Paper – 8: Cost & Management Accounting

Time Allowed: 3 Hours **Full Marks: 100**

Question No 1 is Compulsory. Answers any five Questions from the rest.
Working Notes should form part of the answer.

Question.1

(a) Match the statement in Column I with the most appropriate statement in Column II : **[1×5 =5]**

Column I	Column II
(i) Relevant Cost	(A) prepared for different levels of capacity utilization
(ii) Cost Driver	(B) allows goal congruence
(iii) Flexible Budget is	(C) Purchase Order Processed
(iv) Transfer Price	(D) Future Costs affected by decision making
(v) Contract Costing is	(E) a method used in Construction Industry

(b) Fill in the blanks: **[1×5 =5]**

(i) The success of the …… costing is based on mutual belief and understanding.

(ii) A Budget is a statement that is always prepared …… to a defined period of time.

(iii) ……..is the difference between the actual sales and the break-even sales.

(iv) A …… is the notional value at which goods and services are transferred between divisions in a decentralized organization.

(v) Activity Based Costing is based on the identification of ……

(c) State whether the following statements are TRUE or FALSE: **[1×5 =5]**

(i) Bin card shows the value of a material at any movement of time.

(ii) Labour Turnover is the movement of people out of the organization.

(iii) Standard Costing may not be suitable for small concerns.

(iv) Cost Accounting is a branch of Financial Accounting.

(v) Transfer pricing has significance for the purpose of measurement of divisional performance.

(d) In the following cases, You are required to indicate the correct answer and give workings: **[2x5 =10]**

(i) XYZ Co. Ltd. is having 400 workers at the beginning of the year and 500 workers at the end of the year. During the year 20 workers were discharged and 15 workers left the company. The Labour Turnover rate under 'separation method' is:
   A. 22.20%
   B. 7.78%
   C. 4.00%

D. 14.40%

(ii) A company maintains a margin of safety of 25% on its current sales and earns a profit of ₹30 lakhs per annum. If the company has a p/v ratio of 40%, its current sales amount to

A. ₹200 lakhs
B. ₹300 lakhs
C. ₹325 lakhs
D. None of the above

(iii) The following information relating to a type of Raw material is available:

Annual Demand	**3,000 units**
Unit price	**₹20.00**
Ordering cost per order	**₹20.00**
Storage cost 2% p.a.	
Interest rate 8% p.a.	

The economic order quantity is

A. 235 units
B. 240 units
C. 245 units
D. 250 units

(iv) In case of joint products, the main objective of accounting of the cost is to apportion the joint costs incurred up to the split off point. For cost apportionment one company has chosen Physical Quantity Method. Three joint products 'A', 'B' and 'C' are produced in the same process. Up to the point of split off the total production of A, B and C is 60,000 kg, out of which 'A' produces 30,000 kg and joint costs are ₹3,60,000. Joint costs allocated to product A is

A. ₹1,20,000
B. ₹60,000
C. ₹1,80,000
D. None of the these

(v) After inviting tenders for supply of raw materials, two quotations are received as follows— Supplier A ₹2·20 per unit, Supplier B ₹2·10 per unit plus ₹2,000 fixed charges irrespective of the units ordered. The order quantity for which the purchase price per unit will be the same—

A. 22,000 units
B. 20,000 units
C. 21,000 units
D. None of the above

Answer:

(a)

Column I	Column II
(i) Relevant Cost	**(D)** Future Costs affected by decision making
(ii) Cost Driver	**(C)** Purchase Order Processed
(iii) Flexible Budget is	**(A)** prepared for different levels of capacity utilization
(iv) Transfer Price	**(B)** allows goal congruence
(v) Contract Costing is	**(E)** a method used in Construction Industry

(b)

(i) Uniform
(ii) Prior

(iii) Margin of Safety
(iv) Transfer Price
(v) Activities

(c)

(i) False.
Bin card is a record of receipt and issue of materials in quantity terms. It shows the balance of the stock at any moment of time.

(ii) False.
Labour turnover is the rate at which an employer gains and losses employees. It is the ratio of the number of employees that leave a company through attrition, dismissal, or resignation during a period to the number of employees on payroll during the same period.

(iii) True.
The process of setting standard is a difficult task, as it requires technical skills. The time and motion study is required to be undertaken for this purpose. These studies require a lot of time and money. Small concerns may not be able to afford.

(iv) False.
Financial Accounting aims at finding the results of an accounting year in terms of profits or losses and assets and liabilities. Cost Accounting primarily deals with collection, analysis of relevant cost data for interpretation and presentation for various problems of management.

(v) True.
'Transfer Price' is that notional value at which goods and services are transferred between divisions in a decentralized organization. Divisional profitability is measured by fixation of 'transfer price' for inter divisional transfers.

(d)

(i) 'B' - 7.78%
Average No. of workers (400 + 500) / 2 = 450 Labour Turnover rate (Separation Method)

$$= \frac{\text{No. of separation during the year}}{\text{Av. no. of workers}} \times 100$$

$$= \frac{20+15}{450} \times 100$$

= 7.78%

(ii) 'B'- ₹300 Lakhs
Marging of Safety = Profit / PV ratio.
= 30 ÷ 40% = 75 Lakhs
∴Total Sales =75 /.25
= ₹300 Lakhs

(iii) 'C' – 245 units
Economic order quantity (EOQ)
Annual consumption (A) = 3,000 units
Fixed cost per order (O) = ₹20
Carrying cost per unit p.a (CC) = ([₹20 p.u. × 2%) + (₹20 p.u × 8%)] = ₹2

$\therefore$ Economic Order Quantity = $\sqrt{\frac{2AO}{C}} = \sqrt{\frac{2\times 3{,}000\times 20}{2}}$

=245 units

(iv) 'C' - ₹1,80,000

Product A produces 50% of total production (60000 kg ÷ 30000 kg.).

So according to physical quantity method, 50% of joint costs (₹1,80,000) to be allowed to product- A.

(v) 'B' - 20,000 units.

The difference between the prices quoted by suppliers (₹0.10) while the fixed cost is ₹2000.

So the desired order quantity will be – ₹2,000 ÷ ₹0.10 = 20,000 units

Question.2

(a) From the data given below answer the following:

(i) What is the simple average price of the four weeks' receipts of material A?

(ii) What is the weighted average price of the four week' receipts of material B?

(iii) What is the value of the balance of materials, in stock at the close of the fourth week if issues are priced on LIFO basis?

Raw Material Received					Issued	
	A		B		A	B
Week	Kg-	₹	Kg-	₹	Kg-	₹
1st	250	1,000	1,250	1,690	175	1,500
2nd	300	1,260	1,400	1,960	250	1,200
3rd	200	880	750	1,050	300	1,300
4th	250	960	1,600	2,400	300	1,100

Stores Opening Stocks: A – 200 kg. ₹720; B – 2,000 kg. ₹2,900. **[2+2+2]**

Answer:

(i) Simple average price of four weeks' receipts material A:

$$\frac{1}{4}\times ₹\left(\frac{1{,}000}{250}+\frac{1{,}260}{300}+\frac{880}{200}+\frac{960}{250}\right)$$

$$= ₹\frac{4+4.20+4.40+3.84}{4} = \frac{16.44}{4} = ₹4.11 \text{ per kg.}$$

(ii) Weighted average price of our weeks' receipts of material B:

$$\frac{1{,}690+1{,}960+1{,}050+2{,}400}{1{,}250+1{,}400+750+1{,}600} = ₹\frac{7{,}100}{5{,}000} = ₹1.42 \text{ per kg.}$$

(iii) Value of materials in stock of A at the close of the 4th week when issues are priced on LIFO basis.

Total Receipts (including Op. stock)	1,200 units
Total Issues	1,025 units
Balance	175 units

The stock consists of units of opening stock of 200 units of ₹. 720. Thus, their value is:
175 × 720/200 = ₹630

(b) A Company using a detailed system of standard costing finds that the cost of investigation of variances is ₹ 20,000. If after investigation an out of control situation is discovered, the cost of correction is ₹ 30,000. If no investigation is made, the present value of extra cost involved is ₹1,50,000. The probability of the process being in control is 0.82 and the probability of the processes being out of control is 0.18. You are required to advice:
(i) Whether investigation of the variances should be undertaken or not;
(ii) The probability at which it is desirable to institute investigation into variances. [2+4]

Answer:
(i) Whether investigation should be undertaken or not:

Situation	Cost (a)	Probability (b)	Effective Cost (a) × (b)
Process under control	20,000	.82	16,400
Process out of control (20,000+30,000)	50,000	.18	9,000
Total cost to investigate:			25,400

Cost of not to investigate:
Extra cost of correction × Probability of processing being out of control
= 1,50,000 × .18
= 27,000
Since cost when investigation is undertaken is less than the cost of no investigation it should be done.

(ii) Probability at which Investigation into Variance should be instituted

Finding out the probability at which both costs are equal.
Let x be the probability of process being in control.
Therefore,
(1-x) is probability of process being out of control.

Process	Cost of Investigation		Effective Cost (1) × (2)	Cost of No Investigation
	Cost (1)	Probability (2)		
In Control	20,000	x	20,000x	1,50,000 × (1-x)
Out of Control	50,000	1-x	50,000 – 50,000x	
Net Cost			50,000-30,000x	1,50,000-1,50,000x

Equating two cost:
50,000 – 30,000x = 1,50,000 – 1,50,000x
⇨ 1,20,000x = 1,00,000
or, x = 0.833.
At the probability level of 0.83 (Process-in-control), both costs are equal. As this probability level decline, the cost of not investigating will be greater than cost of investigating. If probability level is anywhere below 0.83, investigation should be instituted.

(c) Explain the term Opportunity Cost. [3]

Answer:
Opportunity Cost:

Opportunity cost is the value of alternatives foregone by adopting a particular strategy or employing resources in specific manner. It is the return expected from an investment other than the present one. These refer to costs which result from the use or application of material, labour or other facilities in a particular manner which has been foregone due to not using the facilities in the manner originally planned. Resources (or input) like men, materials, plant and machinery, finance etc., when utilised in one particulars way, yield a particular return (or output). If the same input is utilised in another way, yielding the same or a different return, the original return on the forsaken alternative that is no longer obtainable is the opportunity cost. For example, if fixed deposits in the bank are proposed to be withdrawn for financing project, the opportunity cost would be the loss of interest on the deposits. Similarly when a building leased out on rent to a party is got vacated for own purpose or a vacant space is not leased out but used internally, say, for expansion of the production programme, the rent so forgone is the opportunity cost.

Question.3

(a) A company is manufacturing building bricks and fire bricks. Both the products require two processes:

Brick- forming heat –treating

Time requirements for the two bricks are:

	Building Bricks	Fire Bricks
Forming per 100 Bricks	**3 hrs**	**2 hrs**
Heat- treatment per 100 Bricks	**2 hrs**	**5 hrs**

Total costs of the two departments in one month were:

Forming ₹21,200 heart-treatment ₹48,800

Production during the month was:

Building bricks 1,30,000 Nos. Fire Bricks 70,000 Nos.

Prepare a statement of manufacturing costs for the two varieties of bricks. [5]

Answer:

In the manufacturing of the two types of bricks, time seems to play an important part. It will be therefore appropriate to apportion the costs of the two departments-Forming and Heat-treatment, between the Building Bricks and Fire Bricks in the ratio of total time taken.

Department	Building Bricks	Fire Bricks
Forming	3 × 1,30,000 = 39	2 × 70,000 = 14
Heat- treatment	2 × 1,30,000 = 26	5 × 70,000 = 35

The cost statement can be prepared as follows:

	Total	Ratio	Building	Fire Bricks
Output			1,30,000	70,000
Forming costs	21,200	39 : 14	₹15,600	₹5,600
Heat –treatment costs	48,800	26 : 35	20,800	28,000
Total cost of production			36,400	33,600
Cost per 100 bricks			28	48

(b) Gupta Enterprise is operating at 60% capacity level producing and selling 60,000 units @ ₹50 per unit. Other relevant particulars are as follows :

	Cost per unit
Material	**₹20**
Conversion Cost (variable)	**₹10**
Dealer's margin (10% of sales)	**₹5**
Fixed cost for the period is	**₹6,00,000**

As there is a stiff competition it is not possible to sell all the products at the existing cost price structure. The following alternative proposals are considered:

(i) Decrease selling price by 20%

(ii) Increase dealer's margin from 10% to 20%

Select the better alternative. Also calculate the sales volume required to maintain the same amount of profit under the alternative which is considered better assuming that volume of sales will not be a limiting factor under such alternative. Also assume that fixed cost will remain constant. [7+3]

Answer:

Computation under existing condition

Contribution per unit = unit selling price – unit variable cost = ₹50 – (₹20 + ₹10 + ₹5) = ₹15

Contribution from sale of 60,000 units = 60,000 ×₹15 = ₹9,00,000

Profit = Contribution – Fixed Cost = ₹9,00,000 –₹6,00,000 = ₹3,00,000

Computation under the first alternative
(i.e. when selling price is decreased by 20%)

Revised Selling price per unit (₹50 – 20% of ₹50)		₹40
Variable Cost per Unit:		
Material	₹20	
Conversion Cost	₹10	
Dealer Margin (10% of Sales)	₹4	₹34
Revised Contribution per unit:		₹6

P/V Ratio = Contribution / Sales × 100
= ₹6 /₹40 × 100 = 15%

BEP Sales (in ₹) = Fixed Cost / P.V Ratio
= ₹6,00,000 / 15% = ₹40,00,000

Computation under the second alternative
(i.e. when dealer's margin is increased to 20%)

Selling price per unit		₹50
Material	₹20	
Conversion Cost	₹10	
Dealer Margin (20% of Sales)	₹10	
		₹40
Revised Contribution per unit:		₹10

P/V Ratio = (Contribution / Sales) × 100
= (₹10 /₹50) × 100 = 20%

BEP Sales (in ₹) = Fixed Cost / P.V Ratio = ₹6,00,000 / 20% = ₹30,00,000

From the above results, it appears that P/V Ratio under the second alternative is higher than that under the first alternative. Also break even point under the second alternative sets at a lower level than the level under the first alternative. Therefore, second alternative i.e. increasing dealer's margin to 20% is better both in terms of profitability (as reflected from P/V

Ratio) and risk (as reflected from BEP). If the second alternative is selected, the required volume of sales to maintain the same profit. (i.e. ₹3,00,000)

= (Fixed Cost + Profit) /P.V Ratio
= (6,00,000 + 3,00,000) /20%
=45,00,000

Question.4

(a) A manufacturing concern, engaged in mass production produces standardised electric motors in one of its departments. From the following particulars of a job of 50 motors you are required to value the work-in-progress and finished goods.

- **Costs incurred as per job card:**
  Direct Material ₹75,000 Overheads ₹60,000
  Direct labour ₹20,000
- **Selling price per motor: ₹4,500**
- **Selling and distribution expenses are at 30% of sales value.**
- **25 Motors are completed and transferred to finished goods.**
- **Completion stage of work-in-progress:**

Direct Material 100% Direct Labour and Overhead 60% [4 1/2 + 4 1/2]

Answer:

STATEMENT OF EQUIVALENT PRODUCTION AND COST

Particulars	Direct Material		Labour & Overhead		Total
	%	Qty.	%	Qty.	
Transferred to Finished Goods	100	25	100	25	
Work-in-progress	100	25	60	15	
Equivalent Units		50	40		
Total Cost (₹)		75,000	80,000		1,55,000
Cost per Equivalent Unit (₹)		1,500	2,000		3,500

Actual Cost of Production per Unit of Finished Goods

Direct Material	₹1,500
Labour & Overhead	₹2,000
Total	₹3,500
Market Value per Unit of Finished Goods	
Selling Price	₹4,500
Less: Selling & Distribution Overheads @ 30% of ₹4,500	₹1,300
	₹3,150

Stocks should be at the lower of the cost (i.e., ₹ 3,500) or market value (i.e. ₹ 3,150). Hence, basis of valuation will be market value in this case.

Value of work- in- Progress

Direct Material: ₹1,500 × 25 units	=	₹37,500
Labour & Overhead: ₹(3,150 – 1,500) × 15 units	=	₹24,750
		₹62,250

Value of Finished Goods stock

25 units × ₹3,150	=	₹78,750
Total Value of Inventory = ₹78,750 + ₹62,250	=	1,41,000

(b) Define Standard Costing. List the general principle of standard costing. [1+5]

Answer:

Standard Costing is defined as "the preparation and use of standard cost, their comparison with actual costs and the measurement and analysis of variances to their causes and points of incidence."

General Principles of Standard Costing:

- Predetermination of technical data related to production. i.e., details of materials and labour operations required for each product, the quantum of inevitable losses, efficiencies expected level of activity, etc.
- Predetermination of standard costs in full details under each element of cost, viz., labour, material and overhead.
- Comparison of the actual performance and costs with the standards and working out the variances, i.e., the differences between the actual and the standards.
- Analysis of the variances in order to determine the reasons for deviations of actual from the standards.
- Presentation of information to the appropriate level of management to enable suitable action (remedial measures or revision of the standards) being taken.

Question.5

(a) The following was the expenditure on a contract for ₹12,00,000 commenced in January 2013:

	₹
Materials	**2,40,000**
Wages	**3,28,000**
Plant	**40,000**
Overheads	**17,200**

Cash received on account of the contract up to 31st December was ₹4,80,000 being 80% of the work certified.

The value of materials in hand was ₹20,000. The plant had undergone 20% depreciation. Prepare Contract Account. [6]

Answer:

Contract Account

Particulars	₹	Particulars	₹
To Materials	2,40,000	By Work certified	6,00,000
To Wages	3,28,000	By Materials in hand	20,000
To Depreciation on plant (20% of 40,000)	8,000		
To Overheads	17,200		
To Notional Profit	26,800		
	6,52,000		6,52,000
To Profit & Loss (W.N.1)	14,293	By Notional profit	26,800
To Work-in-progress A/c	12,507		
	26,800		26,800

*80% = 4,80,000; Thus, 100% = 4,80,000/ 80% = ₹6,00,000

Working note -1

Assuming that work completed is greater than 50% and less than 90%.

Therefore, Amount of profit transferred =2/ 3 × Notional profit × Cash received/ work certified

= 2/ 3 × 26,800 × 4,80,000/ 6,00,000 =₹14,293

(b) The budgeted cost of a factory specialising in the production of a single product at the optimum capacity of 6,400 units per annum amounts ₹1,76,048 as detailed below:

	₹	₹
Fixed Cost		**20,688**
Variable Costs:		
Power	**1,440**	
Repairs etc	**1,700**	
Miscellaneous	**540**	
Direct material	**49,280**	
Direct labour	**1,02,4000**	**1,55,360**
		1,76,048

Having regard to possible impact on sales turnover by market trends the company decided to have a flexible budget with a production target of 3,200 and 4,800 units (the actual quantity proposed to be produced being left to a later date before commencement of the budget period). Prepare a flexible budget for production levels at 50% and 75% capacity.

Assume selling price per unit is maintained at ₹40 as at present, indicate the effect on net profit.
Administration, selling and distribution expenses continue at ₹4,500. **[$4^1/_2 + 4^1/_2$]**

Answer:

FLEXIBLE BUDGET

Capacity Levels	100%	75%	50%
Output (Units)	6,400	4,800	3,200
Fixed Costs	₹ 20,688	₹ 20,688	₹ 20,688
Variable costs:			
Direct materials @ ₹ 7.70 per unit	49,280	36,960	24,640
Direct labour @ ₹ 16.00 per unit	1,02,400	76,800	51,200
Power @ ₹ 0.225 per unit	1,440	1,080	720
Repairs etc. @ ₹ 0.265625 per unit	1,700	1,275	850
Miscellaneous @ ₹ 0.084375 per unit	540	405	270
Total cost	1,76,048	1,37,208	98,368
Sales @ ₹ 40 per unit	2,56,000	1,92,000	1,28,000
Gross profit	79,952	54,792	29,632
Administration expenses	4,500	4,500	4,500
Net profit	75,452	50,292	25,132

Question.6

(a) Boraco Ltd. has been offered supplies of special ingredients S at a transfer price of ₹15 per kg by chhotaco Ltd. which is part of the same group of companies. Chhotaco Ltd processes and sells S to customers external to the group at ₹15 per kg. Chhotaco Ltd. bases its transfer price on cost plus 25% profit mark-up. Total cost has been estimated as 75% variable and 25% fixed.
You are required to:

Discuss the Transfer prices at which Chhotaco Ltd. should offer to transfer special ingredient S to Boraco Ltd. in order that group profit maximizing decisions may be taken on financial ground in each of the fallowing situations:-

(i) Chhotaco Ltd. has an external market for all of its production of S at a selling price of ₹15 per kg. Internal transfers to Boraco Ltd. would enable ₹1.50 per kg of variable packing cost to be avoided.

(ii) Conditions are as per (i) but Chhotaco Ltd has production capacity for 3,000 kg of S for which no external market is available.

(iii) Conditions are as per (ii) but Chhotaco Ltd has an alternative use for some of its spare production capacity. This alternative use is equivalent to 2,000 kg of S and would earn a contribution of ₹6,000. [3+2+2]

Answer:

(i) The proposed Transfer price [tp], ₹15, is 125% of cost. So, cost= ₹12, of which variable cost is 75%= ₹9 and fixed cost is 25%= ₹3. Since Chhotaco [C] can sell all its production of S in external market, the market price, which is marginal cost plus opportunity cost, should normally be the internal tp.

MP=₹15, Variable cost is ₹9; so opportunity cost is ₹6. However, for internal transfer, packing cost of ₹1.50 will not be needed. Hence, while the outside SP will remain at ₹15, internal tp will be=Variable cost of ₹7.50+opportunity cost of ₹6 = ₹13.50 – which is the same as MP-Selling expenses avoided.

(ii) For the 3,000 kg where no external market is available, the opportunity cost will not apply and transfers should be at the variable cost of ₹7.50. It will not add to the profit of C Ltd but will enable it to avoid under-capacity working. The remaining output should be transferred at ₹13.50 as described above.

(iii) The lost contribution for the 2,000 kg is ₹3 per kg (₹6,000/2,000 kg) giving a tp of ₹10.50 (₹7.50 variable cost + ₹3 opportunity cost). The remaining 1,000 kg for which there is an external market at ₹13.50.

(b) What are the advantages of Target Costing? [5]

Answer:

Advantages of Target Costing are:

- Target costing will provide management methods and analytical techniques for developing products and services whose costs support strategic objectives for market position and profit.
- Product costs will be defined from the customer's viewpoint; they will include functionality, cost of ownership and manner of delivery.
- Target costing is a critical component of product development teams and concurrent engineering.
- Target costing will incorporate as wide a range of costs and life cycle phases for the product or service as can be logically assigned and organizationally managed.
- Target costing will provide analytical techniques to indicate where cost reduction efforts on parts and processes will have most impact, and where commonality and simplification can be increased.

(c) What are the essential features of an effective Wage Plan? [3]

Answer:

The essential features of an effective Wage Plan may be enumerated as follows:

- It should be based upon scientific time and motion study to ensure a fair output and a fair remuneration.
- There should be guaranteed minimum wages at a satisfactory level.
- The wages should be related to the effort put in by the employee. It should be fair to both the employees and employer.
- The scheme should be flexible to permit any necessary variations which may arise.
- There must be continuous flow of work. After completing one piece, the workmen should be able to go over to the next without waiting.
- After a certain stage, the increase in production must yield decreasing rate so as to discourage very high production which may involve heavy rejections.

Question.7

(a) Write a note on ABC Analysis. [5]

Answer:

ABC Analysis:

The "ABC Analysis" is an analytical method of stock control which aims at concentrating efforts on those items where attention is needed most. It is based on the concept that a small number of the items in inventory may typically represent the bulk money value of the total materials used in production process, while a relatively large number of items may present a small portion of the money value of stores used resulting in a small number of items be subjected to greater degree of continuous control.

Under this system, the materials stocked may be classified into a number of categories according to their importance, i.e., their value and fre-quency of replenishment during a period. The first category (we may call it group 'A' items) may consist of only a small percentage of total items handled but combined value may be a large portion of the total stock value. The second category, naming it as group 'B' items, may be rela-tively less important. In the third category, consisting of group 'C' items, all the remaining items of stock may be included which are quite large in number but their value is not high.

This concept may be clear by the following example:

Category	No. of Items	% of the Total No. of Items	Value ₹	% of the Total Value Item	Average Value ₹
A	75	6	70,000	70	933
B	375	30	20,000	20	53
C	800	64	10,000	10	12
	1250	100	1,00,000	100	9908

Category 'A' items represent 70% of the total investment but as little as only 6% of the number of items. Maximum control must be exercised on these items. Category ₹B' is of secondary importance and normal control procedures may be followed. Category ₹C' comprising of 64% in quantity but only 10% in value, needs a simpler, less elaborate and economic system of control.

(b) The finishing shop of a company employs 60 direct workers. Each worker is paid ₹400 as wages per week of 40 hours. When necessary, overtime is worked up to a maximum of 15 hours per week per worker at time rate plus one-half as premium. The current output on an average is 6 units per man hour which may be regarded as standard output. If bonus scheme is introduced, it is expected that the output will increase to 8 units per man hour. The

workers will, if necessary, continue to work overtime up to the specified limit although no premium on incentives will be paid.
The company is considering introduction of either Halsey Scheme or Rowan Scheme of Wage Incentive system. The budgeted weekly output is 19,200 units. The selling price is ₹11 per unit and the direct Material Cost is ₹ 8 per unit. The variable overheads amount to ₹ 0.50 per direct labour hour and the fixed overhead is ₹10,000 per week.
Prepare a Statement to show the effect on the Company's weekly Profit of the proposal to introduce (a) Halsey Scheme, and (b) Rowan Scheme. [5+5]

Answer:

Total available hours per week =60 workers × 40 hrs. = 2,400 hrs.

Total standard hours required to produce 19,200 units $= \frac{19,200 \text{ units}}{6 \text{ units per hr.}}$ = 3,200 hrs.

Total labour hours required after the introduction of bonus scheme to produce 19,200 units.

$= \frac{19,200 \text{ units}}{8 \text{ units per man hr.}}$ = 2,400 hrs.

Total hours saved = 3,200 hrs. – 2,400 hrs. = 800 hrs.

Wage rate per hr. $= \frac{₹400}{40 \text{ hrs.}}$ = ₹10 per hr.

Bonus under Halsey scheme = 50% × time saved × rate per hour
= 50% × 800 hrs. × ₹10 per hr.
= ₹4,000

Bonus under Rowan scheme $= \frac{\text{Time save}}{\text{Time allowed}} \times \text{Time taken} \times \text{Rate per hr}$

$= \frac{800 \text{ hrs.}}{3,200 \text{ hrs.}} \times 2,400 \text{ hrs.} \times ₹10 \text{ per hr.}$

= ₹6,000

Statement showing the effect on Company's weekly profits by the introduction of Halsey and Rowan Schemes

	Particulars	Present ₹	Halsey ₹	Rowan ₹
a	Sales revenue [19,200 units × 11 per unit]	2,11,200	2,11,200	2,11,200
b	Direct material cost [19,200 units × ₹8 per unit]	1,53,600	1,53,600	1,53,600
c	Direct wages	3,200 × 10 = 32,000	2,400 × 10 = 24,000	2,400 x 10 = 24,000
d	Overtime premium [800 hrs. × ₹ 5 per hr.]	4,000	-	-
e	Bonus	-	4,000	6,000
f	Variable overheads	3,200 × 0.50 = 1,600	2,400 ×0.50 = 1,200	2,400 × 0.50 = 1,200
g	Fixed Overheads	10,000	10,000	10,000
h	Total Cost [b +c + d+ e + f]	2,01,200	1,92,800	1,92,800
i	Profit [a – h]	10,000	18,400	16,400

<u>Question.</u> 8 Write short note on any three [3 x5=15]

(a) Batch Costing
(b) Activity Based Management
(c) Absorption Costing
(d) Advantages of Market price based transfer price
(e) Inter-Locking Accounts;

Answer:

(a) Batch Costing

Batch Costing is very similar to job costing. Instead of a single job a number of similar units of the product are manufactured in a group or batch. The cost per batch is found and divided by the number of units in the batch to give the cost per unit. Batch Costing becomes necessary in the following cases:

- When the customer orders a large number of identical units of the same product/part.
- Internal manufacturing order is raised for a batch of identical parts
- Where it is vital that colour or shading or specific characteristics of goods sold to customer is uniform.

  Batch Costing is employed in toy making, footwear, radio and TV parts, pharmaceuticals, watch making, etc. When components are manufactured in batches, it becomes economical and reduces the overall cost of the product.

  Two elements of cost, which help to determine the lowest cost of operation, are:
- Setup or operation cost – which remains fixed per batch irrespective of the size of the batch.
- Carrying cost or storage cost, which very directly with the size of the batch.

Taking into account the above determinants, the economic batch quantity (EBQ) is determined by the following formula:-

$$EBQ = \sqrt{\frac{2 \times \text{annual demand} \times \text{setup cost per batch}}{\text{Annual cost of storing one unit}}}$$

(b) Activity Based Management.

The Activity Based Management is a tool of management that involves analysing and costing activities with the goal of improving efficiency and effectiveness. Though it is closely related to the Activity Based Costing, still it differs from the same in its primary goal. The Activity Based Costing focuses on activities with the object of measuring the cost of products/services. It tries to compute the cost as accurately as possible. On the other hand Activity Based Management focuses on managing the activities themselves. While in Activity Based Management, resources are traced to activities for evaluation of the activities themselves. In other words, efforts are made to improve the activities further. Thus Activity Based Management is a set of actions that management can take, based on information from an Activity Based Costing system, to increase/improve profitability.

For continuous improvement, Activity Based Management attempts the following analysis.

- Cost Driver Analysis
- Activity Analysis
- Performance Analysis

(c) Absorption Costing:

It is defined as the practice of charging all costs, both, variable and fixed, to operations, processes or products. Under absorption costing, cost of finished goods and work in progress include both fixed and variable costs. In absorption costing costs are classified as direct and indirect, direct costs are identifiable with a particular product and hence charged directly. Current year costs to some extent are carried forward to the subsequent period through closing inventory. In absorption costing, selling price is fixed on the basis of total costs.

Limitations of Absorption Costing:

- A portion of fixed cost is carried over to the subsequent accounting period as part of closing stock. This is an unsound practice because costs pertaining to a period should not be allowed to be vitiated by the inclusion of costs pertaining to the previous and vice versa.
- Absorption costing is dependent on the levels of output which may vary from period to period, and consequently cost per unit changes due to the existence of fixed overhead. Unless fixed overhead rate is based on normal capaicity, such changed costs are not helpful for the purposes of comparison and control.

(d) Market price based transfer price has the following advantages:

- Actual costs are fluctuating and hence difficult to ascertain. On the other hand market prices can be easily ascertained.
- Profits resulting from market price based transfer prices are good parameters for performance evaluation of selling and buying divisions.
- It avoids extensive arbitration system in fixing the transfer prices between the divisions.

However, the market price based transfer pricing has the following limitations:

- There may be resistance from the buying division. They may question buying from the selling division if in any way they have to pay the market prices.
- Like cost based prices, market prices may also be fluctuating and hence there may be difficulties in fixation of these prices.
- Market price is a rather vague term as such prices may be ex-factory price, wholesale price, retail price etc.
- Market prices may not be available for intermediate products, as these products may not have any market.
- This method may be difficult to operate if the intermediate product is for captive consumption.
- Market price may change frequently.
- Market prices may not be ascertained easily.

(e) Inter-locking Accounts

Cost and Financial Accounts are said to be interlocked, when independent set of books are maintained for each of them. These accounts are interlocked through control accounts maintained in the two sets of books. Cost Ledger Control Account is maintained in the financial books and a General Ledger Adjustment Account is maintained in costing books. In this manner, connection between the two sets of books is maintained. In costing books, all entries relating to fixed assets, cash, etc. are posted in General Ledger Adjustment Account. In case it is desired to integrate the two trial balances into one, the Cost Ledger Control Account and General Ledger Adjustment Account can be omitted because they are maintained on 'Contra' principle. The 'integration' as above aims at maintenance of only one set of books in which the transactions are recorded; thereby reconciliation is eliminated. However, due to some difficulties like implementation problem of 'integration', sometimes 'interlocking' of accounts is preferred. For example, a separate cost of accounting department because of its importance, 'interlocking' accounting system may have to be operated.