ACCOUNTING AND FINANCIAL MANAGEMENT
PART – I : COST ACCOUNTING

All questions are compulsory.

Working notes should form part of the answer.

Time Allowed – 1 ½ Hours

Maximum Marks – 100

1. Answer any five of the following: (5 x 2 = 10 Marks)
- (i) You are given the following particulars calculate:
- (a) Break-even point
 - (b) Sales to earn a profit of ₹ 20,000
 - i. Fixed cost ₹ 1,50,000
 - ii. Variable cost ₹ 15 per unit
 - iii. Selling price is ₹ 30 per unit
- (ii) S.G Co. Ltd. Supplies you the following information: -
- | | |
|---|-----|
| No. of workers at the beginning of the year | 400 |
| No. of workers at the end of the year | 500 |
| No. of workers resigned | 35 |
| No. of workers discharged | 10 |
| No. of replaced workers | 40 |
- Find out Labour Turnover Rate under Flux Method.
- (iii) About 50 items are required every day for a machine. A fixed cost of ₹ 50 per order is incurred for placing an order. The inventory carrying cost per item amounts to ₹ 0.02 per day. The lead period is 32 days. Compute:
- (a) Economic Order Quantity
 - (b) Re-order level
- (iv) How will you treat the research and development costs in connection with Job undertaken on behalf of a customer; and
- (v) What is spoilage? Give its treatment in Cost Accounting.

(vi) Define Differential Cost and Incremental Cost..

2. (a) Aviation Ltd. manufactures a range of products and the data below refer to one product which goes through one process only. The company operates a thirteen four-weekly reporting system for process and product costs and the data given below relate to period 2011.

There was no opening work-in-progress stock.

50,000 units of materials input at ₹ 2.94 per unit entered the process.

Further direct materials added	1,38,300
Direct wages incurred	65,550
Production overhead	74,700

Normal loss is 3% of input.

Closing work-in-progress was 8,000 units but these were incomplete, having reached the following percentages of completion for each of the elements of cost listed.

	%
Direct materials added	75
Direct wages	50
Production overhead	25

2700 units were scrapped after a quality control check when the units were at the following degrees of completion.

	%
Direct materials added	66.67% or $66\frac{2}{3}\%$
Direct wages	33.1% or 33.33%
Production overhead	16% or 16.67%

Units scrapped, regardless of the degree of completion, are sold for ₹ 1 each and it is company policy to credit the process account with the scrap value of normal loss units.

You are required to prepare the Period 2011 accounts for the: (i) process account; and (ii) abnormal gain or loss.

- (b) Outlook Ltd. produces and sells a single product. Sales budget for calendar year 2011 by quarters is as under:

Quarter	I	II	III	IV
No of units to be sold	12,000	15,000	16,500	18,000

The year is expected to open with an inventory of 4,000 units of finished products and close with an inventory of 6,500 units.

Production is customarily scheduled to provide for two-thirds of the current quarter's sales demand plus one-third of the following quarter's demand. Thus production anticipates sales volume by about one month.

The standard cost details for one unit of the product is as follows:

Direct materials 10 kgs @ 50 paise per kg.

Direct labour 1 hour 30 minutes @ ₹ 4 per hour

Variable overhead @ ₹ 1 per hour

Fixed overheads 1 hour 30 minutes @ ₹ 2 per hour based on budgeted production volume of 90,000 direct labour hours for the year.

- (i) Prepare a Production budget for 2011, by quarters, showing the number of units to be produced and the total costs of direct material, direct labour, variable overhead and fixed overheads.
- (ii) If the budgeted selling price per unit is ₹ 17, what would be the budgeted profit for the year as a whole?
- (iii) In which quarter of the year, is the company expected to break-even.

(9 + 6 = 15 Marks)

3. (a) The following standards have been set to manufacture a product:

Direct materials:	₹
2 units of P at ₹ 4 per unit	8.00
3 units of Q at ₹ 3 per unit	9.00
15 units of R at ₹ 1 per unit	<u>15.00</u>
	32.00
Direct labour 3 hours @ ₹ 8 per hour	<u>24.00</u>
Total standard prime cost	<u>56.00</u>

The company manufactured and sold 6,000 units of the product during the year.

Direct material costs were as follows:

12,500 units of P at ₹ 4.40 per unit

18,000 units of Q at ₹ 2.80 per unit

88,500 units of R at ₹ 1.20 per unit

The company worked 17,500 direct labour hours during the year. For 2,500 of these hours the company paid at ₹ 12 per hour while for the remaining the wages were paid at the standard rate.

Calculate material price, usage variances, labour rate, and efficiency variances.

- (b) Soloproducts Ltd. Manufactures and sells a single product and has estimated a sales revenue of ₹ 126 lakhs this year based on a 20% profit on selling price. Each unit of the product requires 3 lbs of material P and 1½ lbs of material Q for manufacture as well as a processing time of 7 hours in the Machine Shop and 2½ hours in the Assembly Section. Overheads are absorbed at a blanket rate of 33-1/3% on Direct Labour. The factory works 5 days of 8 hours a week in a normal 52 weeks a year. On an average statutory holidays, leave and absenteeism and idle time amount to 96 hours, 80 hours and 64 hours respectively, in a year.

The other details are as under

Purchase price	Material P	₹ 6 per lb	
	Material Q	₹ 4 per lb	
Comprehensive Labour rate	Machine shop	₹ 4 per hour	
	Assembly	₹ 3.20 per hour	
No. of Employees	Machine shop	600	
	Assembly	180	
	Finished Goods	Material P	Material Q
Opening stock	20,000 units	54,000 lbs	33,000 lbs
Closing stock (Estimated)	25,000 units	30,000 lbs	66,000 lbs

You are required to calculate:

- The number of units of the product proposed to be sold.
- Purchased to be made of materials P and Q during the year in Rupees.
- Capacity utilization of machine shop and Assembly section, along with your comments. (2 x 8 = 16 Marks)

4. Answer any three of the following:

- Discuss the three methods of calculating labour turnover.
- In Akanksha Ltd raw material passes through four processes A, B,C and D and the output of each process is the input of the subsequent process. The loss in the four processes A,B,Cand D are respectively 25%, 20%, 20% and 16 ⅔ % of the Input. If the end product at the end of process D is 40,000 kgs, what is the quantity of raw materials required along with its cost to be fed at the beginning of Process A when the cost of the same is ₹ 5 per kg.
- What are the characteristics of a good Costing System.
- Differentiate between Job costing and Batch costing. (3 x 3 = 9 Marks)

Test Series: March, 2012

MOCK TEST PAPER – 2
IPCC/PCC: GROUP – II/GROUP – II
PAPER – 3/4: COST ACCOUNTING AND FINANCIAL MANAGEMENT
PART – II : FINANCIAL MANAGEMENT

All questions are compulsory.

Working notes should form part of the answer.

Time Allowed – 1 ½ Hours

Maximum Marks – 50

1. Answer the following:
 - (i) What are the main responsibilities of a Chief Financial Officer of an organisation?
 - (ii) How return on capital employed is calculated? What is its significance?
 - (iii) Explain the concept of Indian depository receipts.
 - (iv) Discuss the features of Secured Premium Notes (SPNs).
 - (v) Explain the concept of Multiple Internal Rate of Return. (5 × 2 = 10 Marks)
2. Balance Sheets of a company as on 31st March, 2010 and 2011 were as follows:

Liabilities	31.3.10	31.3.11	Assets	31.3.10	31.3.11
	₹	₹		₹	₹
Equity Share Capital	10,00,000	10,00,000	Goodwill	1,00,000	80,000
8% P.S. Capital	2,00,000	3,00,000	Land and		
General Reserve	1,20,000	1,45,000	Building	7,00,000	6,50,000
Securities Premium	-	25,000	Plant and		
Profit and Loss A/c	2,10,000	3,00,000	Machinery	6,00,000	6,60,000
11% Debentures	5,00,000	3,00,000	Investments		
Creditors	1,85,000	2,15,000	(non-trading)	2,40,000	2,20,000
Provision for tax	80,000	1,05,000	Stock	4,00,000	3,85,000
Proposed Dividend	1,36,000	1,44,000	Debtors	2,88,000	4,15,000
			Cash and Bank	88,000	93,000
			Prepaid	15,000	11,000
			Expenses		
			Premium on	-	20,000
			Redemption of		
			Debentures		
	<u>24,31,000</u>	<u>25,34,000</u>		<u>24,31,000</u>	<u>25,34,000</u>

Additional Information:

1. Investments were sold during the year at a profit of ₹ 15,000.
2. During the year an old machine costing ₹ 80,000 was sold for ₹ 36,000. Its written down value was ₹ 45,000.
3. Depreciation charged on Plants and Machinery @ 20 per cent on the opening balance.
4. There was no purchase or sale of Land and Building.
5. Provision for tax made during the year was ₹ 96,000.
6. Preference shares were issued for consideration of cash during the year.
7. Debentures are redeemed at the beginning of the year.

You are required to prepare:

- (i) Cash flow statement as per AS-3.
 - (ii) Schedule of Changes in Working Capital. (8 + 8 = 16 Marks)
3. (a) Sankya Limited wishes to raise additional finance of ₹ 20 lakhs for meeting its investment plans. The company has ₹ 4,00,000 in the form of retained earnings available for investment purposes. The following are the further details:
- .. Debt equity ratio 25 : 75.
 - .. Cost of debt at the rate of 10 percent (before tax) upto ₹ 2,00,000 and 13% (before tax) beyond that.
 - .. Earning per share, ₹ 12.
 - .. Dividend payout 50% of earnings.
 - .. Expected growth rate in dividend 10%.
 - .. Current market price per share, ₹ 60.
 - .. 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.
- (b) Gamma Limited is commencing a new project for manufacture of electric toys. The following cost information has been ascertained for annual production of 60,000 units at full capacity:

		Amount per unit
		₹
Raw materials		20
Direct labour		15
Manufacturing overheads:	₹	
Variable	15	
Fixed	<u>10</u>	25
Selling and Distribution overheads:	₹	
Variable	3	
Fixed	<u>1</u>	<u>4</u>
Total cost		64
Profit		<u>16</u>
Selling price		<u>80</u>

In the first year of operations expected production and sales are 40,000 units and 35,000 units respectively. To assess the need of working capital, the following additional information is available:

- (i) Stock of Raw materials.....3 months consumption.
- (ii) Credit allowable for debtors.....1½ months.
- (iii) Credit allowable by creditors.....4 months.
- (iv) Lag in payment of wages.....1 month.
- (v) Lag in payment of overheads.....½ month.
- (vi) Cash in hand and Bank is expected to be ₹ 60,000.
- (vii) Provision for contingencies is required @ 10% of working capital requirement including that provision.

You are required to prepare a projected statement of working capital requirement for the first year of operations. Debtors are taken at cost. (8+7=15 Marks)

4. Answer the following:

- (a) A company offers a Fixed deposit scheme whereby ₹ 10,000 matures to ₹ 12,625 after 2 years, on a half-yearly compounding basis. If the company wishes to amend the scheme by compounding interest every quarter, what will be the revised maturity value?
- (b) Y Ltd. retains ₹ 7,50,000 out of its current earnings. The expected rate of return to the shareholders, if they had invested the funds elsewhere is 10%. The brokerage is

3% and the shareholders come in 30% tax bracket. Calculate the cost of retained earnings.

- (c) A firm has a total sales of ₹ 12,00,000 and its average collection period is 90 days. The past experience indicates that bad debt losses are 1.5% on sales. The expenditure incurred by the firm in administering receivable collection efforts are ₹ 50,000. A factor is prepared to buy the firm's receivables by charging 2% commission. The factor will pay advance on receivables to the firm at an interest rate of 16% p.a. after withholding 10% as reserve. Calculate effective cost of factoring to the firm. Assume 360 days in a year. (3 × 3 = 9 Marks)

MOCK TEST PAPER – 2
IPCC/PCC: GROUP – I/GROUP – II
PAPER – 3/4 : COST ACCOUNTING AND FINANCIAL MANAGEMENT
PART – I : COST ACCOUNTING
SUGGESTED ANSWERS/HINTS

1. (i) (a) B.E.P. = Fixed Cost / Contribution per unit
= 1,50,000 / 15 = 10,000 Units
- (b) Sales to earn a Profit of ₹ 20,000 = $\frac{(\text{Fixed cost} + \text{Desired Profit}) \times \text{Selling Price}}{\text{Contribution per unit}}$
Sales = (1,50,000 + 20,000)/15 x 30
= (1,70,000/15) x 30
= ₹ 3,40,000
- (ii) Calculation of average no. of workers during the period:-
Average no. of workers = (No. of workers in the beginning of the period + No. of workers at the end of the period)/2
= (400 + 500)/2
= 450
Labour Turnover Rate = (No. of workers left during the period + No. of workers replaced during the period) / (Average no. of workers during the period) x 100
= (45 + 40)/450 x 100 = 18.8%
- (iii) EOQ = $\sqrt{2 \times A \times O / C}$
= $\sqrt{[2(50 \times 365)] \times 50 / (0.02 \times 365)}$
= $\sqrt{250000}$
= 500 units
Re-order level = Maximum Consumption x Maximum Delivery Period
= 50 x 32 = 1600 units
- (iv) Cost of R & D project undertaken on behalf of a specific customer should not be treated as manufacturing overhead. It should be regarded as a separate profit centre. All expenses to meet such costs should be debited to "Outside R & D Project Account". Receipts against such requests are to be credited against this account.

- (v) **Spoilage:** It refers to materials which are badly damaged in manufacturing operations and they cannot be rectified economically and hence taken out of the process to be disposed off in some manner without further processing. Spoilage may be normal or abnormal.
- (a) **Normal spoilage:** It arises under efficient operating conditions. It is an inherent result of the particular process and thus uncontrollable in the short run. The normal spoilage costs are included in costs either by charging the loss due to spoilage to the production order or by charging it to production overhead so that it is spread over all the products. Any value realised from spoilage is credited to production order or production overhead account as the case may be.
 - (b) **Abnormal spoilage:** Abnormal spoilage is that which arises due to causes not inherent in the manufacturing process. The cost of abnormal spoilage is charged to costing profit and loss account.
- (vi) **Differential cost:** It may be defined as “the increase or decrease in total cost or the change in specific elements of cost that result from any variation in operations”. It represents an increase or decrease in total cost resulting out of:
- (a) Producing or distributing a few more or few less of the products;
 - (b) A change in the method of production or of distribution;
 - (c) An addition or deletion of a product or a territory; and
 - (d) Selection of an additional sales channel.

Differential cost, thus includes fixed and semi-variable expenses. It is the difference between the total costs of two alternatives. It is an *ad hoc* cost determined for the purpose of choosing between competing alternatives, each with its own combination of income and costs.

Incremental cost: It is defined as, “the additional costs of a change in the level or nature of activity”. As such for all practical purposes there is no difference between incremental cost and differential cost. However, from a conceptual point of view, differential cost refers to both incremental as well as decremental cost. Incremental cost and differential cost calculated from the same data will be the same. In practice, therefore, generally no distinction is made between differential cost and incremental cost. One aspect which is worthy to note is that incremental cost is not the same at all levels. Incremental cost between 50% and 60% level of output may be different from that which is arrived at between 80% and 90% level of output. Differential cost or incremental cost analysis deals with both short-term and long-term problems. This analysis is more useful when various alternatives or various capacity levels are being considered.

2. (a)

Process Account

Particulars	Units	Amount	Particulars	Units	Amount
		₹			₹
To Units introduced	50,000	1,47,000	By Normal loss @ ₹ 1	1,500	1,500
To Direct material		1,38,300	By Abnormal loss*	1,200	6,960
To Direct wages		65,550	By Finished production*	39,300	3,65,490
To Production overhead		74,700	By Closing WIP*	8,000	51,600
	<u>50,000</u>	<u>4,25,550</u>		<u>50,000</u>	<u>4,25,550</u>

Abnormal Loss Account

Particulars	Amount	Particulars	Amount
	₹		₹
To Process A/c	6,960	By Scrap (120 × ₹ 1)	1,200
	<u>6,960</u>	By Profit and Loss A/c	<u>5,760</u>
			<u>6,960</u>

*See working notes.

Working Notes:

This is a peculiar question of normal / abnormal loss involving use of equivalent concept. For valuation of abnormal loss, finished production and WIP, first of all equivalent units for them will have to be found out as under:

Statement showing equivalent units

Particulars	Input Materials			Direct wages		P. overheads	
		%	Units	%	Units	%	Units
Abnormal loss	1,200	66.67	800	33.33	400	16.67	200
Finished units	39,300	100.00	39,300	100.00	39,300	100.00	39,300
Clg. WIP	<u>8,000</u>	75.00	<u>6,000</u>	50.00	<u>4,000</u>	25.00	<u>2,000</u>
Total	<u>48,500</u>		<u>46,100</u>		<u>43,700</u>		<u>41,500</u>

Statement of Cost per Equivalent unit for each element

<i>Particulars</i>		<i>Cost</i>	<i>Equivalent Unit</i>	<i>Cost per unit</i>
		₹	₹	₹
Input material	1,47,000			
Less: Scrap realization	<u>1,500</u>	1,45,500	48,500	3.00
Materials added		1,38,300	46,100	3.00
Direct wages		65,550	43,700	1.50
Production overhead		74,700	41,500	1.80

Statement showing cost of Abnormal Loss, finished production and WIP

<i>Particulars</i>	<i>Equivalent units</i>	<i>Cost per units (₹)</i>	<i>Total cost (₹)</i>
Abnormal Loss			
Input	1,200	3.00	3,600
Material added	800	3.00	2,400
Direct wages	400	1.50	600
Production overheads	<u>200</u>	1.80	<u>360</u>
			<u>6,960</u>
Finished Production			
Input	39,300	3.00	1,17,900
Material added	39,300	3.00	1,17,900
Direct wages	39,300	1.50	58,950
Production overheads	<u>39,300</u>	1.80	<u>70,740</u>
			<u>3,65,490</u>
Closing WIP			
Input	8,000	3.00	24,000
Material added	6,000	3.00	18,000
Direct wages	4,000	1.50	6,000
Production overheads	<u>2,000</u>	1.80	<u>3,600</u>
			<u>51,600</u>

(b) (i)

Production budget
(For the year 2011 by quarters)

(a) Units to be produced in each quarters

Quarters

	I	II	III	IV	Total
2/3 of current quarter's sales demand	8,000	10,000	11,000	12,000	41,000
1/3 of the following quarter demand*	<u>5,000</u>	<u>5,500</u>	<u>6,000</u>	<u>6,500</u>	<u>23,000</u>
	<u>13,000</u>	<u>15,500</u>	<u>17,000</u>	<u>18,500</u>	<u>64,000</u>

(b) Statement showing direct material, variable overhead and fixed overhead

Quarters

	I	II	III	IV	Total
Units to be produced	13,000	15,500	17,000	18,500	64,000
Direct Material @ ₹ 5 Per unit (Refer to Note 1)	₹ 65,000	₹ 77,500	₹ 85,000	₹ 92,500	₹ 3,20,000
Direct Labour @ ₹ 6 per Unit (Refer to Note 2)	78,000	93,000	1,02,000	1,11,000	3,84,000
Variable overhead ₹ 1.5 per unit (Refer to Note 3)	19,500	23,250	25,500	27,750	96,000
Fixed Overhead (Refer to Note 4)	<u>45,000</u>	<u>45,000</u>	<u>45,000</u>	<u>45,000</u>	<u>1,80,000</u>
	<u>2,07,500</u>	<u>2,38,750</u>	<u>2,57,500</u>	<u>2,76,250</u>	<u>9,80,000</u>

(ii) Budgeted profit for the whole year

	₹
Sales (61,500** units @ ₹ 17 per unit)	10,45,500
Less: Total variable cost per unit (61,500** unit @ ₹ 12.50 per unit)	<u>7,68,750</u>
Contribution	2,76,750
Less: Fixed cost	<u>1,80,000</u>
Profit for the whole year	<u>96,750</u>

Variable cost per unit:	₹
Direct material cost (Refer to Note 1)	5.00
Direct labour cost (Refer to Note 2)	6.00
Variable cost (Refer to Note 3)	<u>1.50</u>
	<u>12.50</u>

(iii) BES x P/V ratio = Fixed cost

Or BES x (₹ 17-12.50)/17 = ₹ 1,80,000

or Break-even sales (volume) = 6,80,000.

BE Sales in units = ₹ 6,80,000 / 17 or 40,000 units.

The total sales by the end of third quarter will be 43,500 units, i.e., 12,000 + 15,000 + 16,500, therefore, the company will break-even in the later part of the third quarter.

Working Notes:

1. Direct material cost = 10 lbs @ ₹ 0.50 per lb = ₹ 5.00 per unit.
2. Direct labour per unit = 1 hr. 30 minutes @ ₹ 4 per hour = ₹ 6 per unit.
3. Variable overhead per unit = 1 hr. 30 minutes @ ₹ 1 per hour = ₹ 1.50 unit
4. Fixed Overhead

Budgeted production volume is 90,000 direct labour hours for the year @ ₹ 2 per hour i.e. ₹ 1,80,000 for the year. This fixed overhead is spread over the four quarters equally.

* In first three quarters; inventory given for the fourth.

** Sales for the year is given i.e. 12,000+ 15,000+16,500+18,000=61,500 unit.

3. (a) Standard Quantity of Materials for Actual Output:

P	6,000 ´ 2	12,000 units
Q	6,000 ´ 3	18,000 units
R	6,000 ´ 15	90,000 units

Standard hours for Actual Output:

6,000 ´ 3	18,000 units
-----------	--------------

Material price Variance:

(Standard Price - Actual Price) ´ Actual Quantity	₹
P (₹ 4.00 - ₹ 4.40) ´ 12,500	5,000 A
Q (₹ 3.00 - ₹ 2.80) ´ 18,000	3,600 F

R	(₹ 1.00 - ₹ 1.20) ´ 88,500	<u>17,700 A</u>
		<u>19,100 A</u>

Material Usage Variance:

(Standard Usage - Actual Usage) ´ Standard Price

P	(12,000 - 12,500) ´ ₹ 4.00	2,000 A
Q	(18,000 - 18,000) ´ ₹ 3.00	Nil
R	(90,000 - 88,500) ´ ₹ 1.00	<u>1,500 F</u>
		<u>500 A</u>

Labour Rate Variance:

(Standard Rate - Actual Rate) ´ Actual hours

(₹ 8.00 - ₹ 12.00) ´ 2,500	10,000 A
(₹ 8.00 - ₹ 8.00) ´ 15,000	<u>Nil</u>
	<u>10,000 A</u>

Labour Efficiency Variance:

(Standard hours - Actual hours) ´ Standard Rate

(18,000 - 17,500) ´ ₹ 8.00	<u>4,000 F</u>
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(b) Working Notes:

1. Statement of selling price per unit of the product

Material cost	₹
P: 3 lbs x ₹6 =	₹ 18
Q: 1.5 lbs x ₹4 =	<u>₹ 6</u> 24
Labour cost	
Machine shop 7 hrs x ₹ 4 =	₹ 28
Assembly shop 2.5 hrs x ₹3.20 =	<u>₹ 8</u> 36
Overheads	
33-1/3% of Direct Labour Cost	<u>12</u>
Cost (per unit)	72
Add: Profit 20% of selling price or 25% on cost	<u>18</u>
Selling price (per unit)	<u>90</u>

2. The comprehensive labour rate has been assumed as direct labour.

(a) The number of units of the product proposed to be sold

Selling price (per unit) ₹ 90

Total sales revenue ₹ 1,26,00,000

Number of units of the product proposed to be sold 1,40,000 Units

₹ 1,26,00,000

₹ 90

(b) Statement of material P and Q to be purchased during the year in Rupees

Materials	Material Consumption (lbs)	Closing balance of material (lbs)	Opening balance of material (lbs)	Material to be purchased (lbs)	Purchase price ₹	Amount ₹
(1)	(2)	(3)	(4)	(2)+(3)-(4)=(5)	(6)	(5)x(6)=(7)
P	*1,45,0000 x 3 = 4,35,000	30,000	54,000	4,11,000	6	24,66,000
Q	1,45,000x1.5 = 2,17,500	66,000	33,000	2,50,500	4	10,02,000
Total						34,68,000

Working Note:

Number of units of finished goods to be manufactured during the year

= Sales (units) during the year + Closing balance – Opening stock

= 1,40,000 units +25,000 units – 20,000 units

= 1,45,000 units

(c) Capacity Utilisation Statement of Machine shop and Assembly Section

	Machine shop	Assembly Section
Hours available during the year (See working note)	600 persons x 1,840 hrs. =11,04,000	180 Persons x 1,840 hrs. = 3,31,200
Hours required to manufacture 1,45,000 units	1,45,000 x 7 hrs. =10,15,000	1,45,000 x 2.5 hrs. =3,62,500
Surplus/(Deficit) hours	89,000	(31,300)
Capacity utilisation	91.94%	109.45%

Working note:

Hours available during the year: 2080 hrs.
5 days x 8 hrs x 52 weeks
Less: Statutory holidays, leave and 240 hrs.
absenteeism & idle time
(96 hrs. + 80 hrs. + 64 hrs.) 1,840 hrs.

Comments: From the statement of hours required to manufacture 1,45,000 units of the product, it is apparent that the total hours required in machine shop and assembly section would be 10,15,000 and 3,62,500 respectively. Whereas the available hours in machine shop and assembly section are 11,04,000 and 3,31,200 respectively. In this way there are 89,000 surplus hours in the machine shop and also a deficit of 31,300 hours in the assembly section. To resolve the problem of deficit in assembly section, following suggestions are made:

1. If the workers can be interchangeable then the assembly section utilize the services of workers which may be transferred from the machine shop to meet the production target of 1,45,000 units.
2. If the workers are not interchangeable then the assembly section may either resort to overtime or increase the strength of workers to catch up the budgeted production. Under both the ways i.e resorting to overtime or increasing the strength in assembly section, the profit of the concern will be reduced.

4 (i) Methods of calculating labour turnover

$$(1) \text{ Replacement method} = \frac{\text{Number of employees replaced}}{\text{Average number of employees on roll}} \times 100$$

$$(2) \text{ Separation method} = \frac{\text{Number of employees separated during the year}}{\text{Average number of employees on roll during the year}} \times 100$$

$$(3) \text{ Flux method} = \frac{\text{Number of employees separated} + \text{Number of employees replaced}}{\text{Average number of employees on roll during the year}} \times 100$$

Workers joining a business concern on account of its expansion do not account for labour turnover.

(ii) Output in a process is input minus loss in process. Suppose input in process A = 100 Kg.

$$\text{Output in Process A} = 100 - 25\% = 75 \text{ Kg}$$

$$\text{Output in Process B} = 75 \text{ kg} - 20\% = 60 \text{ Kg}$$

$$\text{Output in Process C} = 60 \text{ kg} - 20\% = 48 \text{ Kg}$$

Output in Process D = $48 \text{ kg} - 16\frac{2}{3} \% = 40 \text{ Kg}$

When Output in Process D is 40,000 kg, then input in Process A will be

$$= 40,000 \text{ kg.} \times \frac{100}{40} = 1,00,000 \text{ kg.}$$

Thus cost of materials introduced in Process I = 1,00,000 kg. @ ₹ 5 = ₹ 5,00,000.

(iii) Essentials of a good Cost Accounting System: The essential features, which a good Cost Accounting System should possess, are as follows:

- (i) Cost Accounting System should be tailor-made, practical, simple and capable of meeting the requirements of a business concern.
- (ii) The data to be used by the Cost Accounting System should be accurate; otherwise it may distort the output of the system.
- (iii) Necessary cooperation and participation of executives from various departments of the concern is essential for developing a good system of Cost Accounting.
- (iv) The Cost of installing and operating the system should justify the results.
- (v) The system of costing should not sacrifice the utility by introducing meticulous and unnecessary details.
- (vi) A carefully phased programme should be prepared by using network analysis for the introduction of the system.
- (vii) Management should have a faith in the Costing System and should also provide a helping hand for its development and success.

(iv) Job Costing and batch costing

According to job costing, costs are collected and accumulated according to jobs. Each job or unit of production is treated as a separate entity for the purpose of costing. Job costing may be employed when jobs are executed for different customers according to their specifications. Job costing is suited to industries engaged in printing, laundry, repair shops, locomotives etc.

Batch costing is a form of job costing, a lot of similar units which comprises the batch may be used as a cost unit for ascertaining job. Such a method of costing is used in case of pharmaceutical industry readymade garments, industries manufacturing parts of TV, radio sets etc.

MOCK TEST PAPER – 2
IPCC/PCC: GROUP – I/GROUP-II
PAPER – 3/4 : COST ACCOUNTING AND FINANCIAL MANAGEMENT
PART – II : FINANCIAL MANAGEMENT

SUGGESTED ANSWERS/HINTS

1. (i) Responsibilities of Chief Financial Officer (CFO)

The chief financial officer of an organisation plays an important role in the company's goals, policies, and financial success. His main responsibilities include:

- (a) Financial analysis and planning: Determining the proper amount of funds to be employed in the firm.
- (b) Investment decisions: Efficient allocation of funds to specific assets.
- (c) Financial and capital structure decisions: Raising of funds on favourable terms as possible, i.e., determining the composition of liabilities.
- (d) Management of financial resources (such as working capital).
- (e) Risk Management: Protecting assets.

(ii) Return on Capital Employed (ROCE)

It is the most important ratio of all. It is the percentage of return on funds invested in the business by its owners. In short, it indicates what returns management has made on the resources made available to them before making any distribution of those returns.

$$\text{Return on Capital Employed} = \frac{\text{Return}}{\text{Capital Employed}} \times 100$$

(iii) Concept of Indian Depository Receipts

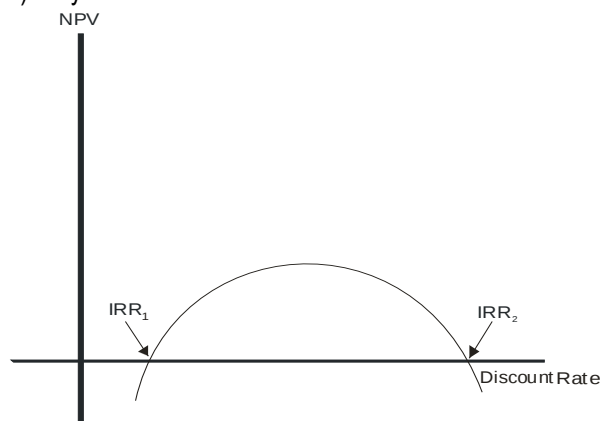
The concept of the depository receipt mechanism which is used to raise funds in foreign currency has been applied in the Indian capital market through the issue of Indian Depository Receipts (IDRs). Foreign companies can issue IDRs to raise funds from Indian market on the same lines as an Indian company uses ADRs/GDRs to raise foreign capital. The IDRs are listed and traded in India in the same way as other Indian securities are traded.

(iv) Secured Premium Notes (SPNs)

They are issued along with detachable warrants and are redeemable after a notified period of say 4 to 7 years. This is a kind of NCD attached with warrant. It was first introduced by TISCO, which issued the SPNs to existing shareholders on right basis. Subsequently the SPNs will be repaid in some number of equal instalments. The warrant attached to SPNs gives the holder the right to apply for and get allotment of equity shares as per the conditions within the time period notified by the company.

(v) Multiple Internal Rate of Return (MIRR)

In cases where project cash flows change signs or reverse during the life of a project for example, an initial cash outflow is followed by cash inflows and subsequently followed by a major cash outflow, there may be more than one internal rate of return (IRR). The following graph of discount rate versus net present value (NPV) may be used as an illustration:



In such situations if the cost of capital is less than the two IRRs, a decision can be made easily, however, otherwise the IRR decision rule may turn out to be misleading as the project should only be invested if the cost of capital is between IRR_1 and IRR_2 . To understand the concept of multiple IRRs it is necessary to understand the implicit re-investment assumption in both NPV and IRR techniques.

2. Cash Flow Statement for the year ending 31st March, 2011

		₹	₹
A.	Cash flow from Operating Activities		
	Profit and Loss A/c as on 31.3.2011		3,00,000
	Less: Profit and Loss A/c as on 31.3.2010		<u>2,10,000</u>
			90,000
	Add: Transfer to General Reserve	25,000	
	Provision for Tax	96,000	
	Proposed Dividend	<u>1,44,000</u>	<u>2,65,000</u>
	Profit before Tax		3,55,000
	Adjustment for Depreciation:		
	Land and Building	50,000	
	Plant and Machinery	<u>1,20,000</u>	1,70,000
	Profit on Sale of Investments		(15,000)

	Loss on Sale of Plant and Machinery	9,000
	Goodwill written off	20,000
	Interest Expenses	<u>33,000</u>
	Operating Profit before Working Capital Changes	5,72,000
	Adjustment for Working Capital Changes:	
	Decrease in Prepaid Expenses	4,000
	Decrease in Stock	15,000
	Increase in Debtors	(1,27,000)
	Increase in Creditors	<u>30,000</u>
	Cash generated from Operations	4,94,000
	Income tax paid	<u>(71,000)</u>
	Net Cash Inflow from Operating Activities (a)	<u>4,23,000</u>
B.	Cash flow from Investing Activities	
	Sale of Investment	35,000
	Sale of Plant and Machinery	36,000
	Purchase of Plant and Machinery	<u>(2,25,000)</u>
	Net Cash Outflow from Investing Activities (b)	<u>(1,54,000)</u>
C.	Cash Flow from Financing Activities	
	Issue of Preference Shares	1,00,000
	Premium received on Issue of Securities	25,000
	Redemption of Debentures at premium	(2,20,000)
	Dividend paid	(1,36,000)
	Interest paid to Debenture holders	<u>(33,000)</u>
	Net Cash Outflow from Financing Activities (c)	<u>(2,64,000)</u>
	Net increase in Cash and Cash Equivalents during the year (a + b + c)	5,000
	Cash and Cash Equivalents at the beginning of the year	<u>88,000</u>
	Cash and Cash Equivalents at the end of the year	<u>93,000</u>

Working Notes:**1. Provision for the Tax Account**

		₹			₹
To	Bank (paid)	71,000	By	Balance b/d	80,000
To	Balance c/d	<u>1,05,000</u>	By	Profit and Loss a/c	<u>96,000</u>
		<u>1,76,000</u>			<u>1,76,000</u>

2. Investment Account

		₹			₹
To	Balance b/d	2,40,000	By	Bank a/c (b/f)	35,000
To	Profit and Loss (profit on sale)	<u>15,000</u>	By	Balance c/d	<u>2,20,000</u>
		<u>2,55,000</u>			<u>2,55,000</u>

3. Plant and Machinery Account

		₹			₹
To	Balance b/d	6,00,000	By	Bank (sale)	36,000
To	Bank a/c (Purchase b/f)	2,25,000	By	Profit and Loss a/c (Loss on sale)	9,000
			By	Depreciation	1,20,000
			By	Balance c/d	<u>6,60,000</u>
		<u>8,25,000</u>			<u>8,25,000</u>

(ii) Schedule of Changes in Working Capital

Particulars	31 st March		Change in Working Capital	
	2010 ₹	2011 ₹	Increase ₹	Decrease ₹
Current Assets				
Stock	4,00,000	3,85,000	-	15,000
Debtors	2,88,000	4,15,000	1,27,000	-
Prepaid Expenses	15,000	11,000	-	4,000
Cash and Bank	<u>88,000</u>	<u>93,000</u>	5,000	-
Total (A)	<u>7,91,000</u>	<u>9,04,000</u>		
Current Liabilities				
Creditors	<u>1,85,000</u>	<u>2,15,000</u>	-	30,000
Total (B)	<u>1,85,000</u>	<u>2,15,000</u>		
Working Capital (A – B)	6,06,000	6,89,000		
Increase in Working Capital	<u>83,000</u>	<u>—</u>	<u>—</u>	<u>83,000</u>
	<u>6,89,000</u>	<u>6,89,000</u>	<u>1,32,000</u>	<u>1,32,000</u>

3 (a)

Pattern of raising capital =	0.25 × 20,00,000
Debt =	5,00,000
Equity =	15,00,000
Equity fund (₹ 15,00,000)	
Retained earning =	₹ 4,00,000
Equity (additional) =	<u>₹ 11,00,000</u>
Total =	<u>₹ 15,00,000</u>
Debt fund (₹ 5,00,000)	
10% debt =	₹ 2,00,000
13% debt =	<u>₹ 3,00,000</u>
Total =	<u>₹ 5,00,000</u>

(i) $K_d = \text{Total Interest} (1 - t) / ₹ 5,00,000$
 $= [20,000 + 39,000] (1 - 0.3) / 5,00,000 \text{ or } (41,300 / 5,00,000) \times 100 = 8.26\%$

(ii) $K_e = \text{EPS} \times \text{payout} / \text{mp} + g = 12 (50\%) / 60 \times 100 + 10\%$
 $= 10\% + 10\% = 20\%$

$K_r = K_e (1 - t_p) = 20(1 - 0.2) = 16\%$

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

	Amount	After tax	Cost
Equity Capital	11,00,000	20.00%	2,20,000
Retained earning	4,00,000	16.00%	64,000
Debt	<u>5,00,000</u>	8.26%	<u>41,300</u>
Total	<u>20,00,000</u>		<u>3,25,300</u>

$K_o = (3,25,300 / 20,00,000) \times 100 = 16$

(b) **Statement Showing Cost and Sales for the First Year**

Annual Production Capacity	60,000 units
Production	40,000 units
Sales	35,000 units

Particulars	₹
Sales Revenue (₹ 80 × 35,000)	28,00,000
Cost of Production:	

Materials @ ₹ 20 per unit	8,00,000
Direct Labour @ ₹ 15 per unit	6,00,000
Manufacturing Overheads	
Variable @ ₹ 15 per unit	6,00,000
Fixed (based on production capacity 60,000 units ´ ₹ 10)	<u>6,00,000</u>
Cost of Production	26,00,000
Less: Closing Stock (40,000 – 35,000 = 5,000 units)	
$\text{₹ } \frac{26,00,000}{40,000} \times 5,000$	<u>3,25,000</u>
Cost of Goods Sold	22,75,000
Add: Selling & Distribution Overheads	
Variable @ ₹ 3 ´ 35,000 units = 1,05,000	
Fixed (₹ 1 ´ 60,000 units) = 60,000	<u>1,65,000</u>
Cost of Sales	<u>24,40,000</u>
Profit	<u>3,60,000</u>

Statement Showing Working Capital Requirement

		₹
A.	Current Assets	
	Stock of Raw Materials (₹ 8,00,000 ´ 3/12)	2,00,000
	Stock of Finished Goods	3,25,000
	Debtors at Cost (₹ 24,40,000 ´ 3/24)	3,05,000
	Cash and Bank	<u>60,000</u>
	Total (A)	<u>8,90,000</u>
B.	Current Liabilities	
	Creditors for Materials (₹ 10,00,000 ´ 4/12)	3,33,333
	Creditors for Expenses (₹ 13,65,000 ´ 1/24)	56,875
	Outstanding Wages (₹ 6,00,000 ´ 1/12)	<u>50,000</u>
	Total (B)	<u>4,40,208</u>
	Working Capital Requirement before Contingencies (A – B)	4,49,792
	Add: Provision for Contingencies (₹ 4,49,792 ´ 1/9)	<u>49,977</u>
	Estimated Working Capital Requirement	<u>4,99,769</u>

Workings Notes:

Purchase of Raw Material during the first year	₹
Raw Material consumed during the year	8,00,000
Add: Closing Stock of Raw Materials (3 months consumption)	<u>2,00,000</u>
	10,00,000
Less: Opening Stock of Raw Material	<u>Nil</u>
Purchases during the year	<u>10,00,000</u>

4 (a) Computation of Rate of Interest and Revised Maturity Value

Principal = ₹ 10,000

Amount = ₹ 12,625

$$10,000 = \frac{12,625}{(1+i)^4}$$

$$P_n = A \times (PVF_{n,i})$$

$$10,000 = 12,625 (PVF_{4,i})$$

$$0.7921 = (PVF_{4,i})$$

According to the Table on Present Value Factor ($PVF_{4,i}$) of a lump sum of ₹ 1, a PVF of 0.7921 for half year at interest (i) = 6 percent. Therefore, the annual interest rate is $2 \times 0.06 = 12$ percent.

i = 6% for half year

i = 12% for full year.

Therefore, Rate of Interest = 12% per annum

$$\text{Revised Maturity Value} = 10,000 \left(1 + \frac{12}{100} \right)^{\frac{10}{4}}$$

$$= 10,000 \left(1 + \frac{3}{100} \right)^8$$

$$= 10,000 (1.03)^8$$

$$= 10,000 \times 1.267 \text{ [Considering } (CVF_{8,3}) = 1.267]$$

Revised Maturity Value = 12,670.

(b) Computation of Cost of Retained Earnings (K_r)

$$K_r = k (1-T_p) (1-B)$$

$$K_r = 0.10 (1-0.30) (1-0.03)$$

$$= 0.10 (0.70) \times (0.97)$$

= 0.0679 or 6.79%

Cost of Retained Earnings = 6.79%

(c) Computation of Effective Cost of Factoring

Average level of Receivables	= 12,00,000 × 90/360	3,00,000
Factoring Commission	= 3,00,000 × 2/100	6,000
Factoring Reserve	= 3,00,000 × 10/100	30,000
Amount Available for Advance	= ₹ 3,00,000 - (6,000 + 30,000)	2,64,000
Factor will deduct his interest @ 16% :-		
Interest	= $\frac{\text{₹ } 2,64,000 \times 16 \times 90}{360 \times 100}$	= ₹ 10,560

Advance to be paid = ₹ 2,64,000 – ₹ 10,560 = ₹ 2,53,440

Annual Cost of Factoring to the Firm:	₹
Factoring Commission (₹ 6,000 × 360/90)	24,000
Interest Charges (₹ 10,560 × 360/90)	<u>42,240</u>
Total	<u>66,240</u>
Firm's Savings on taking Factoring Service:	₹
Cost of Administration Saved	50,000
Cost of Bad Debts (₹ 12,00,000 × 1.5/100) avoided	<u>18,000</u>
Total	<u>68,000</u>
Net Benefit to the Firm (₹ 68,000 – ₹ 66,240)	<u>1,760</u>
Effective Cost of Factoring = $\frac{\text{₹ } 66,240 \times 100}{2,53,440}$	26.136%

Effective Cost of Factoring = 26.136%