

B.Com Sixth Semester	Faculty of Commerce Deptt. of Accountancy & Law	Year of Revision
	Question Bank	2019-20
Question Bank for the year 2019-20	ACM-602: COST ANALYSIS & CONTROL	

UNIT-I INVENTORY PLANNING AND CONTROL

1. What do you understand by inventory control? How is it planned and organized?
2. Discuss the steps involved in recording of purchased material till it is stored and paid ?
3. Discuss briefly different methods of pricing material issues. Indicate their impact on profits in case of rising prices?
4. What do you understand by Inventory Control? State the objectives of material control?
5. State briefly the various techniques used for inventory control?
6. The ascertainment of Inventory Turnover Ratio and Input- output Ratio is a useful guide to inventory control. Explain.
7. What is mean E.O.Q? Give its assumptions? How is E.O.Q determined?
8. You are presented with the following information by Om Engineering Company related to the first week of December,2018:

Materials

The transactions in connection with the materials are as follows:

Day's	Receipts		Issued
	Units	Rate per unit	(Units)
1st	40	15.00	--
2nd	20	16.50	--
3rd	--	--	30
4th	50	17.10	--
5th	--	--	20
6th	--	--	40

Calculate the cost of materials issued under (i) FIFO Method; (ii) LIFO Method; and (iii) Weighted Average Method of issue of materials and value of closing stock under the methods aforesaid.

Ans.: (1) Value of Stock 20 units Rs.342,(2) Value of Stock 20 units Rs.300, (3) Value of Stock 20 units Rs.330

9. Compute E.O.Q. and the total variable cost from the following data:

Annual demand	5000 units
Unit price	Rs.20
Order Cost	Rs.16 per order
Storage rate	2% p.a.
Interest rate	12% p.a.
Obsolescence rate	6% p.a.

(Ans.: EOQ: 200 units, TVC: Rs.800)

10. (a) EXE Limited has received an offer of quantity discounts on its order of materials as under:-

Price per ton Rs.	Tonnes
1,200	Less than 500
1,180	500 and less than 1,000
1,160	1,000 and less than 2,000
1,140	2,000 and less than 3,000
1,120	3,000 and above

The annual requirement for the material is 5,000 tonnes. The ordering cost per order is Rs.1,200 and the stock holding cost is estimated at 20% of material cost per annum. You are required to compute the most economical purchase level.

(b) What will be your answer to the above question if there are no discounts offered and price per tonne is Rs.1,500?

(Ans.:(a) 1000 tonnes (b) 200 tonnes)

11. Shagoon India Ltd. provides the following information in respect of material 'X':

Supply period	5 to 15 days
Rate of consumption:	
Average	15 units per day
Maximum	20 units per day
Yearly	5000 units

Ordering costs are Rs.20 per order, Purchase price per unit is Rs.50, Storage costs are 10% of unit value

Compute: 1. Reorder level, 2. Minimum level, 3. Maximum level,

(Ans.: (1) 300 units (2) 150 units (3) 450 units.

12. PQR Tubes Ltd. is the manufacturers of pictures tubes for T.V. The following are the details of their operations during 2018-2019:

Average monthly market demand =2000 tubes

Ordering Cost	Rs.100 per order
Inventory carrying cost	20% p.a.
Cost of tubes	Rs.500 per tube
Normal usage	100 tubes per week
Minimum usage	50 tubes per week
Maximum usage	200 tubes per week
Lead time to supply	6 - 8 weeks

Required:

(i) Economic order quantity. If the supplier is willing to supply quarterly 1,500 units at a discount of 5% is it worth accepting?

(ii) Re-order level, (iii) Maximum level of stock, (iv) Minimum level of stock

(Ans. :(i) 102 tubes, TC 26,10,18 & 2541650 Accept the offer of 5% discount (ii) 1600 Tubes (iii) 1402 tubes (iv) 900 tubes.)

13. Medical Aids Co. manufactures a special product A. the following particulars were collected for the year 2019.

(a) Monthly demand of A	1000 units
(b) Cost of placing an order	Rs. 100
(c) Annual carrying cost per unit	Rs. 15
(d) Normal usage	50 units per week
(e) Minimum usage	25 units per week
(f) Maximum usage	75 units per week
(g) Re-order period	4 to 6 weeks

Compute from the above: (i) Re-order Quantity, (ii) Reorder Level, (iii) Minimum Level, (iv) Maximum Level, (v) Average Stock Level.

14. Charlie Pump Company uses about 75,000 valves per year and the usage is fairly constant at 6,250 per month. The valves cost Rs. 1.50 per unit and carrying cost is estimated to be 20% of average inventory investment on an annual basis. The cost to place an order and to process the delivery is Rs. 18.

It takes 45 days to receive delivery from the date of an order and a safety stock of 3,250 valves is desired. You are required to determine:

(i) The most economical order quantity and frequency of orders.

(ii) The re-order level.

(iii) The most economical order quantity if valves cost Rs. 4.50 each instead of Rs. 1.50 each.

15. An auto parts supplier sells Hardy-brand batteries to car dealers and auto mechanics. The annual demand is approximately 1,200 batteries. The supplier pays \$28 for each battery and estimates that the annual holding cost is 30 percent of the battery's value. It costs approximately \$20 to place an order (managerial and clerical costs). The supplier currently orders 100 batteries per month.

- Determine the ordering, holding, and total inventory costs for the current order quantity.
- Determine the economic order quantity (EOQ).
- How many orders will be placed per year using the EOQ?
- Determine the ordering, holding, and total inventory costs for the EOQ. How has ordering cost changed? Holding cost? Total inventory cost?

16. Annual demand for a particular item of inventory is 10,000 units. Inventory carrying cost per unit per year is 20% and ordering cost is Rs. 40 per order. The price quoted by the supplier is Rs 4 per unit. However, the supplier is willing to give discount of 5% for orders of 1,500 units or more. Is it worthwhile to avail of the discount offer.

17. The following data are available in respect of material X for the year ended 31st March 2019:

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

Calculate: (i) inventory turnover ratio; and (ii) the number of days for which the average inventory is held.

(Ans.: (i) 2.5 (ii) 146 days.)

18. Calculate the material turnover ratio for the year 2019 from the following details:

Particulars	Material X	Material Y
	Rs.	Rs.
Opening stock	25,000	87,500
Closing Stock	15,000	62,500
Purchases	1, 90,000	1,25,000

Determine the fast moving material.

(Ans.: X-10, Y-2 and X is fast moving.)

19. A Company manufactures a special product which requires a component 'Alpha'. The following particulars are collected for the year 2019:

- (i) Annual demand of Alpha 8,000 units
- (ii) Cost of placing an order Rs. 200 per order
- (iii) Cost per unit of Alpha Rs. 400
- (iv) Carrying cost % p.a 20%

The Company has been offered a quantity discount of 4% on the purchase of 'Alpha' provided the order size is 4,000 components at a time.

Required:

- (i) Compute the economic order quantity.
- (ii) Advise whether the quantity discount offer can be accepted.

(Ans.: (i) E.O.Q 200 Units (ii) when E.O.Q is ordered T.C Rs.32,16,000 and when quantity discount is accepted T.C Rs.32,26,000.)

20. A Scooter manufacturing Company Purchases 1000 Steel parts @ Rs 70 per part, during the year. The following expenditures related to placing the order and carrying cost are incurred as follows: Clerical cost Rs 15, Return on Investment Rs.5.60 per unit, postage Rs 10, stationary Rs 5, railway freight Rs 5 and Rent, Taxes, Insurance, Handling Charges Etc Rs.1.40 per unit.

Carrying Cost works out to be 10 percent of the inventory price per unit.

A) Calculate the most economic order quantity (EOQ).

B) If the discount rate is available between 10percent to 4 percent on bulk purchase given as under then findout the most economical purchase

No. of order during the years	1	2	3	4	8	10	12
Order Quantity in Rs. (Figures in Thousands)	70	35	23.333	17.5	8.750	7	5.833
Discount %	10	8	8	6	5	5	4

UNIT-II- LABOUR AND OVERHEAD COST CONTROL

1. What do you understand by labour turnover? Enumerate the causes of such labour turnover and indicate some steps which may reduce labor turnover.
2. What is the meaning of labour turnover? How is it measured? By what measures do you reduce labour turnover.
3. Discuss the different methods of wage payment to workers.
4. What are the bases of apportionment of overhead expenses among departments? Name the overhead for which each basis will be suitable.
5. Distinguish between allocation, apportionment and absorption of overhead.
6. Discuss the importance of the following terms in relation to

Marginal Costing:

- (a) Key factor of Production, (b) Break-even Point, (c) Margin of Safety

- .
7. What do you mean by over and under absorption of overhead? Discuss the various methods for disposal of over and under absorption of overhead.

8. From the following data provided find out the labour turnover rate by applying:

- (a) Flux method
(b) Replacement method, and
(c). Separation method

No. of workers on the payroll:

At the beginning of the month	500
At the end of the month	600

During the month, 5 workers left, 20 persons were discharged and 75 workers were recruited. Of these, 10 workers are recruited in the vacancies of those leaving, while the rest were engaged for an expansion scheme.

(Ans: (a) 18.2% (b) 1.8% (c) 4.5%)

9. The cost accountant of Y Ltd. has computed labour turnover rates for the quarter ended 31st March, 2012 as 10%, 5% and 3% respectively under Flux Method, Replacement Method and Separation Method .If the number of workers replaced during the quarter is 30, find out the number of (a) workers recruited and joined and (b) workers left and discharged.

(Ans: (a) 42 (b) 18)

10. From the following information, calculate labour turnover ratio and turnover flux rate

No. of workers as on 1" Jan. 2003 = 7,600

No. of workers as on 31" Dec. 2003 = 8,400

During the year, 80 workers left while 320 workers were discharged, 1,500 workers were recruited during the year of these, 300 workers were recruited because of exits and the rest were recruited in accordance with expansion plans.

11. A firm employs five workers at a hourly rate for Rs. 2. During a week, they worked for four days for a total time of 40 hours each and completed the job for which the standard time was 48 hours for each worker. Calculate the labour cost under Halsey Plan and Rowan Plan.

(Ans: Halsey Rs. 440, Rowan Rs. 467)

12. Compute the earnings of a worker under:

(a) Time Rate System,

(b) Halsey Plan,

(c) Rowan Plan.

Information given:

Wage rate	Rs. 3 per hour
Standard time	80 hours
Actual hours	50

(Ans: A-Rs.150, B- Rs.195, C- Rs.206.50)

13. A worker takes 9 hours to complete a job on daily wages and 6 hours on a scheme of payment by results. His day rate is 75 paise an hour, the material cost of the product is Rs. 4 and the overheads are recorded at 150% of the total direct wages. Calculate the factory cost of the product under :

(a) Piece work plan

(b) Rowan plan

(c) Halsey plan.

(Ans: A-Rs.15.25, B- Rs.19.00, C- Rs.18.05)

14. The following data were obtained from the books of light Engineering Company for the half year ended 31st March, 2013

		Production Departments			Service Departments	
		P1	P2	P3	S1	S2
Direct Wages	Rs.	7000	6000	5000	1000	1000
Direct material	Rs.	3000	2500	2000	1500	1000
Employee	Nos.	200	150	150	50	50
Electricity	kWh.	8000	6000	6000	2000	3000
Light Points	Nos.	10	15	15	5	5
Assets values	Rs.	50000	30000	20000	10000	10000
Area occupied	(sq. metres)	800	600	600	200	200

The expenses for 6 months were: Stores Overhead Rs. 400; Motive power Rs. 1500; Electric light RS. 200; Labour Welfare Rs. 3000; Depreciation Rs. 6000; Repairs and Maintenance Rs. 1200; General Overheads Rs. 10000; Rent and Taxes. 600. Show the primary distribution of overhead.

15. Madras manufacturing Ltd. has three departments which are regarded as production departments. Service departments, costs are distributed to these production departments using the “Step Ladder Method” of distribution. Estimates of factory overhead costs to be incurred by each department in the forthcoming year are as follows. Data required for distribution is also shown against each department:

Department	Factory Overhead	Direct labour Hours	No. of employees	Area in sq. m.
Production				
X	1,93,000	4,000	100	3,000
Y	64,000	3,000	125	1,500
Z	83,000	4,000	85	1,500
Service				
P	45,000	1,000	10	500
Q	75,000	5,000	50	1,500

R	1,05,000	6,000	40	1,000
S	30,000	3,000	50	1,000

The overhead costs of the four service departments are distributed in the same order, viz., P, Q, R, & S respectively on the following basis:

Department	Basis
P	No. of employees
Q	Direct labour hours
R	Area in square metres
S	Direct labour hours

You are required to prepare a schedule showing the distribution of overhead costs of the four service departments to the three production departments.

(Ans. X-300000, Y-135000, Z-160000)

16. The following particulars relate to ADM manufacturing Co. which has three production departments A, B & C and two service departments X & Y.

Departments

	A	B	C	X	Y
Total overhead as per primary dist.	6300	7400	2800	4500	2000

The company decided a to apportion the service department cost on the following percentages:

	A	B	C	X	Y
X	40%	30%	20%	-	10%
Y	30%	30%	20%	20%	-

Find the total overheads of production departments using simultaneous equations method.

(Ans. A9050, B-9650, C-4300)

17. A company has three production departments and two service departments. Distribution summary of overheads is as follows:

Production Departments		Service Departments	
A	Rs.3,000	1	Rs.234
B	Rs.2,000	2	Rs.300
C	Rs.1,000		

The expenses of service departments are charged on a percentage basis which is as follows:

	A	B	C	1	2
1	20%	40%	30%	-	10%
2	40%	20%	20%	20%	-

Find out the total Overheads of production Departments using the following method:

1. Simultaneous equation method
2. Repeated Distribution Method

(ANS:-A-3194,B-2186,C-1156)

18. Calculate machine hour rate from the following particulars:

- (a) Cost of machine Rs. 23,000
- (b) Estimated life 15,000 hours
- (c) Estimated scrap value Rs. 500
- (d) Estimated working hours per annum 2,000
- (e) Amount taken as loan at 10% to purchase the machine (balance being provided by the firm itself) Rs. 15,000
- (f) Power 20 units per hour @ 10 paise per unit
- (g) Repairs and maintenance per annum Rs. 1,500
- (h) Number of operators 2 (looking after three other machines also)
- (i) Wages per operator per month Rs. 200
- (j) Overheads chargeable to the machine Rs. 2,400 p.a.
- (k) Insurance premium per annum is 1% of the cost of the machine.

19. A company uses a historical cost system and applies overhead on the basis of predetermined rates. The following data are made available by the company for the year ended 31-3-2014.

Manufacturing Overhead	32,72,000
Manufacturing Overhead applied	32,00,000
WIP (C.B.)	5,00,000
Finished Goods (C.B.)	15,00,000

Cost of Goods Sold 2,20,00,000

- Apply two methods for disposal of under absorbed and state the impact of each method on the profit earned by the firm.
- Also indicate the relevant journal entries.

20. A co. absorbs the production overhead at a pre-determined rate of Rs. 10/machine hour. At the end of the financial year 2013-14 it has been found that actual production incurred were Rs. 600,000. it included Rs. 45,000. on account of written of obsolete stores and Rs. 30,000 being the wages paid for the strike period under an award.

- The production and sales data for the year 2013-14 is as under:

Production:

Finished goods	20,000 units
WIP (50% complete in all respect)	8,000 units

Sales:

Finished goods	18,000 units
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- The actual machine hours worked during the period were 48,000. it has been found that one-third of the under-absorption of production overheads was due to lack of production planning and the rest was attributable to normal increase in costs.

You are required to:

- (i) Calculate the amount of under-absorption of production overheads during the year 2013-14;and
- (ii) Show the accounting treatment of under-absorption of production overheads.

Unit-III Costing and Analysis of Manufacturing and Service Organization

1. What is equivalent production? How it is computed?
2. What is equivalent production? What statements are prepared for computation of equivalent production and its evaluation?
3. What is meant by 'Equivalent production'? Discuss its importance in valuing work-in progress.
4. Discuss merits and demerits of Average Cost Method and FIFO Method for valuation of work-in progress.

5. In process A on 1st march, there was no work-in-progress. During the month of march, 2000 units of material were issued at a cost of Rs. 18,000. Labour and overheads totaled Rs. 9,000 and Rs. 6,600 respectively. On 31st march, 1,500 units were completed and transferred to the next process. On the remaining 500 units, which are incomplete, degree of completion was as follows:

Material	100%
Labour	60%
Overhead	30%

- Prepare
- (a) Statement of equivalent production
 - (b) Statement of cost
 - (c) Statement of evaluation
 - (d) Process account.

(Ans. equivalent production units material 2000, labour 1800, overhead 1650, cost per unit material Rs.9, labour Rs.5, overhead Rs.4)

6. During the month, 2000 units introduced into process I. the normal loss was estimated at 5% on input. At the end of the month, 1400 units had been produced and transferred to next process, 460 units were uncompleted and 140 units had been scrapped. It was estimated that uncompleted units had reached a stage in a production as follows:

Material	75% completed
Labour	50% completed
Overhead	50% completed

The cost of 2000 units introduced was Rs. 5800.

Direct materials introduced during the process amounted to Rs. 1440.

Production overhead incurred were Rs. 1670. Direct labour Rs. 3340.

Units scrapped realized Re. 1 each.

The units scrapped have passed through the process, so were 100% completed as regards material, labour and overheads.

You are required to (a) prepare a statement of equivalent production

(b) Evaluate the cost of abnormal loss, finished goods and closing stock,

(c) prepare the process Ist account and abnormal loss account.

(Ans. equivalent production units material 1785, labour 1670, overhead 1670, cost per unit material Rs.4, labour Rs.2, overhead Rs.1)

7. A company follows process costing and manufactures a product in one process. The work-in-progress at the end of each month is valued according to FIFO method.

At the beginning of the month of January, the inventory of work-in-progress showed the 400 units, 40% completed, valued as follows:

	Rs.
Material	3600
Labour	3400
Overhead	<u>1000</u>
	<u>8,000</u>

In the month of January, materials were purchased for Rs. 75,000. Wages and overhead in the month amounted to Rs. 79800 and Rs. 21280 respectively. Actual issue of materials to production was Rs. 68500. Finished production taken into stock in the month was 2500 units. There was no loss in process.

At the end of the month, the work-in-progress inventory was 500 units, 80% complete as regards materials and 60% complete as regards labour and overhead.

You are required to compute equivalent production and prepare process account.

(Ans. equivalent production units material 2740, labour 2640, overhead 2640, cost per unit material Rs.25, labour Rs.30.23, overhead Rs.8.06)

8. The following figures related to single industrial process:

	RS.	
Material	2250	
Wages	650	
Overhead	<u>400</u>	3300
	Rs.	
Material	9250	
Labour	4600	
Overhead	3100	

During the period 30000 units were completed and 20000 units remained in process. The degree of completion of closing stock or WIP was as under:

Material	100%
Labour	25%
Overhead	25%

Make the necessary computations and prepare Process Account by using average method.

(Ans. equivalent production units material 50000, labour 35000, overhead 35000, cost per unit material Rs.0.23, labour Rs.0.15, overhead Rs.0.10)

9. The following data pertain to process 1 for march, 2005 of Beta Ltd.:

Opening work in progress: 1500 units at Rs. 15000.

Degree of completion: Materials 100%; Labour and overheads $33\frac{1}{3}\%$.

Input of materials: 18500 units at Rs. 52000

Direct labour Rs. 14000

Overheads Rs. 28000

Closing work-in-progress: 5000 units

Degree of completion: Materials 90% ; Labour and overheads 30%.

Normal process loss is 10% of total input (opening work-in-progress units+ units put in).

Scrap value Rs. 2 per unit.

Units transferred to the next process : 15000 units.

You are required to:

- I. Compute equivalent units of production
- II. Compute cost per equivalent units for each cost element, i.e. material, labour and overheads.
- III. Compute the cost of finished output and closing work-in-progress.
- IV. Prepare the process and other Account.

Assume (a) FIFO method is used by the company, and

(b) The cost of opening work-in-progress is fully transferred to the next process.

(Ans. Equivalent production units material 16000, labour 14000, overhead 14000, cost per unit material Rs3, labour Rs.1, overhead Rs.2)

10. The finished product of a factory passes through two Processes ;the entire material being placed in process at the beginning of the first process. From the following production and cost data relating to the first process, work out the value of the closing inventory and the value of the materials transferred to the second process:

Process I	Rs
Opening inventory	10,000
Material	27,500
Labour	50,000
Manufacturing Overhead	40,000

Opening Inventory (25 per cent complete)	4,000
Put into process	12,000
Transferred to II Process	10,000
Closing inventory (20 percent complete)	5,000
Spoilage during process	1,000

(Ans.:EP 10,000kg. Transferred to II process Rs.1.15, 750)

11. A Transport Company is plying 5 buses between two towns, having a distance of 20Kms. Each bus makes 4 trips daily. The capacity of each bus is 50 passengers, but normally 80% of capacity is utilized. Every bus operates 25 days in a month.

From the details given below operating cost (a) Per Kilo meter and(b) Per passenger Kilometer.

Wages of 5 drivers, each getting Rs.200 per month

Wages of 7 conductors, each getting Rs.150 per month

Workshop Superintendent's Salary Rs.5,000 per annum

2 Supervisors, each getting Rs.500 P.M.

Insurance Premiums Rs.1000 per annum

Road Taxes Rs.600 quarterly

Garage Rent Rs.1000 per month

License Fees each bus Rs.200 for six months

Electricity Charges Rs.100 per Month

Employer's Contribution towards National Insurance Rs.2000 per annum.

The Cost of each bus is R.1, 00,000 . Which is financed by a bank-loan charging 8% p.a. interest? The life of each bus is 5,00,000 Km., and at the end of life the scrap value of each bus is estimated Rs.10,000. The Cost of repairs and maintenance during the life of each bus is estimated

Rs.20,000. A set of tyres cost Rs.10,000 and its useful life is estimated 20,000 Kms. Lubrication & consumable stores cost Rs.1.50 per km. Diesel cost Rs.10 per Litre, and one litre covers 20 Kilometers.

(Ans.: Operating Cost Rs.3.146 per km.; Operating Cost per Passenger Km. .079)

12. A transport company is running a tourist car on a 20 km. long route for a project engineer of a construction company. The company purchases a car costing Rs.1,50,000. 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. The following particulars were obtained from their books for the year ended 2011:

	Rs.
Wages of driver	300 per month
Incidental charges	200 per month
Garage rent	500 per month
Insurance and taxes	5,200 per annum
Repairs and maintenance	4,000 per annum

Petrol and oil will cost Rs.100 per 100Kms. The car will make 4 round trips each day. Assuming that a profit of 20% on takings or 25% on average monthly cost is desired and that the car will be on the road for 25 days on an average per month, what should be the charge per round trip?

(Ans.: Charge per round trip Rs.82.5)

13. Prakash Automobiles distributes its goods to a regional dealer using a single lorry. The dealer's premises are 40 kilometers away by road. The lorry has a capacity of 10 tonnes and makes the journey twice a day fully loaded on the outward journeys and empty on return journeys. The following information is available for a Four Weekly Period during the year 2002:

Petrol Consumption	8 Kilometres per litre
Petrol Cost	Rs.13 per litre
Oil	Rs.100 per week
Driver's wages	Rs.400 per week
Repairs	Rs.100 per week
Garage rent	Rs.150 per week
Cost of lorry (excluding tyres)	Rs.4,50,000
Life of lorry	80,000 kilometres
Insurance	Rs.6,500 per annum
Cost of Tyres	Rs.6,250
Life of tyres	25,000 kilometres
Estimated sale value of lorry at end of its life	Rs.50,000
Vehicle license cost	Rs. 1,300 per annum
Other overhead cost	Rs.41,600 per annum

The lorry operates on a five day week. Required:

(a) A statement to show the total cost of operating the vehicle for the four weekly period analyzed into running costs and fixed costs.

(b) Calculate vehicle cost per kilometre and per tonne kilometre.

(Ans.:(a) Rs.4400 + 24,400=28,800 (b) Rs.9.00 and Rs.1.80)

14. From the data given below for the year 2001-2002 prepare a cost sheet showing the cost of electricity generated per unit of kwh. by the Chambal Thermal Power Station:

Total units generated 20,00,000 kwh.

Operating labour Rs.50,000

Repairs and maintenance Rs.50,000

Lubricants, spares and stores Rs.40,000

Plant supervision Rs.30,000

Administrative overheads Rs.20,000

Coal consumed per kwh. for the year is 2.5kg. @Rs.0.02 per kg. Charge depreciation @5% on capital cost of Rs.2,00,000.

(Ans.:(.03 + .12)=.15 Cost per kwh.

15. Find out the cost per unit of electricity generated in the power House located in the Rama Engineering Works for the month of November, 2011. with reference to the following data extracted from the Account Books of the Works. The Cost Sheet should be drawn up in the appropriate form.

Fuel: Coal 1,200 tons @Rs.11 per ton.

Coke 500 ton @ Rs.15 per tons.

Handling charges of the fuel @50 paise per ton.

Ash removal charges: 160 ton @25 paise per ton.

Cost of water pumped from the river: 160 thousand gallons @37.50 paise per thousand gallons.

Lubricating oil: 50 gallons @Rs. 4 per gallon

Credit on account of :

(i) Sale of Ashes:280 tons @25 paise per ton.

(ii) Cost of steam supplied to Manufacturing shop: 30,000lbs. @Rs.10 per 1000lbs.

Salaries and Wages of Operating Staff in the Power House:

(1) 1 Foreman @Rs.400 per month

(2) 2 Asst. Forman @Rs.125 per month

(3) 4 Mechanics @ Rs.75 per month

(4) 1 Coolie @Rs.2.50 per day for 30 days.

Depreciation	Capital Cost Rs.	Rate of Depreciation per annum
Boiler	20,000	6%
Generator and other Electrical Equipments	1,20,000 12,000	4% 1%

25% share of monthly total technical Supervision charges Rs.3,940.

Total gross units generated : 97,000 units.

Loss during the month due to leakage in course of generation defective equipment etc.1,000 units.

(Ans.: Units 96,000; Operating Cost per Unit .25 (25 paise)

16. A lodging home is being run in a small hill station with 50 single rooms. The home offers concessional rates during six off-season months in a year. During this period, half of the full-room rent is charged. The management's profit margin is targeted at 20% of the room rent. The following are the cost estimates and other details for the year ending 31st March,1996 (assume a month to be of 30 days);

(a) Occupancy during the season is 80%, while in the off- season is 40% only:

(b) Expenses:	Rs.
(i) Staff salary(excluding room attendants)	2,75,000
(ii) Repairs to buildings	1,30,500
(iii) Laundry & linen	40,000
(iv) Interior and tapestry	87,500
(v) Sundry expenses	95,400

(c) Annual depreciation is to be provided, for buildings at 5% and on furniture and equipments at 15% on straight line basis;

(d) room attendants are paid Rs.120 per room except in four months of winter when it is Rs.30 per room and this cost is on the basis of full occupance for a month;

(e) monthly lighting charges are Rs.120 per room except in four months of winter when it is Rs.30 per room and this cost is on the basis of full occupancy for a month; and

(f) total investments in the home is Rs./100 lakhs of which Rs./80 lakhs relate to buildings and balance for furniture and equipments.

You are required to work out the room rent chargeable per day both during the season and the off-season months, on the basis of the foregoing information.

(Ans.: Room Rent during season Rs.197; off season Rs.98.50)

17. What is meant by inter- process profit? What process does it serve?
18. What is inter-process profit? What are the objectives and the disadvantages of this concept?
19. A ltd. Produces product 'AXE' which passes through two processes before it is completed and transferred to finished stock. The following data related to Oct 2005

Particular	Processes	Finished Stock	
	I	ii	
Opening stock	Rs.7,500	RS.9,000	22,500
Direct materials	15,000	15,750	-
Direct wages	11,200	11,250	-
Factory overheads	10,500	4,500	-
Closing stock	3,700	4,500	11,250

Inter-process profit included in

Opening stock	1,500	8,250
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Output of process I is transferred to process ii at 25% profit on the transfer price.

Output of process ii is transferred to finished stock at 20% profit on the transfer price.

Stocks in process are valued at prime cost. Finished stock is valued at the price at which it is received from process ii. Sales during the period is Rs.1,40,000.

Required-process cost accounts and finished stock accounts showing the profit element at each stage.

UNIT-IV COST ANALYSIS FOR SHORT TERM DECISIONS

1. Define Marginal Cost. Discuss the importance of classifying expenses into variable and fixed. Give two examples of each.
2. Explain clearly what you understand by 'Contribution' in a cost accounting sense. How is it related to profit? List three benefits that management can obtain from knowing the contribution from its cost units.
3. What is P/V (Profit-Volume) Ratio and to what uses is it put?
4. Discuss the importance of the following terms in relation to Marginal Costing:
(a) Key factor of Production, (b) Break-even Point, (c) Margin of Safety

5. Discuss the utility of determining cost volume profit relation-ship. Give its limitations.
6. Explain the term Cost control and cost reduction. Discuss the areas of cost reduction
7. You are required to calculate the break-even point in the following case:

The fixed cost for the year are Rs.80,000; variable cost per unit for the single product being made is Rs.4. Estimated Sales for the period valued at Rs.2,00,000. The number of units involved coincides with the expected volume of output. Each unit sells at Rs.20. Calculate break-even point volume of output (B.E.P.) by applying important formulas.

(Ans.: BEP (S) Rs.1,00,000 BEP(U) 5,000.

8. The following is the statement of cost and sales of Sharma & Bros :

	Rs.
Fixed Cost	1,80,000
Variable Cost	2,80,000
Net Sales	4,20,000

Determine how much sales volume is to be increased in order for the company to break-even.

(Ans.: Rs.1,20,000)

9. Ashok & Co. Ltd. gives you the following information:

	Sales	Profit
	Rs.	Rs.
Period-1	15,000	400
Period-2	19,000	1,150

Calculate:

- (a) The PV Ratio
- (b) The Profit when sales are Rs.12,000

(c) The break-even-point.

(d) The sales required to be made to earn a profit of Rs.2000.

(Ans.:(a)18.75% (b) Loss Rs.162.50 (c)12,866.66 (d) Rs.23,533

10. The price structure of a cycle made by the Cycle Co. Ltd. is as follows:

	Per Cycle
	Rs.
Material	60
Labour	20
Variable Overheads	20

	100
Fixed Overheads	50
Profit	50

selling price	200

This is based on the manufacture of one lakh cycles per annum. The company expects that due to competition they will have to reduce selling prices, but they want to keep the total profits intact. What level of production will have to be reached, i.e. how many cycle will have to be made to get the same amount of profit, if:

(a) the selling price is reduced by 10% ?

(b) the selling price is reduced by 20% ?

(Ans.(a) 1,25,000 cycles (b) 1,66,667 cycles.

11. From the following data calculate:

(1) Break-even point expressed in amount of sales in rupees

(2) Number of units that must be sold to earn a profit of Rs.60,000 per year.

	Rs.
Sales price	20 per unit
Variable Manufacturing Costs	11 per unit
Variable Selling costs	3 per unit
Fixed Factory Overhead	5,40,000 per unit
Fixed Selling Costs	2,52,000 per year

(Ans.: (i) Rs.26,40,000 (ii) 1,42,000 units)

12. The following expenses are incurred in the manufacture of 1,000 units of a product in the manufacture of which a factory specialises:

Rs.

Raw materials	2,800
Wages	1,900
Overheads Charges(Rs.4,000 fixed)	4,200

10,000 units of the product can be absorbed by the home market where the selling price is Rs.9 per unit. There is a demand for 50,000 units of the product in a foreign market if it can be offered at Rs.8.20 per unit. if this is done, what will be the total profit or loss made by manufacturer?

(Ans.: Profit Rs.2,02,000).

13. Present the following information to show to management

- (1) The marginal Product cost and the contribution per unit
- (ii) The total contribution and profits resulting from each of the following sales mixtures:

	Product	Rs. per unit
	-----	-----
Direct Materials	A	10
	B	9
Direct Wages	A	3
	B	2
Fixed Expenses		Rs.800

Variable expenses are allotted to products as 100% of direct wages.

		Rs.
Sales price	A	20
	B	15

Sales mixtures:

- (a) 100 units of product A and 200 of B
- (b) 150 units of product A and 150 of B
- (c) 200 units of product A and 100 of B

(Ans.: (i) MC 16 A, 13 B, Contribution 4A, 2B; (ii) (a) Profit nil, (b) Rs.100 (c) Rs.200).

14. (a) Alcos Ltd. manufactures and sells four types of product under the brand names of A,B,C and D. The sales mix in value comprises of 33.33%, 41.66%, 16.66% and 8.33% of products A,B,C and D respectively. The total budgeted sales (100%) are Rs.60,000 per month. Operating Costs are

Variable Cost product A 60% of Selling price

Variable Cost Product B 68% of Selling Price

Variable Cost Product C 80% of Selling Price

Variable Cost Product D 40% of Selling Price

Fixed Costs Rs.14,700 per month.

Calculate the break-even point for the products on an overall basis.

(b) It has been proposed to change the sales mix as follows, the total sales per month remaining Rs.60,000

Product A 25%

Product B 40%

Product C 30%

Product D 5%

Assuming that the proposals is implemented, calculate the break-even point in the new position.

(c) Illustrate the effect of the above change in product mix on a simple profit-volume chart.

(Ans.:(a) BEP 70% Rs.42,000 (b) BEP 77% Rs.46,200 Margin of Safety Shifted Rs.4,200).

15. There are three lines of production cost per unit and selling price per unit are given below:

	X	Y	Z
	Rs.	Rs.	Rs.
Materials	18	26	30
Wages	7	9	10
Variable Overhead	2	3	3
Fixed	5	8	9
Total	32	46	52
Selling Price	40	64	61
Net Profit	8	18	9
Production in units	4000	2000	5000

The production manager wants to discontinue one line and guarantees that production of other two lines shall rise by 50%. He wants to discontinue line X, as it is least profitable.

- (a) do you agree to the scheme in principle?
 (b) If yes, do you think that line X should be discontinued?

16. Jeetex Ltd. Is on manufacturing 5000 units of L, 4000 units of M and 3000 units of P the details per unit are:

	Products		
	L	M	P
	Rs.	Rs.	Rs.
Selling price	80	50	40
COST:			
Material	30	25	20
Labour	10	8	6
Variable Overheads	4	3	2
Fixed Overhead	10	8	7
Scarce material consumed (per unit)	10 kg.	6 kg.	4 kg.

Sales is not limiting factor with respect to any of the products. It is decided to close one of the lines. Will it be advisable? If yes, which lines should be closed?

17. Jayco Ltd. Has two factories: main factory and feeder factory main factory is run at 70% capacity (installed capacity is 1,20,000 units) and feeder factory supplies its requirements by working at 80% capacity. The cost structure of feeder factory is given below:

	Rs.
Materials	1.68,000
Wages (50 paise per unit piece rate plus fixed DA)	60,000
Overhead: Fixed	75,000
Variable	42,000
	3,45,000

The production of the main factory is to be increased to 80% capacity. The component can be brought from the market at Rs. 3.50 per unit. As cost of feeder factory exceeds Rs. 4 per unit. It is proposed to procure the additional requirement from the market instead of having them from the feeder factory. Advise the management.

UNIT-V COST CONTROL THROUGH VARIANCE ANALYSIS

1. Define the term 'Standard Costing. How are the standards fixed? Illustrate your answer.
2. Explain the significance of the term 'variance'. How is variance analysis considered as a tool of control?
3. What is variance analysis? Discuss the reporting and disposal methods of variance.

4. Standard Mix for producing 'X' Material A=10kg. @Rs. 5.00 per kg. Material B=15kg. @10.00 per kg.
Actual mixture being :
Material A=12kg. @6.00 per kg.
Material B=13kg. @12.00 per kg.

Find out Material variances.

(Ans.: MPV A 12(A) B 26(A); MMV A 10(A) B 20(F))

5. Standard Mix for production A

x=60 tons @Rs.5 per ton

y=40 tons @Rs.10 per ton

Actual Mixture being:

x=80 tons @Rs.4 per ton

y=70 tons @Rs.8 per ton

Reconcile the Actual Material Cost with Standard material Cost.

(Ans.: MPV X 80F, Y 140 F; MUV X 150 A Y 200A; MMV x 50F Y 100A).

6. In a brass foundry, Standard Mixture consists of 60% Copper and 40% Zinc. The Standard loss of production is 10% of input. From the actual production in a month. Calculate Material Cost Variance and analyse it:

Copper 25kg. @Rs.15 per kg. (Standard 30kg.)

Zinc 25kg. @Rs.10 per kg. (Standard 20kg.)

There is no difference between Standard Price and Actual Price. Actual output 43 kg.

(Ans.: MMV Copper 75F Zinc 50A; MYV 29A)

7. In a brass foundry, Standard Mixture consists of 60% Copper and 40% Zinc. The Standard Loss of production is 30% Standard Mixture and yield are:

Copper 60kg. @Rs.5 per kg.

Zinc 40 kg. @Rs.10 per kg.

Standard Yield 70 kg.

The actual mixtures and Yield were:

Copper 80 kg. @Rs.4.50 per kg.

Zinc 70 kg. @Rs.8.00 per kg.

Actual Yield 115 kg.

Calculate Mix Variance, Price variance and yield variance.

(Ans.: MMV Copper 50F Zinc 100 A; MPV Copper 40F Zinc 140F; MYV 100F)

8. The Standard mix of a product is:

x=60 units at 15 paise per unit

y=80 units at 20 paise per unit

z=100 units at 25 paise per unit

Ten units of finished product should be obtained from the above mix. During the month of February, ten mixes were completed and the consumption was:

x=640 units at 20 paise per unit

y=960 units at 15 paise per unit

z=840 units at 30 paise per unit

Actual output was 90 units.

Calculate Material Variances.

(Ans.: MPV X 32A Y 48F z42A; MUV X 1.50A Y2.60A Z 4.25A; MMV X 4.50A Y29.40A MYV 50A).

9. Calculate (i) Material Cost Variance (ii) Material Price Variance (iii) Material Usage variance from the following information:

Materials purchased 3,000kg.
 Value of Materials purchased Rs.9,000
 Standard Quantity- 25kg. for one kg. Of finished goods
 Standard price-Rs.2 per kg.
 Closing Stock of Materials - 500kg.
 finished goods produced - 80kg.
 (Ans.:MPV 2500 A; MUV 1000A).

10. The following information is obtained from a Standard Cost Card:

Labour Rate 90 paise per hour
 Hours-3 hours per unit

Actual production data are-
 Units produced 250
 Labour Rate Rs.1.05 per hour
 Hours worked 800

Calculate Labour Cost Variance and analyse it.
 (Ans.: LRV 120A LEV 45A LCV 165A).

11. The standard labour force of Khanna Steel Ltd. is as under:

	Rs.
20 skilled men at 50 paise per hour for 40 hours	400
40 semi-skilled men at 35 paise per hour for 40 hrs.	560

	960

During a certain week, the actual labour force was:

	Rs.
30 skilled men at 50 paise per hour for 40 hours	600
30 semi-skilled men at 40 paise per hour for 40 hrs.	480

	1,080

Analyse the Labour Variances.

(Ans.: LRV Skilled Zero Semi 60A; LMV Skilled 200A Semi 140F
 LCV 120 A).

12. The Standard Labour Cost per unit of product 'Y' is :

	Rs.
Grade I- 5 hours	5.00
Grade II- 8 hours	4.00
Grade III- 10 hours	4.00

	13.00

For 500 units of production, following wage payments were made:

	Rs.
Grade I- 2,400 hours	2,640
Grade II- 6,000 hours	2,700 (1,000 hrs. idle)
Grade III-7,000 hours	2,940 (500 hrs. idle)

Reconcile the Standard Labour Cost with Actual Labour Cost for units of Production of 'Y'.

(Ans.:LRV I 240A II 300 F III 140A; LEVI 522 A II 417.50A III 417.20 LMV I 622F II 82.50A III 182.80A Idle Time Value II 500A III 200A.

13. Calculate overhead cost variance from the following data:

	Budget	Actual
Production in units	20,000	16,000
Standard hours	10,000	9,000
Overheads:	Rs.20,000	Rs.24,000
Fixed	Rs.12,000	Rs.12,000
Variable	Rs. 8,000	Rs.12,000

(Ans.: Ocr Rs.8000A)

14. From the following information, calculate variable overhead variances:

	Budget	Actual
Production units	400	360
Labour hours	8,000	7,000
Variable overhead(Rs.)	10,000	9,150

Standard time to produce one unit of output is 20 hours.

(Ans.: VocR 150A; VoExp.V 400 VO Efficiency V 250F.

15. S.V. Ltd. has furnished you with the following data:

	Budget	Actual
	July 2013	
No. of Working days	25	27
Production in units	20,000	22,000
Fixed overheads	Rs.30,000	31,000

Budgeted fixed overhead rate is Re.1.00 per hour. In July,2013 the actual hours worked were 31,500.

Calculate the following variances:

- (i) Total overhead variance
- (ii) Expenditure variance
- (iii) Volume variance
- (iv) Efficiency variance
- (v) Capacity variance
- (vi) Calendar variance

(Ans.: (i) 2000F (ii)1000A (iii)3000F (iv)1500F (v) 900 (vi) 2400F)

REFERENCE BOOK

- COST AND MANAGEMENT ACCOUNTING – M.N. ARORA
- COST ACCOUNTING-PRINCIPLES AND PRACTICE- JAIN & NARANG
- COST AND MANAGEMENT ACCOUNTING – RAVI.M. KISHORE
- COST ACCOUNTING – KHAN & JAIN
- COST ACCOUNTING – M.L.AGARWAL