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PAPER – 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

PART – I : COST ACCOUNTING

QUESTIONS

1. (i) The following data are available in respect of material X for the year ended 31st March, 2008:

Opening Stock	Rs. 90,000
Purchases during the year	Rs. 2,70,000
Closing stock	Rs. 1,10,000

Calculate:

a. Inventory turnover ratio

b. The number of days for which the average inventory held.

(ii) Aries Co. has recorded the following data in the two most recent periods:

Total cost of production Rs.	Volume of Production (Units)
14,600	800
19,400	1200

What is the best estimate of the firm's fixed costs per period?

(iii) X Ltd. has earned a contribution of Rs.2,00,000 and net profit of Rs.1,50,000 of sales of Rs.8,00,000. What is its margin of safety?

(iv) The cost accountant of Y Ltd. has computed labour turnover rates for the quarter ended 31st March, 2002 as 10%, 5% and 3% respectively under 'Flux method'. 'Replacement method' and 'Separation method'.

If the number of workers replaced during that quarter is 30, find out the number of (i) workers recruited and joined, and (ii) workers left and discharged.

(v) The standard and actual figures of product 'Z' are as under:

	Standard	Actual
Material quantity	50 units	45 units
Material price per unit	Re. 1.00	Re. 0.80

Calculate material price variance.

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Basic Concepts

2. (a) Given below is a list of ten industries. Give the method of costing and the unit of cost against each industry.
   - (i) Nursing Home
   - (ii) Road Transport
   - (iii) Steel
   - (iv) Coal
   - (v) Bicycles
   - (vi) Bridge Construction
   - (vii) Interior Decoration
   - (viii) Advertising
   - (ix) Furniture
   - (x) Sugar company having its own sugarcane fields.

   (b) Name the various reports (Elaboration not needed) that may be provided by the Cost Accounting Department of a big manufacturing company for the use of its executives.

Material

3. (a) What is Just in Time (JIT) purchases? What are the advantages of such purchases?

   (b) The Stock Control Policy of a company is that, each stock is ordered twice a year. The quantum of each order being one-half of the year's forecast demand

   The materials manager, however, wishes to introduce a policy in which for each item of stock, reorder levels and EOQ is calculated

   For one of the items X; the following information is available:

Forecast annual demand	3,600 units
Cost / unit	Rs. 100
Cost of placing an order	Rs.40
Stock holding cost	20% of average stock value
Lead time	1 month

   It is estimated by the materials manager that for item X, a buffer stock of additional 100 Units should be provided to cover fluctuations in demand.

   If the new policy is adopted, calculate for stock item X:

   (i) the reorder level that should be set by the material manager;

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(ii) the anticipated reduction in the value of the average stock investment;

(iii) the anticipated reduction in total inventory costs in the first and subsequent years.

Labour

4. Both direct and indirect labor of a department in a factory are entitled to production bonus in accordance with a Group Incentive Scheme, the outlines of which are as follows:

   (a) For any production in excess of the standard rate fixed at 10,000 tons per month (of 25 days) a general incentive of Rs.10 per ton is paid in aggregate. The total amount payable to each separate group is determined on the basis of an assumed percentage of such excess production being contributed by it, namely @ 70% by direct labor,@ 10% by inspection staff, @ 12% by maintenance staff and @ 8% by supervisory staff.

   (b) Moreover, if the excess production is more than 20% above the standard, direct labor also get a special bonus @ Rs.5 per ton for all production in excess of 120% of standard.

   (c) Inspection staff are penalized @ Rs.20 per ton for rejection by customer in excess of 10% of production.

   (d) Maintenance staff are also penalized @ Rs.20 per hour of breakdown.

   From the following particulars for a month, work out the production bonus earned by each group:

   (a) Actual working days: 20

   (b) Production: 11,000 tons

   (c) Rejection by customer: 200 tons

   (d) Machine breakdown: 40 hours

Overheads

5. (a) Discuss briefly the Step method and Reciprocal Service method of secondary distribution of overheads.

   (b) In a factory, overheads of a particular department are recovered on the basis of Rs. 5 per machine hour. The total expenses incurred and the actual machine hours for the department for month of August were Rs. 80,000 and 10,000 hours respectively. Of the amount of Rs. 80,000, Rs. 15,000 became payable due to an award of the Labour Court and Rs. 5,000 was in respect of expenses of the previous year booked in the current month (August). Actual production was 40,000 units, of which 30,000 units were sold. On analysing the reason, it was found that, 60% of the under-absorbed overhead was due to defective planning and the rest was attributed to normal cost increase. How would you treat the under-absorbed overhead in the cost accounts?

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Non – Integrated Accounts

6. (a) "The profits of cost accounts may be different from those projected by financial accounts and in such cases a memorandum reconciliation statement is needed" In the context of this statement, discuss the possible reasons of differences between the two sets of accounts and the need of reconciliation.

(b) The following figures are extracted from the Financial Accounts of Anishka Ltd. For the year ended 30-04-2009:

	Rs.	Rs.
Sales (20,000 units)		50,00,000
Materials		20,00,000
Wages		10,00,000
Factory Overheads		9,00,000
Administrative Overheads		5,20,000
Selling and Distribution Overheads		3,60,000
Finished Goods (1,230 units)		3,00,000
Work-in-progress:		
Materials	60,000	
Labour	40,000	
Factory Overheads	40,000	
		1,40,000
Goodwill Written off		4,00,000
Interest paid on capital		40,000

In the costing records, Factory Overhead is charged at 100% of Wages, Administration Overhead 10% of factory cost and Selling and Distribution Overhead at the rate of Rs. 20 per unit sold.

Prepare a statement reconciling the profit as per Cost Records with the profit as per Financial Records.

Contract Costing

7. Nilcom Construction Company commenced a contract on 1.7.08. The contract price is Rs. 9,00,000. Actual expenditure till 31.1.08 and estimated expenditure in 2009 are given below:

	Actual Till 31.12.08	Estimated for 2009
	Rs.	Rs.
Purchase of materials	1,50,000	2,60,000

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Labour	1,10,000	1,20,000
Purchase of plant (original cost)	80,000	------
Miscellaneous expenses	40,000	71,000
Return of plant to stores on 31.12.08 (original cost)	20,000	50,000
	as at 31.12.08	as at 30.9.09
Materials at site	10,000	Nit
Work certified	4,00,000	Full
Work uncertified	15,000	Nil
Cash received	3,60,000	Full

Depreciation is charged on plant @ 20% p.a. on original cost (calculation to be made on time basis). The contract is likely to be completed by 30.9.09.

You are required to prepare the contract account for the year ended 31.12.09. It has been decided to estimate the total profit on the contract and to take to the credit of profit and loss account that proportion of estimated profit on realized basis which the work actually certified bears to the total contract.

Operating Costing

8. KINGFISHER Airways owns a single jet aircraft and operates between Bombay and New Delhi. Flights leave Bombay on Mondays and Thursdays and depart from New Delhi on Wednesdays and Saturdays. KINGFISHER Airways cannot afford any more flights between Bombay and New Delhi. Only tourist class seats are available on its flights. An analyst has collected the following information:

Seating capacity per plane	360
Average Passengers per flight	100
Flights per week	4
Flights per year	208
Average one-way fare	Rs. 10,000
Variable fuel costs	Rs. 1,40,000 per flight
Food service to passengers (not charged to passengers)	Rs. 400 per passenger
Commission paid to travel agents paid by KINGFISHER Airways on each ticket booked on KINGFISHER Airways (Assume that all KINGFISHER tickets are booked by travel agents)	8% of fare
Fixed annual lease costs allocated to each flight	Rs. 5,30,000 per flight
Fixed ground services (maintenance, check-in baggage handling) costs allocated to each flight	Rs. 70,000 per flight
Fixed salaries of flights crew allocated to each flight	Rs. 40,000 per flight

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For the sake of simplicity, assume that fuel costs are unaffected by the actual number of passengers on a flight.

Required:

(a) What is the operating income that KINGFISHER Airways makes on each one-way flight between Bombay and New Delhi?

(b) The market research department of KINGFISHER Airways indicates that lowering the average one-way fare to Rs. 9,600 will increase the average number of passengers per flight to 106. Should KINGFISHER Airways lower its fare?

(c) Travel India, a tour operator, approaches KINGFISHER Airways to charter its jet aircraft twice each month, first to take Travel India International tourists from Bombay to New Delhi and then bring the tourists back from New Delhi to Bombay. If KINGFISHER Airways accepts the offer, it will be able to offer only 184 (208 minus 24) of its own flights each year. The terms of the charter are:

(i) For each one-way flight Travel India will pay KINGFISHER Rs. 7,50,000 to charter the plane and to use its flight crew and ground service staff.

(ii) Travel India will pay for fuel costs.

(iii) Travel India will pay for all food costs.

On purely financial considerations, should KINGFISHER Airways accept the offer from Travel India Tours and Travel?

Process Costing

9. Prepare a process account from the following information.

Opening stock	Nil
Input units	10,000
Input costs	
Material	Rs. 5,150
Labour	Rs. 2, 700
Normal loss	5% of input
Scrap value of units of loss	Re1 per unit
Output to finished goods	8,000 units
Closing stock	1000 units
Completion of closing stock	50% for labour
	80% for material

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Standard Costing

10. The following standards have been set to manufacture a product:

Direct materials:	Rs.
2 units of P at Rs. 4 per unit	8.00
3 units of Q at Rs. 3 per unit	9.00
15 units of R at Re. 1 per unit	15.00
	32.00
Direct labour 3 hours @ Rs. 8 per hour	24.00
Total standard prime cost	56.00

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 Rs. 4.40 per unit

18,000 units of Q at Rs. 2.80 per unit

88,500 units of R at Rs. 1.20 per unit

The company worked 17,500 direct labour hours during the year. For 2,500 of theses hours the company paid at Rs. 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.

Marginal Costing

11. RXG Ltd. reports the following results for year ended 31st March, 2007.

	(Rs.)
Sales	20,00,000
Variable cost	12,00,000
Fixed cost	5,00,000
Net profit	3,00,000

Construct a Profit-Volume graph and also calculate (i) P / V ratio (ii) Break-even Point (iii) Margin of safety.

Budgetary Control

12. The cost accountant of manufacturing company provides you the following details for year 2008 :

	Rs.		Rs.
Direct materials	1,75,000	Other variable costs	80,000
Direct Wages	1,00,000	Other fixed costs	80,000

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Fixed factory overheads	1,00,000	Profit	1,15,000
Variable factory overheads	1,00,000	Sales	7,50,000

During the year, the company manufactured two products A and B and the output and costs were :

	A	B
Output (units)	2,00,000	1,00,000
Selling price per unit	Rs.2.00	Rs.3.50
Direct materials per unit	Re.0.50	Re.0.75
Direct wages per unit	Re.0.25	Re.0.50

Variable factory overhead are absorbed as a percentage of direct wages. Other variable costs have been computed as : Product A Re.0.25 per unit; and B Re.0.30 per unit.

During 2009, it is expected that the demand for product A will fall by 25 % and for B by 50%. It is decided to manufacture a further product C, the cost for which are estimated as follows :

	Product C
Output (units)	2,00,000
Selling price per unit	Rs.1.75
Direct materials per unit	Re.0.40
Direct wages per unit	Re 0.25

It is anticipated that the other variable costs per unit will be the same as for product A.

Prepare a budget to present to the management, showing the current position and the position for 2009. Comment on the comparative results.

13. (a) Define Joint Products and By-Products .

(b) Define Differential Cost and Incremental Cost..

SUGGESTED ANSWERS/HINTS

1. (i) (a) Inventory Turnover Ratio = Raw Material Consumed / Average Inventory

= 2,50,000/1,00,000

= 2.5 Times

(b) No. of days for which Average inventory is held =

Days in a year/ITR = 360/2.5 = 144 Days

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Working Notes:

1. Raw material consumed = Opening Stock + Purchases – Closing Stock
   = 90,000 + 2,70,000 – 1,10,000
   = Rs. 2,50,000
2. Average Inventory = (Opening Stock + Closing Stock) / 2
   = (90,000 + 1,10,000) / 2
   = Rs. 1,00,000

(ii) Variable Cost per unit = Change in Total Cost / Change in Production
= (Rs. 19,400 – Rs. 14,600)/(1200 units – 800 units)
= 4800/400
= Rs. 12 per unit

Total variable cost for 1200 units = 1200 units x Rs. 12 = Rs. 14,400

Total fixed cost = Total cost – Total Variable Cost
= 19400 – 14400
= Rs. 5000

(iii) P/V ratio $= \frac{C}{S} = \frac{2,00,000}{8,00,000} = 25\%$

Margin of safety $= \frac{\text{Profit}}{\text{P/V ratio}} = \frac{1,50,000}{25\%} = \text{Rs. } 6,00,000$

Alternatively :

Fixed cost = Contribution – Profit
=Rs. 2,00,000 – Rs.1,50,000 = Rs. 50,000

B.E. Point = Rs. 50,000 ÷ 25% = Rs. 2,00,000

Margin of Safety = Actual sales – B.E. sales
= 8,00,000 – 2,00,000 = 6,00,000

(iv) Average number of workers on payroll:

Labour turnover rate (Replacement method)$= \frac{\text{Number or workers replaced}}{\text{Average number on pay roll}} \times 100$

or, $\frac{5}{100} = \frac{30}{\text{Average number on pay roll}}$

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or, Average number of workers on payroll = $\frac{30 \times 100}{5}$ 600.

Number of workers left and discharged:

Labour turnover rate (Separation method) = $\frac{\text{Number separated}}{\text{Average number on payroll}} \times 100$

or, $\frac{3}{100} = \frac{\text{Number separated}}{600}$

or, Number of workers separated (i.e., left and discharged) = $\frac{3 \times 600}{100} = 18.$

Number of workers recruited and joined:

Labour turnover rate (Flux method) = $\frac{\text{Number separated} + \text{Number recruited and joined}}{\text{Average number on payroll}} \times 100$

or, $\frac{10}{100} = \frac{18 + \text{Number recruited and joined}}{600}$

or, Number of workers recruited and joined = $\frac{600 \times 10}{100} - 18 = 42.$

(v) Price variance = Actual qty (Std. price – Actual price)
= 45 units (Re. 1.00 – Re. 0.80) = Rs.9 (F)

Basic Concepts

2. (a)

Industry	Method of costing	Unit of cost
(i) Nursing Home	Operating	Per Bed per week or per day
(ii) Road transport	Operating	Per Tonne Kilometer or per mile
(iii) Steel	Process	Per Tonne
(iv) Coal	Single	Per unit
(v) Bicycles	Multiple	Each unit
(vi) Bridge construction	Contract	Each contract
(vii) Interior Decoration	Job	Each Job
(viii) Advertising	Job	Each Job
(ix) Furniture	Multiple	Each unit
(x) Sugar company having its own sugar-cane fields	Process	Per Quintal/Tonne

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(b) Various reports that may be provided by the Cost Accounting Department of a big manufacturing Company for the use of its executives are as under:

(i) Cost Sheets

(ii) Statements of material consumption

(iii) Statements of labour utilisation

(iv) Overheads incurred compared with budgets

(v) Sales effected compared with budgets

(vi) Reconciliation of actual profit with estimated profit

(vii) The total cost of inventory carried

(viii) The total cost of abnormally spoiled work in factory and abnormal losses in stores

(ix) Labour turnover statements

(x) Expenses incurred on research and development compared with budgeted amounts.

Material

3. (a) Just in time (JIT) purchases means the purchase of goods or materials such that delivery immediately precedes their use.

Advantages of JIT purchases:

Main advantages of JIT purchases are as follows:

1. The suppliers of goods or materials cooperates with the company and supply requisite quantity of goods or materials for which order is placed before the start of production.
2. JIT purchases results in cost savings for example, the costs of stock out, inventory carrying, materials handling and breakage are reduced.
3. Due to frequent purchases of raw materials, its issue price is likely to be very close to the replacement price. Consequently the method of pricing to be followed for valuing material issues becomes less important for companies using JIT purchasing.
4. JIT purchasing are now attempting to extend daily deliveries to as many areas as possible so that the goods spend less time in warehouses or on store shelves before they are exhausted.

(b) (i) Reorder level (to be set by the material manager)

= Safety stock + lead time consumption

= 100 units + 3,600 units /12 = 400 units

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$$EOQ = \sqrt{\frac{2 \times 3,600 \text{ units} \times Rs.40}{0.2 \times Rs.100}} = 120 \text{ units}$$

(ii) Anticipated reduction in the value of average stock investment

The average of total stock held under new system:

= Safety stock + EOQ/2= 100 units + 60 units = 160 units

The average stock investment under new system = 160 units x Rs.I00 = Rs. 16,000

The average of total stock held under old system

Previously, 1,800 units were ordered at a time and so the average stock held was 900 units.

The average stock investment under old system Rs. 90,000 (900 units x Rs.100).

Therefore, anticipated reduction in the value of the average stock investment

= Rs. (90,000 - 16,000) =Rs. 74,000

(iii) Anticipated reduction in total inventory costs (in the first and subsequent years)

Under new system:	Rs.
Annual ordering cost (3, 600 units x Rs.40 / 120units)	1,200
Stock holding cost (0.20 x Rs.16,000)	3,200
Total inventory cost	4,400
Under old system:	
Annual ordering cost (2 orders x Rs. 40)	80
Stock holding cost (0.20 x Rs. 90, 000)	18,000
Total inventory cost	18,080

Thus, anticipated reduction in total inventory costs is Rs. 13,680 (Rs.18,080 - Rs.4,400)

However, in the first year, the safety stock of 100 units is to be purchased at a cost of Rs. 10,000 (100 units x Rs.100). Therefore, while the saving would be of Rs. 13,680, the cost reduction in the system would be only Rs.3,680. In subsequent years, however, the cost reduction will be of Rs. 13,680.

Labour

4. (i) No. of working days during month: 20

(ii) Standard production for 20 days @ 10,000 tons per month of 25 days $= \frac{10,000 \times 20}{25}$ = 8,000 tons

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(iii) Actual production during month = 11,000 tons

(iv) Excess production during month = 11,000 – 8,000 = 3,000 tons

(v) Excess production above 20% of standard = 3,000 – 20% of 8,000 = 3,000 – 1,600 = 1,400 tons

Statement showing Bonus Earned by Each Category of Staff

	Category		General Incentive		Special Incentive		Penalty	Bonus
		%	Tons	Rs.	Tons	Rs.	Rs.	Rs.
(a)	Direct Labor	70	2,100	21,000	1,400	7,000	-	28,000
(b)	Inspection Staff	10	300	3,000	-	-	1800*	1,200
(c)	Maintenance Staff	12	360	3,600	-	-	800**	1,200
(d)	Supervisory Staff	8	240	2,400	-	-	-	2,400
	Total	100	3,000	30,000	1,400	7,000	2,600	34,400

Remarks: *Penalty for rejection: 90 tons (i.e. 200 tons – 110 tons) @ Rs.20 per ton.

**Penalty for machine breakdown for 40 hours @ Rs.20 per hour.

Overheads

5. (a) Step method: This method gives cognizance to the service rendered by service department to another service deptt, thus sequence of apportionments has to be selected. The sequence here begins with the deptt that renders service to the max number of other service deptt. After this, the cost of service deptt serving the next largest number of deptt is apportioned.

Reciprocal service method: This method recognizes the fact that where there are two or more service deptt they may render service to each other and, therefore, these inter deptt services are to be given due weight while re-distributing the expense of service deptt. The methods available for dealing with reciprocal equation method are:

- Simultaneous equation method
- Repeated distribution method
- Trial and error method

(b)

		Rs.
Total expenses incurred during the month		80,000
Less: Amount paid due to an award		
of the Labour Court	15,000	
Expenses of previous year	5,000	20,000
Net Overhead Expenses for the month		60,000

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Overheads recovered:10,000 hours@ Rs. 5 per hour	50,000
Under-absorbed Overhead	10,000

Treatment in Cost Accounts:

60% of the under-absorbed overheads (Rs. 6,000) which is due to defective planning should be written off to Costing Profit and Loss Account, because it is abnormal in nature. The balance 40% of the under-absorbed overheads (Rs. 4,000) should be recovered from the current month's production (40,000 units) by means of a supplementary rate and adjusted to the values of Finished Goods Stock and Cost of Goods Sold as shown under:

$$\text{Supplementary rate on per unit basis} = \frac{\text{Under}-\text{absorbed Overheads}}{\text{Units Produced}}$$

$$= \frac{\text{Rs.}4{,}000}{40{,}000} = \text{Re.}0.10 \text{ per unit.}$$

Amount of under-absorbed overheads to be charged to:

		Rs.
Finished Goods Stock	10,000 units × Re. 0.10	1,000
Cost of Goods Sold	30,000 units × Re. 0.10	3,000
		4,000

Non – Integrated accounts

6. (a) Differences between the two sets of accounts arises when separate books are maintained for both cost accounts and financial accounts.

The various reasons for disagreement of profits may be listed as below:

1. Items appearing only in financial accounts

   The following items of income and expenditure are normally included in financial accounts and not in cost accounts. Their inclusion in cost accounts might lead to unwise managerial decisions. These items are:

   (i) Income:

   (a) Profit on sale of assets

   (b) Interest received

   (c) Dividend received

   (d) Rent receivable

   (e) Share transfer fees

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(ii) Expenditure:

(a) Loss on sale of assets

(b) Uninsured destruction of assets

(c) Loss due to scrapping of plant and machinery

(d) Preliminary expenses written off

(e) Goodwill written off

(f) Underwriting commission and debenture discount written off

(g) Interest on mortgage and loans

(h) Fines and penalties

2. Items appearing only in cost accounts

There are some items which are included in cost accounts but not in financial accounts. These are:

(a) Notional interest on capital;

(b) Notional rent on premises owned

3. Under or over-absorption of overhead

In cost accounts overheads are charged to production at pre-determined rates whereas in financial accounts actual amount of overhead is charged, the difference gives rise to under-or over-absorption; causing a difference in profits. When such under absorption or over absorption is charged or credited respectively to the Costing Profit and Loss Account, there shall be no need of reconciliation.

4. Different bases of stock valuation

In financial books, stocks are valued at cost or market price, whichever is lower. In cost books, however, stock of materials may be valued on FIFO or LIFO basis and work-in-progress may be valued at prime cost or works cost. Differences in stock valuation may thus cause a difference between the two profits.

5. Depreciation

The amount of depreciation charged may be different in the two sets of books either because of the different methods of calculating depreciation or the rates adopted. In cost accounts, for instance, the straight line method may be adopted whereas in financial accounts it may be the diminishing balance method.

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(b)

Anishka Ltd.
Profit & Loss Account
(For the year ended 30th April, 2009)

Dr.			Cr.
	Rs.		Rs.
To Opening Stock	Nil	By Sales (20,000 units)	50,00,000
To Materials	20,00,000	By Closing Stock (1,230 units)	3,00,000
To Wages	10,00,000	By Work-in-progress	1,40,000
To Factory Overheads	9,00,000		
To Administrative Overheads	5,20,000		
To Selling & Distribution Overheads	3,60,000		
To Goodwill written off	4,00,000		
To Interest on Capital	40,000		
To Net Profit	2,20,000		
	54,40,000		54,40,000

Cost Profit & Loss Statement
(For the year ended 30th April, 2009)

	Rs.
Materials	20,00,000
Wages	10,00,000
Prime Cost	30,00,000
Add: Factory Overhead @ 100% of wages	10,00,000
	40,00,000
Less: Closing Work-in-progress	1,40,000
Factory Cost (20,000 + 1,230) units	38,60,000
Administrative Overheads @ 10% of Factory Cost	3,86,000
	42,46,000
Less: Closing Stock of Finished Goods 1,230 units (See Note)	2,46,000
Cost of Production (20,000 units)	40,00,000
Selling & Distribution Overhead @ Rs. 20 per unit	4,00,000
Cost of Sales (20,000 units)	44,00,000
Sales Revenue (20,000 units)	50,00,000
Profit	6,00,000

Note: Cost of 21,230 units is Rs. 42,46,000. Therefore, the cost of one unit is Rs. 200. Hence the cost of 1,230 units is Rs. 2,46,000.

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Alternatively : Administrative overheads could be excluded from the cost of production.

Reconciliation Statement

	Rs.	Rs.
Profit as per Cost Records		6,00,000
Add: Factory Overheads over-absorbed		
(Rs. 10,00,000 – Rs. 9,00,000)	1,00,000	
Selling & Distribution Overhead Over-absorbed	–	
(Rs. 4,00,000 – Rs. 3,60,000)	40,000	
Difference in the valuation of closing stock of finished goods		
(Rs. 3,00,000 – Rs. 2,46,000)	54,000	1,94,000
		7,94,000
Less: Administrative Overhead Underabsorbed		
(Rs. 5,20,000 – Rs. 3,86,000)	1,34,000	
Goodwill written off relates to		
Financial Accounts	4,00,000	
Interest on Capital	40,000	5,74,000
Profit as per Financial Accounts		2,20,000

Contract Costing

7.

Dr. **Contract Account** Cr

31.12.08	Rs.	31.12.08	Rs.
To Materials	1,50,000	By Plant returned to store	
To Labour	1,10,000	(depreciated value)	18,000
To Plant	80,000	By Plant at site c/d	54,000
To Miscellaneous Expenses	40,000	By Materials at site c/d	10,000
		By Balance c/d --- cost to date	2,98,000
	3,80,000		3,80,000
To Balance b/d --- cost to date	2,98,000	By Work-in-Progress c/d --- cost of work not certified	15,000
		By Balance c/d	2,83,000
	2,98,000	__ cost of work certified	2,98000
To Balance b/d --- cost of work certified	2,83,000	By Work-in-Progress c/d --- value of work certified	4,00,000
To Profit and Loss A/c (proportion of profit transferred)	52,800		

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To Work-in-Progress c/d provision		64,200		
		4,00,000		4,00,000
1.1.09				
To Plant at site b/d		54,000		
To Materials at site b/d		10,000		
To Work-in-Progress b/d				
--- cost of work not certified	15,000			
---- value of work certified	4,00,000			
	4,15,000			
Less : Provision	64,200	3,50,800		

Working Notes:

(1) (i) Plant returned to store on 31.12.08:

	Rs.
Original cost	20,000
Less: Depreciation for 6 months @ 20%	2,000
	18,000

(ii) Plant at site on 31.12.08

	Rs.	Rs.
Original cost	80,000	
Less : Returned to store	20,000	
	60,000	
Less : Depreciation for 6 months@ 20%	6,000	54,000

(iii) Plant returned to store on 30.9.09

	Rs.	
Original cost	50,000	
Less : Depreciation for 15 months @ 20%	12,500	37,500

(iv) Plant at site on 30.9.09

	Rs.	
Original cost (80,000 – 20,000 – 50,000)	10,000	
Less : Depreciation for 15 months @ 20%	2,500	7,500

(2) Profits to be taken to the credit of profits and loss account: 2,98,000

		Rs.	
Up-to-date cost			
Add : Estimated further cost to complete the work :			
Materials (10,000 + 2,60,000)		2,70,000	
Labour		1,20,000	
Miscellaneous expenses		71,000	
Plant	54,000		
Less : Return to store	37,500		
	16,500		
Less : At site on 30.9.09	7,500	9,000	4,70,000
Estimated cost on completion			7,68,000
Contract price			9,00,000
Estimated total profit			1,32,000

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Profit to be credited to profit and loss account:

$$\frac{\text{Work certified}}{\text{Contract price}} \times \frac{\text{Cash received}}{\text{Work certified}} \times \text{Estimated total profit}$$

$$\frac{\text{Rs. } 4,00,000}{\text{Rs. } 9,00,000} \times \frac{\text{Rs. } 3,60,000}{\text{Rs. } 4,00,000} \times \text{Rs. } 1,32,000 = \text{Rs. } 52,800$$

Operating Costing

8. (a) Statement of Operating Income of KINGFISHER Airways operating between Bombay and New Delhi (on each one way flight)

	Rs.
Fare received (per flight): (A)	10,00,000
100 passengers × Rs. 10,000	
Variable costs (per flight):	
Commission paid	80,000
Rs. 10,00,000 × 8%	
Food Services	40,000
100 passengers × Rs. 400	
Fuel costs	1,40,000
Total variable costs: (B)	2,60,000
Contribution (per flight): (C): [(A) – B)]	7,40,000
Fixed costs (per flight):	
Fixed annual lease costs	5,30,000
Fixed ground services (maintenance, check-in baggage handling) costs	70,000
Fixed salaries of flight crew	40,000
Total fixed costs: (D)	6,40,000
Operating income (per flight): [(C) –(D)	1,00,000

(b)

	Rs.
Fare received (per flight): (X)	10,17,600
106 passengers × Rs. 9,600	
Variable costs:	
Commission paid	
Rs. 10,17,600×8%	81,408
Food service	42,400
106 passengers ×Rs. 400	

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Fuel costs	1,40,000
Total variable costs: (Y)	2,63,808
Contribution per flight: (Z): [(X) – (Y)]	7,53,792
Excess contribution due to lowering of fare: [(Z) – (C)]	13,792

[Refer to (a) part] (Rs. 7,53,792 - Rs. 7,40,000)

KINGFISHER Airways should lower its fare as it would increase its contribution towards profit by Rs. 13,792 per flight.

(c) Financial consideration of KINGFISHER Airways to charter its plane to Travel India should use option (b) and not (a)

	Rs.
Under option (b) KINGFISHER Airway receives contribution (per flight)	7,53,792
KINGFISHER Airway would get (per flight) if it charters the plane	7,50,000

A comparison of the above data clearly shows that the KINGFISHER Airways would be financially better off by not chartering the plane.

Process Costing

9. STATEMENT OF EQUIVALENT UNITS

	Total	Material		Labour	
	Units	%	Units	%	Units
Completed production	8,000	100	8,000	100	8,000
Closing stock	1,000	80	800	50	500
Normal loss	500				
Abnormal loss	500	100	500	100	500
	10,000		**9,300**		**9,000**

STATEMENT OF COST PER EQUIVALENT UNIT

	COST	Equivalent units	Cost per equivalent unit
	Rs		Rs
Material Rs. (5,150-500)	4,650	9,300	0.50
Labour	2,700	9,000	0.30
	7,350		**0.80**

STATEMENT OF EVALUATION

	Equivalent units	**Cost per equivalent units**	**Total**	
			Rs	**Rs**
Completed production	8,000	0.80		6.400
Closing stock: Material	800	0.50	400	

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Labour	500	0.30	150	550
Abnormal loss	500	0.80		400
				7,350

PROCESS ACCOUNT

	Units	Rs		Units	Rs
Material	10,000	5,150	Completed production	8,000	6,400
Labour		2,700	Closing stock	1,000	550
			Normal loss	500	500
			Abnormal loss	500	400
	10,000	**7,850**		**10,000**	**7,850**

Standard Costing

10. 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		Rs.
P	(Rs. 4.00 – Rs. 4.40) × 12,500	5,000 A
Q	(Rs. 3.00 – Rs. 2.80) × 18,000	3,600 F
R	(Re. 1.00 – Rs. 1.20) × 88,500	17,700 A
		19,100 A

Material Usage Variance:

(Standard Usage – Actual Usage) × Standard Price

P	(12,000 – 12,500) × Rs. 4.00	2,000 A
Q	(18,000 – 18,000) × Rs. 3.00	Nil
R	(90,000 – 88,500) × Re. 1.00	1,500 F
		500 A

Labour Rate Variance:

(Standard Rate – Actual Rate) × Actual hours

(Rs. 8.00 – Rs. 12.00) × 2,500	10,000 A
(Rs. 8.00 – Rs. 8.00) × 15,000	Nil
	10,000 A

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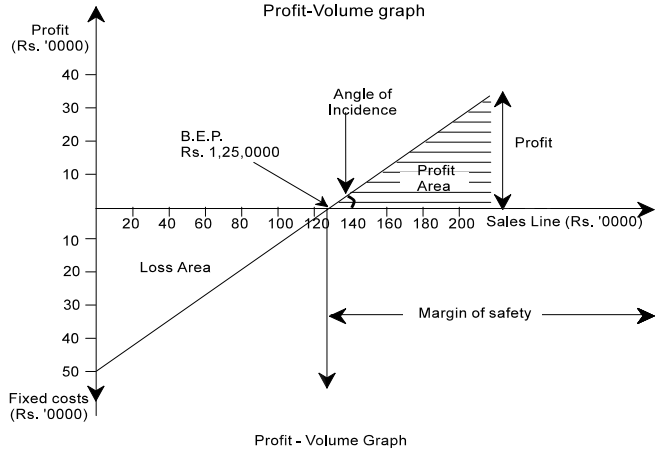
Labour Efficiency Variance:

(Standard hours – Actual hours) × Standard Rate

(18,000 – 17,500) × Rs. 8.00 — 4,000 F

Marginal Costing

11.



Profit - Volume Graph

$$\text{P / V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{\text{Rs. 8,00,000}}{\text{Rs. 20,00,000}} \times 100 = 40\%.$$

$$\text{Break-even-point} = \frac{\text{Fixed cost}}{\text{P / V Ratio}} = \frac{\text{Rs. 5,00,000}}{40\%} = \text{Rs. 12,50,000.}$$

Margin of Safety = Actual sales – B.E. Sales = 20,00,000 – 12,50,000 = Rs. 7,50,000.

Budgetary Control

12. Budget Showing Current Position and Position for 2008

	Position for 2008			Position for 2009			
	A	B	Total (A+B)	A	B	C	Total (A+B+C)
Sales (units)	2,00,000	1,00,000	–	1,50,000	50,000	2,00,000	–
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
(A) Sales (Rs.)	4,00,000	3,50,000	7,50,000	3,00,000	1,75,000	3,50,000	8,25,000
Direct Material	1,00,000	75,000	1,75,000	75,000	37,500	80,000	1,92,500

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Direct wages	50,000	50,000	1,00,000	37,500	25,000	50,000	1,12,500
Factory overhead (variable)	50,000	50,000	1,00,000	37,500	25,000	50,000	1,12,500
Other variable costs	50,000	30,000	80,000	37,500	15,000	50,000	1,02,500
(B) Marginal Cost	2,50,000	2,05,000	4,55,000	1,87,500	1,02,500	2,30,000	5,20,000
(C) Contribution (A – B)	1,50,000	1,45,000	2,95,000	1,12,500	72,500	1,20,000	3,05,000
Fixed costs –Factory			1,00,000				1,00,000
– Others			80,000				80,000
(D) Total fixed cost			1,80,000				1,80,000
Profit (C – D)			1,15,000				1,25,000

Comments: Introduction of Product C is likely to increase profit by Rs.10,000 (i.e. from Rs.1,15,000 to Rs.1,25,000) in 2008 as compared to 2006. Therefore, introduction of product C is recommended.

13. (a) Joint Products: Joint products represent "two or more products separated in the course of the same processing operation usually requiring further processing, each product being in such proportion that no single product can be designated as a major product". In other words, two or more products of equal importance, produced, simultaneously from the same process, are known as joint products. For example, in the oil industry, gasoline, fuel oil, lubricants, paraffin, coal tar, asphalt and kerosene are all produced from crude petroleum. These are known as joint products.

By-Products: These are defined as "products recovered from material discarded in a main process, or from the production of some major products, where the material value is to be considered at the time of severance from the main product." Thus by-products emerges as a result of processing operation of another product or they are produced from the scrap or waste of materials of a process. In short a by-product is a secondary or subsidiary product which emanates as a result of manufacture of the main product. Examples of by-products are molasses in the manufacture of sugar, tar, ammonia and benzole obtained on carbonisation of coal and glycerine obtained in the manufacture of soap.

(b) 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.

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Differential cost, thus includes fixed and semi-variable expenses. It is the difference between the total costs of two alternatives. It is an adhoc 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.

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