METHODS & TECH. OF COSTING V SEMESTER B.Com.

PROBLEMS ON OPERATING COSTING :- R. RAJA GOPALA SASTRY.

1) Mr. Eswar owns a bus which runs between Mysore and Bangalore for 10 days in a month. The distance is 150 kms and bus completes the trip on the same day. The bus goes another 10 days towards ~~Hassan~~ Hasan. The distance between Mysore and Hasan is 120 kms. The trip is completed on the same day. For the remaining 4 working days in the month, it runs ~~within~~ within the city and the distance travelled is 40 kms each day. You are required to calculate the rate Mr. Eswar should charge to his passengers when he wants to earn a profit of 33⅓ % on his takings. The other details are as follows :-

Cost of the bus 3,00,000
Depreciation : 20 % per annum
Salary of driver : Rs 1750 per month
Salary of clerk : Rs 800 per month
Salary of Conducter Rs 1,750 per month
Insurance Rs 8400 per annum
Diesel consumption at the rate of 8 kms per Liter.
Cost per Liter : Rs 10
Token tax Rs 3000 per month
Lubricating oil Rs 50 per 100 kms.
Repairs and maintenance Rs 3000 per month.
Permit fees Rs 1420.

The capacity of the vehicle is 50 passengers. Generally 90% of the capacity is used when it goes to Bangalore, 80% when it goes to Hasan. and 100% in local trips. Ascertain bus fare for each variety.

2) APR. 2002

A person who owns a bus which plans between Delhi and Chandigarh. For 10 days in a month. The distance is 150 miles, the bus completes the trip on the same day. For next 10 days it goes to Agra, the distance between 2 places is 120 miles and the trip is completed on the same day. For the remaining 4 working days it makes local trips covering 40 miles each day. The owner desires to have 33⅓ % of takings as profit. The other details are as follows:-

Cost of the bus : 60,000
Depreciation : 20 % P. a.
Salary of driver : Rs 350 per month.
Salary of conductor Rs 350 per month
Salary of part time Accountant 160 per month.
Insurance Rs 1,680 per month
Diesel consumption - 4 miles per litre costing Rs 10 per litre.
Token tax 600 per month
Repairs and maintenance. Rs 500 per month
Permit fees Rs 284 per month

The normal capacity is 50 passengers. 90 % of the seats are occupied when it goes to Chandigarh 80 % when it goes to Agra. and it is full when it makes local trips. The passenger tax is 20 % on his net takings. Find out bus fare for each trip

3) Shankar has been promised the contract to run a tourist car for a distance of 20 kms to be used by the chief executive of a multinational Co. He buys a car by paying Rs 1,50,000. The annual insurance and taxes were Rs 4,500 and Rs 900 respectively. T

-2-

garage rent is Rs 500 per month. The Annual repairs are estimated to be Rs 4000. The Car is estimated to have a life of 10 years at the end of which, the scrap value is likely to be Rs 50,000. He appoints a driver who is paid Rs 300 per month and 10% of takings as Commission. Other incidental charges are estimated to be Rs 200 per month which are fixed in nature. Petrol and oil will cost Rs 100 for every 100 kms. The car will make 4 round trips each day. Assuming that the owner intends to make a profit of 15% on takings and the car will be on the road for 25 days in a month what should be the charge per round trip.

4) APR. 2004

Pooja transport Co. runs a mini bus with a capacity of 25 seats. The bus runs between 2 towns which are 25 kms apart. It runs for 30 days in a month and on an average 80% of the seating capacity is utilised. The bus makes 2 round trips each day. The other particulars are as follows:

Cost of the bus Rs 50,000
Estimated scrap after 10 years Rs 20,000
Driver's salary Rs 3000 per month
Conductor's salary Rs 2500 per month
Taxes Rs 24000 for the life period
Manager's salary Rs 2000 per month
Cleaners salary Rs 1,500 per month
Garage rent Rs 10800 per annum
Lighting etc. Rs 500 per month
Repairs Rs 1,200 per month
Diesel and oil Rs 12000 per month

The profit expected was 33⅓% of takings. The driver and conductor are to be given 10% of the profit as bonus which is to be divided equally between the two. Prepare operating cost sheet and arrive at the fare per passenger km.

PROCESS COSTING.

1) From the following information relating to a processing industry for the month of jan 2005. Prepare process accts.

Particulars	Process 'A'	Process - B	Process - 'C'
Materials	37,500	12500	5,000
Labour	20,000	50,000	15000
Other direct expenses	6,500	18,000	6,250

The indirect expenses amounted to Rs 21,250 which is apportioned on the basis of direct wages. The production during the month was 2400 units.

2) A product passes through 3 processes, the details of which are as follows:

Particulars	Process I	Process II	Process III
Materials	6000	3000	2000
Labour	5000	4000	5000
Direct expenses	1000	200	1000

The indirect expenses are Rs 2,800 which are to be apportioned on the basis of wages. The total production during given period was 10,000 units. Prepare process accounts.

- 3 -

TRANSFER OF PART OF THE PRODUCTION TO STOCK:-

3) A manufacturing Co. produces and sells a chemical which undergoes 3 different processes. The product at each stage of process has commercial value. Out of the I process 66 2/3% is transferred to next process & 33 1/3% to warehouse. From the second process 60% is transferred to next process & balance to warehouse. In each process 4% of total input is loss in weight and 6% becomes scrap which can be sold at Rs 6 per unit in process I. and Rs 10 per unit in process II and Rs 12 in process III. During the month of April 2006 2,800 units were introduced in process I each unit costing Rs 40. 320 units were added in process II at a cost of Rs 64 per unit and 2520 units were added in the last process at a cost of Rs 28 per unit. The manufacturing wages and overheads put together amounted to Rs 20,608 in Pr I, Rs 12680 in Pr II & Rs 11580 in process III. Prepare relevant ledger accounts

4) XYZ Ltd. manufactures and sells 3 chemicals produced by consecutive processes known as X, Y and Z. In each process 20% of total weight is lost and 10% is scrap. The scrap of process X and Y realises Rs 100 per ton, whereas process Z realises Rs 200 per ton. The working results for the month of Dec 2005 are as follows:

Particulars	Process - X	Process - Y	Process - Z
Sent to warehouse	25%	50%	100%
Sent to next process	75%	50%	—
Material introduced	1000 Tons	140 Tons	1348 Tons
Cost per ton	120	200	80

Wages and mfg exp.	30,800	25760	18,100

Prepare Relevant Ledger Accounts

5) In the Course of manufacturing a product which passes through 3 distinct processes. The following information is Available

Particulars	I	II	III
Raw materials	200 Tons	71 Tons	164 Tons
Cost per ton	Rs 100	Rs 300	Rs 50
Direct wages	8000	3490	2,850
Overheads	2520	2400	3,826
Selling price of Scrap per unit	80	60	120
Sent to Warehouse	25 %	50 %	100 %
Sent to next process	75 %	50 %	—
Selling price per unit	150	300	200

In each process 6 % of total weight is lost & 8 % of total weight is scrap. The Admn. exp Rs 12,500 and selling and distn expenses Rs 7,500. Prepare process Accounts and Statement of profit and loss.

6) A chemical industry produces 3 different types of product in 3 processes. In each process there will be ~~10 % the~~ a loss of 2 % in weight and scrap will be 10 %. The scrap can be sold at Rs 300 in process I & II where as in process III realises Rs 60 per unit. The following are the expenses for the month of Dec 2006.

Particulars	I	II	III
Input of Raw material	500 Tons	70 Tons	674 Tons
Cost per ton of raw material	360	840	50

- 4 -

Wages	60,000	54000	45,000
Fact O.H	30,000	20,000	10,000
Output transfered to Stock	25%	50%	100%
Selling price per unit	700	1060	400

The Admin. expenses were Rs 15000 and Selling and distn exp. Rs 14500. Prepare process Accounts & Statement of profit and loss for the month.

7) APR. 1998.

A material used in Construction is produced in 3 grades The expenses during a particular month are as follows:-

Particulars	PR - I	PR - II	PR - III
Raw materials (1000 Tons)	1,00,000	-	-
Direct wages	50,000	30,000	5,000
Overheads	37,500	9,500	5,710
Loss of weight in Process	5%	10%	20%
Scrap in each process	50 Tons	30 Tons	51 Tons
Selling price of scrap per unit	50	50	50
Selling price of Finished product per unit	350	500	800

The management expenses were Rs 14,000 Selling expenses were Rs 10,000 and distribution expenses Rs 3,500. It is a practice to transfer 2/3 of Pr-I & 1/2 of Pr II outputs are transfered to next process and balance to Warehouse. All the units produced are sold Prepare process Accounts and Statement of profit & loss.

OIL REFINERIES:-

8) April 2000.

The following details are extracted from the Costing records of oil mills for the year ended 31st Dec 1999

The Company purchased 5400 Tons of Copra for Rs 2,20,000 and other expenses are as follows:.

Particulars	Crushing	Refining	Finishing
Labour	2750	1100	1650
Electric power	660	396	264
Sundry materials	110	2200	–
Repairs	308	363	154
Steam	660	495	495
Other Fact O.H	1452	726	242
Cost of Casks	–	–	8250

3200 Tons of Crude Oil was produced, 2600 Tons of oil was produced in refining process and 2250 Tons of refined oil was transfered to stock. The Copra sacks were sold for Rs 440. 1925 tons of Copra residue was obtained in crushing process which was sold for Rs 12100. Loss in weight in crushing process was 275 Tons. 500 Tons of by product was obtained from refinery process which was sold for Rs 7425. Prepare relevant ledger accounts.

9) From the following details extracted from the records of Tirumala oil mills Ltd on 31-3-07 prepare process accts. The Co. purchased 5000 tons of groundnuts at a cost of 48 lakhs. The other expenses are as follows:

Particulars	Crushing	Refining	Finishing
Wages	25000	10,000	15000
Power	6,000	3,600	2,400
Sy. materials	1400	20,000	–
Repairs	2800	3,350	1,400
Steam	6,000	5,200	4,500
Other Fact O.H.	13,200	6,600	2,100
Cost of Casks	–	–	59600

3000 tons of crude oil was purchased. 2500 tons of

- 5 -

Oil was produced in refining process and 2480 Tons of refined oil was transfered to stock. The ground nut shells were sold for Rs 400. 1,750 tons of ground nut residue was obtained in crushing process, which was sold for Rs 11,000. Loss in weight in crushing process was 250 Tons. 450 Tons of by product was obtained from refining process which was sold for Rs 16,750.

10) The following are details of a processing industry for Apr. 2006.

Particulars	Crushing	Refining	Finishing
Wages	30,000	24000	20,000
Power	12,000	10,000	6,000
Supervision	4,000	2,000	1,000
Other O'Hs.	6,000	4,000	1,000
Casks	—	—	6,000

6000 Tons of oil seeds were purchased at Rs 100 per ton. 5000 Tons of crude oil was produced. Refined oil obtained was 3600 Tons and finished oil transfered to stock 3520 Tons. Out of crude oil 1000 Tons were sold at cost plus 25%. The solid waste in crushing process was 600 Tons which was sold for Rs 20,000. Oil seeds sacks were sold for Rs 2000. Loss in weight in crushing process 400 Tons and in refining and finishing process 200 Tons and 80 Tons respectively. The by product obtained in refining process was 200 Tons which was sold for Rs 1,600. All the finished product was sold at Rs 500 per ton. The admn expenses amounted to Rs 22000 and selling and distribution expenses amounted to Rs 18,000 Prepare process accounts and statement of profit and loss.

PROBLEMS ON ABNORMAL LOSS/GAIN :-

11) A mfg. Co. introduces 5000 units into Process I. The Cost of each Unit is Rs 4. The Other expenses were – wages 18,000, Fact expenses : 14,000 ; power 8000. 10% of the input normally results in loss which can be sold in the market at Rs 3 per unit. The Actual output was 4200 units. Prepare relevant ledger Accounts.

12) In the month of Feb 2007 a processing industry introduced 8000 kgs of R. material into process-I. The Cost per unit is Rs 12. The Other expenses are, Direct wages 17,000, Power : 13000, Other Fact exp. 20,000. 5% of Input is regarded to be normal loss which can be sold at Rs 5 per unit. The Actual production was 7,400 units. Prepare necessary Accounts

13) 2000 units were introduced into process I, each Unit Costing Rs 18. Other exp were – dy mat. 4000 Wages 27000, Fact exp. 13,000. 10% of the input is regarded as normal loss which can be sold at Rs 10 per unit. Actual production was 1875 units. Prepare relevant ledger Accounts

14) The following details are extracted from the record of oil refineries. The material introduced was 8000 units at Rs 7 per unit. The Other expenses are dy. mat 15,200; Wages 52,000, Fact. O.H. 25% of wages. 5% of input is normal loss which can be sold at Rs 5 per unit. The Actual production was 7625 units. Prepare necessary Accounts

15) APR. 2004 :.

A product passes through 3 processes A, B and C. From the following information prepare necessary Ledger accounts.

- 6 -

10,000 Units were introduced in Process-'A' at Re 1 per Unit
Other expenses were as follows:

Particulars	A	B	C
Sy. materials	1000	1500	1358
Wages	5000	8000	6500
D. expenses	1050	1780	2400
Normal Wastage	2%	5%	6%
Selling price per Unit of wastage	1.25	1.50	2
Actual production	9,600 Units	9,200 Units	8600 Units

16) APR. 2003

Prepare Process Accts, normal and abnormal loss and gain accts from the following details:

Particulars	A	B
Materials	30,000	3000
Labour	10,000	2000
Over heads	7,000	8600
Input	20,000 Units	17500 Units
Normal loss	10%	4%
Sale of waste per Unit	Re 1	Rs 2

The final output from Process B was 17000 Units

17) A chemical industry introduces 2000 kgs of Raw materials at 1.50 per Unit Other Expenses are

Particulars	I	II	III
Sy materials	2600	1980	2962
D. wages	2500	2500	4000
Fact O.H.	2500	2500	4000
Normal loss	5%	10%	15%
Scrap Value per Unit	2	4	5
Actual production	1900 Units	1680 Units	1500 Units

Prepare relevant accounts.

18) The following particulars are available from a processing industry

Particulars	I	II	III
Dy. materials	12,000	8,000	4,000
Labour	16,000	12,000	6,000
Mach. expenses	2,000	2,000	3,000
Other fact exp.	3,500	3,800	4200
Normal loss	2%	5%	10%
Selling price of waste per 100 units	10	10	80
Actual production (units)	19,500	18,800	16,000

20,000 units were introduced into process I costing Rs 20,000. Prepare necessary accounts

19) A chemical industry introduces 10,000 units into process I costing Rs 10,000. Other expenses are as follows:

Particulars	I	II	III
Dy. materials	1000	1500	500
labour	5000	8000	6,500
D. expenses	1050	1188	2009
Normal loss	3%	5%	8%
Selling price per unit of scrap	0.25	0.50	1.00
Actual production (units)	9,500	9,100	8,100

Out of the finished goods 60% was sold for Rs 34,425. The admn exp are Rs 1350 and selling exp. Rs 650. Prepare necessary ledger accts and St. of P&L.

20) APR. 2000

A product is obtained after it passes through 3 Processes. The following information is available from

-7-

Their Records:

Particulars	P	Q	R
Sy. mat	10,000	15000	5000
Labour	30,000	80,000	65000
D. Exp.	6,000	18,150	27,200
Selling price per unit	120	165	250
Output (units)	9,300	5400	2100

Management exp. are 80,000, Selling exp. 50,000. Raw materials introduced to process P - 10,000 units each costing Rs 100. 2/3 of output of process P and 1/2 of output of process Q were ~~processed~~ passed on to next process and the balance was sold. The normal loss in P - 5%. Q - 15%. and R - 20%. The wastage is sold at Rs 2 per unit of P, Rs 5 per unit of Q and Rs 10 per unit in R. Assuming all units are sold, prepare ledger accts and St of P/L.

[DEC 2008]

21) A product is obtained after it passes through 3 processes. The following information is available from Cost Records

Particulars	I	II	III	Total
Materials	2600	2000	1025	5625
D. wages	2250	3680	1400	7330
Prodn. O.H.	–	–	–	7330

500 units at Rs 4 per unit was introduced in Process I. Prodn. O.H are recovered as percentage of wages. The other particulars are as follows:

PROCESS	OUTPUT (units)	N. LOSS	Unit value of Scrap
I	450	10%	2
II	340	20%	4
III	270	25%	5

Prepare ledger Accounts.

22) A product passes 3 processes A, B, and C. 10,000 units were introduced to process 'A' at a value of Re 1 per unit. The other expenses are as follows

Particulars	A	B	C
Materials	2050	2688	2509
Labour	5000	8000	6500
N. Loss	3%	5%	8%
Unit Value of Scrap	0.25	0.50	1
Production (Units)	9500	9100	8,100

Prepare relevant ledger accts

23) Apr 2003

A product passes through 3 processes A, B and C. 10,000 units are introduced at Re 1 per unit. The expenses in each process are as follows:

Particulars	A	B	C
Sy. materials	1000	1500	1480
D. labour	5000	8,000	6500
D. Expenses	1050	1188	1605
Percentage of loss	5%	4%	?
Unit Value of Scrap	0.25	0.50	1

The fact O.H are recovered at 168% of D. labour. The finished products are sold at Rs 10 per unit, yielding a profit of 20% on sales. Calculate wastage percentage in process - 'C'

JOINT AND BY-PRODUCTS :-

24) A mfg. Co. produces 3 different products A, B and C from the same raw materials. The joint expenses

Before separation – Materials 10,200 Labour 11,400

- 8 -

Overheads - Rs 7,600. After Seperation the following additiona expenses were incurred:

Particulars	Product 'A'	Product 'B'	Product 'C'
Sy Mat	2500	1200	1400
Labour	1900	1600	2000
O.H.	1500	900	1050
Sales Value	30,000	20,000	15000
% of profit on Sales	40%	30%	25%

Prepare Statement Showing apportionment of joint Cos

25) Three joint products X, Y and Z are produced from a Common process. The joint expenses are - Materials 57000, labour: 30,000; O.Hs. 2,100. The expenses after Seperation are as follows

Particulars	X	Y	Z
Materials	24000	12000	6,000
labour	12000	9000	3,000
O.H.	1800	1500	1500
Sales	1,53,000	63,000	30,000
Est. profit on sales	40%	30%	20%

Prepare St. of apportionment of joint Costs and ledges Accts

26) A mfg. Co. introduces a chemical Which Yields 3 different products A, B and C. The expenses before Seperation are - Materials 10,000, labour 9000 and O.H. 8000. The Subsequent exp. are as follows:

Particulars	A	B	C
Sy. mat	4000	1,800	2,600
labour	2000	1,600	1,600
O H	1000	600	800

Sales Value	42,000	20,000	18,000
% of profit on sales	50%	50%	33⅓%

Prepare ledger accts and show apportionment of joint costs.

27) A factory producing 2 joint products P and Q incurred the following exp. before seperation – Materials 5000, labour - 3000 O.H : 2000 (Total 10,000)
The expenses are seperation are as follows

Particulars	P	Q
Sy mat	3000	1,500
labour	1400	1000
O.H.	600	500
Sales	16,000	8,000
Profit on Sales	25%	20%

Prepare necessary ledger accts

28) Three products A, B and C are produced from same raw materials. The expenses before seperation are – Materials 2,20,000, Labour: 1,00,000; O.H: 80,000. The costs after seperation are as follows:

Particulars	A	B	C
Sy. materials	30,000	20,000	15,000
labour	20,000	30,000	10,000
O.H.	5,000	6,000	5000
Sales value	5,00,000	3,00,000	2,00,000
% of profit on sales	50%	30%	25%

Prepare ledger accts.

29) Two products are obtained in crude form and require further processing at a cost of Rs 5 for

Product P and Rs. 4 for Q per unit. The selling

price per unit were 13.75 and 8.75. The estimated profit margin is 25% on cost. The total joint costs are Rs 88000 and output was P - 8000 units and Q - 6000 units. Apportion the joint costs.

30) PROB ON BY-PRODUCT:

A factory is involved in the production of chemical 'X'. In the process of production of main product 'X', by-product 'Y' is also produced, which after seperation and further processing has commercial value. The following data is available for the month of Jan. 2006

Particulars	Joint Exp.	Seperate Exp. of X	Seperate Exp. of Y
Materials	19,200	7360	780
Labour	11,700	7,680	2642
On Cost	3,450	1,550	544

The output for the month was 142 tons of 'X' and 49 tons of 'Y'. The selling price of by-product 'Y' is 50% of S.P. Ascertain the cost of main product

31) DEC 2008

In the course of manufacturing the main product, 100 units of by-product were produced. The market value of the by-product was Rs 10 per unit. The by-product required further processing cost amounting to Rs 300. Selling and distn costs came to Rs 50. Make an estimate of by-product cost at the point of split-off assuming that average profits earned is 10% on sales.

32) Main product 'X' yields 2 by-products Y and Z. The expenses incurred before seperation were – Materials 5000, labour 4500, and O.H 4000. The following expenses were incurred after seperation.

Particulars	Main Product	By-Product	
	X	Y	Z
Materials	6000	500	750
Labour	4200	800	900
O.H.	3800	700	850

By-product 'Y' has sales value of Rs 10,000 and that of 'Z' Rs 9000. The profit on by-product 'Y' is 50% and that of 'Z' 33⅓%. What should be the selling price of main product 'X' if the Co. intends to make a profit of 20% on selling price.

33) X. Ltd manufactures Main product 'A' which has two by-products 'B' and 'C'. The joint expenses are – Material 8000 labour 8600 and O.H 400. The expenses after seperation are as follows

Particulars	Main product	By-Product	
	'A'	'B'	'C'
Sy. mat	300	200	150
labour	400	300	200
O.H.	300	270	280
Sales	–	10,000	5000
Profit on sales	–	25%	20%

If the main product is sold for Rs 15000 Ascertain the profit on main product.

34) In mfg. main product 'A', 2 by-products N, and N_2 are also produced. Using the method of working

Back, ascertain the cost and profit of each of the

- 10 -

three products from the following data.
The total Cost upto separation Rs 1,36,000

Particulars	Main product 'A'	By-Product N_1	By-Product N_2
Sales	3,28,000	32,000	48000
Costs after separation	–	9,600	14,400
Estimated profit on sales	–	20%	30%
Est. Selling exp as percentage of sales	20%	20%	20%

35) OCT. 2002.
Calculate the estimated Cost of product. of By-product X and Y. at the point of separation from the main product.

Particulars	By-Product X	By-Product Y
Selling price per unit	12	24
Cost after separation per unit	3	5
No. of units produced	500	300

The selling expenses amounted to 25% of total works Cost i.e., Cost before separation and after separation. The selling price is arrived at by adding 20% on total Cost.

CONTRACT COSTING

STARTED AND COMPLETED IN THE SAME YEAR:

1) The following information relates to Contract No. 78
Materials: 45,600, Wages: 24,400 Special plant installed 18,400, Stores issued 6040, Tools issued 3560. Running expenditure of tractor 3500, Driver's wages 4540. Other

direct charges: 2,560. The Contract was completed in 26 weeks and special plant was returned subject to depreciation at 15% per annum. Tools returned to stores 2,260, sundry stores returned 850. The cost of tractor used was 40,000. Depreciation is to be charged at 20% per annum. The admn expenses were 10% of works cost. The contract price is Rs 1,25000 Prepare Contract Account.

2) APR. 1997

The following information relates to Contract No. 231. Materials 20,250, Stores issued 10,500, Wages 15,500, Tools issued 2,400, Other charges 2,650, Maintenance of tractor 2,300 and Drivers wages 3000. The Contract price was 90,000. He took 13 weeks to complete the contract. Tools returned to stores 2000, sundry stores returned 3000. Value of plant returned 16000 after charging depn. at 20%. The Original value of tractor was 20,000 and depn has to be charged at 15% per annum. The admn expenses are to be 10% of works cost. Prepare Contract acct

3) Following particulars are in respect of Contract No. 20 which commenced on 1st Jan 2000.

Materials issued - 58000
Wages - 75000
Cost of special plant - 30,000
Direct expenses - 12,000
Establishment expenses - 8000

The Contract was completed by 31st Dec 2000. The Contract price was Rs 1,75,000. The value of materials returned to stores was 5000. Special plant returned subject to depreciation at 20%. Prepare Contract a/c