Time Allowed : 3 hours Full Syllabus Solutions-01 Total : 100 Marks

Part I : Case Scenario Based MCQs (30 Marks)

Ans. to Q.1

(i) Option (C) (ii)	Option (A)	(iii)	Option (D)	(iv) Op	otion (B)	(v) Option (A)
Statement showing the Profit	foregone last year	due to labo	ur turnover		•	
<u>Particulars</u>		₹		₹	₹	
(A) Avoidable Expenses						
Settlement Cost		43,820				
Recruitment Cost 26,7	40					
Selection Cost		12,750				
Training Cost		30,490		1,13,800		
(B) Additional Possible Profit	<u>i</u>					
Additional Possible Sales		22,20,650				
(-) Variable Cost (80% of S	Sales)	17,76,520		4,44,130	<u>5,57,930</u>	
	Comp	utation of A	dditional Po	ssible Sales		
Actual Sales				=	₹83,03,300	
Total labour hours				=	4,45,000hours	
(-) Unproductive training(½×	30,000 hrs)		=	<u>15,000</u>	hours	
Productive time				=	4,30,000 hours	
As a result of labour turnover,	following productiv	e time is los	t:			
Unproductive training tim	ie =	15,000	hrs.			
Delayed replacement	=	1,00,000	hrs.	1,15,000hrs.		
Hence, the amount of addition	nal sales that could l	nave been a	chieved had t	here been no lab	our turnover is	
(₹ 83,03,300× 4,30,000 hrs) ×	1,15,000 hrs=₹22,2	20,650				

Ans. to Q.2

(i) Option (B) (ii) Option (C) (iii) Option (C) (iv) Option (D) (v) Option (A)

(ii) (1)Inventory turnover ratio (Raw material)

= 
$$\frac{\text{Raw material consumed}}{\text{Average stock of Raw material}} = \frac{₹4,05,00,000}{₹22,50,000} = 18 \text{ times}$$

(2)Inventory turnover ratio (Finished goods)

$$= \frac{\text{Cost of sales}}{\text{Average stock of finished goods}} = \frac{₹ 4,05,00,000}{₹ 1,08,00,000} = 3.75 \text{ times.}$$

Average stock of finished goods =  $\frac{Opening\ stock + closing\ stock}{2} = \frac{Nil + 2, 16, 00, 000}{2} = ₹1,08,00,000$ 

(3)Input-Output ratio = 
$$\frac{Input \, consumed}{Output \, obtained} \times 100 = \frac{1,80,000 \, units}{1,60,000 \, units} = 100 = 112.5\%$$

Input consumed (in quantity) =  $\frac{\text{₹ 4,05,00,000}}{\text{₹ 225 p.u}}$  = 1,80,000 units

**Explanation**:- During the year, the company has received order of 1,20,000 units and out of which, the order of 12,000 units could not be fulfilled due to stock shortage. Hence, the company fails to fulfill 10% of total ordered quantity.

(iii) Comments:-

- (1) Raw material turnover ratio (18 times) is maintained at high level which means that the consumption of raw material is at fast speed and stock of raw material is held for short period. This situation is favorable to the organization.
- (2) Finished goods turnover ratio (3.75 times) is maintained at low level which means that sale of finished goods is at slow speed and stock of finished goods is held for long period. This situation is unfavorable to the organization.
- (3) Input output ratio of 112.5% means that 12.5% of total input is wasted in manufacturing procedure.
- (4) Stock-out ratio indicates that the organization lacks internal control system in context of stock management.

Ans. to Q.3

Option (d)

(i) Time allowed = 6 hrs; Time taken = 5 hrs and Time saved = (6-5) hrs = 1 hr

# **Rowan Plan**

Time wages (5 hrs @ ₹ 120/hr)	₹ 600
+ Bonus (1 hr/6 hrs × 5 hrs ×₹ 120/hr]	₹ 100
Total earnings	₹ 700

Effective earning per hr = ₹ 700/5 hrs = ₹ 140/ hr

(ii) Let time taken = x hrs

# **Halsey Plan**

Time wages 
$$(x \text{ hrs} \times \text{₹ 120/hr})$$

$$+ \text{Bonus} \left( \frac{50}{100} \times (6-x) \text{ hr} \times \text{₹ 120/hr} \right)$$

$$\text{₹ 60 (6-x)}$$

$$\text{Total earnings}$$

Effective earning per hr = 
$$\frac{360 + 60x}{x \text{ hrs}} \Rightarrow 140 = \frac{360 + 60x}{x \text{ hrs}}$$

**Solving** we get x = 4.5 hrs. **Hence**, the job is completed by the worker in 4.5 hours.

Ans. to Q.4

# Option (b)

Sale of profit of ₹ 70,000

$$= \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{P/v Ratio}}$$

$$= \frac{2,80,000 + 70,000}{28\%} = ₹12,50,000$$

Ans. to Q.5

# Option (c)

Efficiency Ratio = 
$$\frac{\text{Activity Ratio}}{\text{Capacity Ratio}}$$
  
=  $\frac{96\%}{80\%}$  = 120%

Ans. to Q.6

### Option (b)

Machine Hour Rate = 
$$\frac{\text{Total Factory Overheads}}{\text{Budgeted Machine hrs. - Normal Loss}}$$
  
=  $\frac{₹ 120,000}{15,000 \text{ Machine hrs.}} = ₹10$ 

Ans. to Q.7

# Option (a)

Total kms. in a month = 3,000 kms.

Passenger normal travelling = 80 passengers

Total passenger – kms. in a month

$$= 3,000 \times 80 = 2,40,000$$

Total monthly Cost is ₹ 2,40,000.

Hence, cost per passenger per km. is ₹1

(i)Statement of Equivalent Production (FIFO Method)

Input	Units		Units	Ma	terial	La	bour	Over	heads
	Ullits		Units	%	Qty	%	Qty	%	Qty
Opening WIP	2,250	Completed	2,250	-	-	40	900	40	900
Introduced	22,750	Completed	17,250	100	17,250	100	17,250	100	17,250
		Normal loss	2,500						
		Abnormal Loss	500	100	500	70	350	70	350
		Closing W.I.P.	2,500	100	2,500	80	2,000	80	2,000
	25,000				20,250		20,250		20,500

(ii) Statement of Cost per unit

Item of Cost	Amount (₹)	Equivalent production	(Unit)	Cost per unit (₹)
Material	88,500			
(-) Revenue from sale of normal loss (2,500 units × ₹ 3)	(7,500)	81,000	20,500	4
Direct wages		20,500	20,500	1
Production overheads		41,000	20,500	2
Cost of completing one unit				7

# **Statement of Evaluation**

Particulars	Type of Cost	Eq. Units	Cost/Unit	Cost	<b>Total Cost</b>
Abnormal Loss	Material	500	4	2,000	
	Labour	350	1	350	
	Overheads	350	2	700	3,050
Closing WIP	Material	2,500	4	10,000	
	Labour	2,000	1	2,000	
	Overheads	2,000	2	4,000	16,000
Opening WIP, now completed	Material		4		
	Labour	900	1	900	
	Overheads	900	2	1,800	2,700
Introduced and completed	Material	17,250	4	69,000	
	Labour	17,250	1	17,250	
	Overheads	17,250	2	34,500	1,20,750

# Computation of Total cost of 19,500 units transferred to Process II:

2,250 units of opening WIP

₹

 $\rightarrow$  Cost already incurred 11,250  $\rightarrow$  Cost now incurred 2,700

<u>2,700</u> 13,950

# **Process I Account**

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Opening WIP	2,250	11,250	By Normal Loss	2,500	7,500
To Material	22,750	88,500	By Unit completed and		
To Wages		20,500	transferred to Process II	19,500	1,34,700
To Production overheads		41,000	By Abnormal loss	500	3,050
			By Closing WIP	2,500	16,000
	25,000	1,61,250		25,000	1,61,250

Let the quantity of raw material introduced in Process I be 100 kg. The output and input in the four processes then is as follows:

Particulars	Process I	Process II	Process III	Process IV
Input (kg.)	100	75	60	48
Less: Loss (kg.)	25% = (25)	20% = (15)	20% = (12)	$16\frac{2}{3}\% = (8)$
Output (kg.)	75	60	48	40

Thus if the end output is 40 kg. the input in Process I is 100 kg. If output of process IV is 40,000 kg. the input in Process I will be  $40,000 \times (100/40) = 1,00,000 \text{ kg}$ . Thus, for 1 kg. of output 2.5 kg. of materials is required. If costs of material increases or decreases by ₹ 1, the cost of output will increase or decrease by 100/40 = ₹ 2.50 per kg. Total cost of initial input for 40,000 kg. of output = 1,00,000 kg.  $\times$  ₹ 50 = ₹ 50,00,000 Input cost per kg. of output = ₹50 × 2.5 kg. = ₹125.

# Ans. to Q.9 (A)

	SP × SQAO	SP × RSQ	SP × AQ	AP × AQ
Material	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	M <sub>4</sub>
Α	₹ 25 × 10,000 kgs.	₹ 25 × 10,455 kgs.	₹ 25 × 11,000 kgs.	₹ 23 × 11,000 kgs.
	₹ 2,50,000	₹ 2,62,375	₹ 2,75,000	₹ 2,53,000
В	₹ 45 × 7,000 kgs.	₹ 45 x 7,318 kgs.	₹ 45 × 7,500 kgs.	₹ 48 × 7,500 kgs.
	₹ 3,15,000	₹ 3,29,310	₹ 3,37,500	₹ 3,60,000
С	₹ 55 × 5,000 kgs.	₹ 55 × 5,227 kgs.	₹ 55 × 4,500 kgs.	₹ 60 × 4,500 kgs
	₹ 2,75,000	₹ 2,87,485	₹ 2,47,500	₹ 2,70,000
	₹ 8,40,000	₹ 8,78,170	₹ 8,60,000	₹ 8,83,000

# Computation of revised standard quantity (RSQ):-

Total of Actual Quantity = 11,000 + 7,500 + 4,500 = 23,000 kgs.

Budgeted Ratio = 500 : 350 : 250 = 10 : 7 : 5

A = 23,000 × 
$$\frac{10}{22}$$
 = 10,455 kgs.

B = 23,000 × 
$$\frac{7}{22}$$
 = 7,318 kgs.

B = 23,000 × 
$$\frac{5}{22}$$
 = 5,227 kgs.

# **Budgeted Input per unit of output:-**

	Input				
Output	Α	В	С	D	
1,000 kgs.	500 kgs.	350 kgs.	250 kgs.	1,100 kgs.	
1 kg.	0.5 kg.	0.35 kg.	0.25 kg.	1.10 kg.	

SQAO Actual output × Budgeted input p.u. of output

 $A = 20,000 \times 0.5 = 10,000 \text{ kgs}.$ 

 $B = 20,000 \times 0.35 = 7,000 \text{ kgs.}$ 

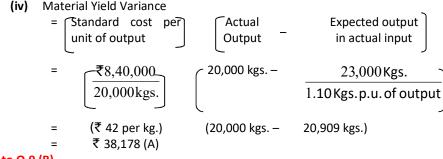
 $C = 20,000 \times 0.25 = 5,000 \text{ kgs.}$ 

(i) Material cost variance =  $M_1 - M_4$ 

(ii) Material price variance =  $M_3 - M_4$ 

(iii) Material usage variance =  $M_1 - M_3$ 

$$A = 2,50,000 - 2,75,000 = ₹ 25,000 (A)$$



### Ans. to Q.9 (B)

# **Limitations of Standard Costing**

- 1. More Expenses:-The Standard are fixed for price and quality of raw material, rate, and efficiency level of workers, variable and fixed overheads. So, the whole procedure will involve additional cost since the fixing of standards require high order of skill (i.e. experts).
- 2. Frequents Revision of Standards:-Future is uncertain and business environment is fast changing. So, the standards may have to be revised at regular intervals. Moreover, the revision of standards is a tedious process.
- 3. Bias in fixing the responsibility: The causes for the variances may be due to controllable and uncontrollable factors. But, determination of such factors has personal bias and no clear cut norms. Hence, it is very difficult to fix the responsibility of any executive.
- **4. Effect on psychology of employees:**-Such standards must be setup which are attainable with reasonable skill and efforts. If standards are fixed at higher level, the employees may have resistance to accept such standards. So, in such case, the standard costing may prove to be a matter of discouragement among employees.
- **5. No Freedom at work:**-Whenever the standards are established, the employees cannot work at their own wishes and there is no possibility of developing new ideas.

# Ans. to Q.10 (A)

### **Cost Sheet**

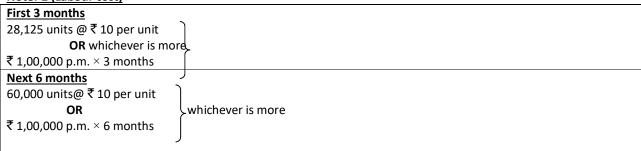
Particulars	Total	3 months	6 months	3 months
Output (units) (Note 1)	1,21,875	28,125	60,000	33,750
Materials (₹ 10 per unit)	12,18,750	2,81,250	6,00,000	3,37,500
Labour (Note 2)	12,37,500	3,00,000	6,00,000	3,37,500
Prime cost	24,56,250	5,81,250	12,00,000	6,75,000
Overheads -Variables (₹ 4 per unit)	4,87,500	1,12,500	2,40,000	1,35,000
- Fixed	1,92,300	48,075	96,150	48,075
- Semi-variable ( <b>Note 2</b> )	65,000	15,000	32,000	18,000
Total cost	32,01,050	7,56,825	15,68,150	8,76,075
Desired profit (1/5 of sales = 1/4 of cost)	8,00,263			
Desired sales	40,01,313			

Selling price per unit =₹ 40,01,313/1,21,875 units = ₹ 32.83

# Note:-1 (Output units)

First 3 months 1,50,000×  $3/12 \times 75\% = 28,125$  units Next 6 months 1,50,000×  $6/12 \times 80\% = 60,000$  units Last 3 months 1,50,000×  $3/12 \times 90\% = 37,750$  units

### Note:-2 (Labour cost)



**Last 3 months** 

37,750 units ₹ 10 per unit **OR** whichever is more

₹ 1,00,000 p. m. × 3 months

Note:-3 (Semi-variable cost)

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Capacity utilization	Annual semi variable overheads (₹)
Upto 75%	60,000
More than 75% upto 80%	64,000
More than 80% upto 85%	68,000
More than 85% upto 90%	72,000
More than 90% upto 95%	76,000
More than 95% upto 100%	80,000

First 3 months	Next 6 months	Last 3 months
Capacity utilization = 75%	Capacity utilization = 80%	Capacity utilization = 90%
Semi-variable overheads	Semi-variable overheads	Semi-variable overheads
= 60,000 × 3/12 = ₹ 15,000	= 64,000 × 6/12 = ₹ 32,000	= 72,000 × 3/12 = ₹ 18,000

Ans. to Q.10 (B)

### **Memorandum Reconciliation Account**

Dr.			Cr.
Particulars	Amount (₹)	Particulars	Amount (₹)
To Net loss as per cost accounts	48,700	By Administration overheads over-	65,000
To Factory overheads under-absorbed in	30,500	recovered in cost accounts	
cost accounts		By Depreciation overcharged in cost	45,000
To Provision for income-tax	52,400	accounts (₹ 2,70,000 – ₹ 2,25,000)	
To Obsolescence loss	20,700	By Transfer fees in financial books	10,200
To Overvaluation of closing stock in	9,500	By Normal rent of own premises	54,000
cost accounts(₹1,22,000 -₹1,12,500)		By Overvaluation of opening stock in co	23,000
To Net profit (as per financial accounts)	35,400	accounts (₹ 1,38,000-₹1,15,000)	
	1,97,200		1,97,200

Ans. to Q.11 (A)

### **Statement of Profit**

Particulars	16,000 units	40,000 units
Sales (₹ 30 per unit)	4,80,000	12,00,000
Less: Variable cost (Bal. fig)	(1,60,000)	(4,00,000)
Contribution (₹ 20)	3,20,000	8,00,000
Less: Fixed Cost (Bal. fig.)	(4,80,000)	(4,80,000)
Profit	16,000 ×₹ 10 = (1,60,000)	40,000 ×₹ 8 = 3,20,000

PV Ratio = 
$$\frac{\text{Change in profit}}{\text{Change in sales}} \times 100 = \frac{3,20,000 - (1,60,000)}{12,00,000 - 4,80,000} \times 100 = \frac{₹ 4,80,000}{₹ 7,20,000} \times 100 = 66.67\% \text{ or } 2/3$$

PV Ratio = 
$$\frac{Contribution}{Sales} \times 100 \Rightarrow \frac{2}{3} = \frac{Contribution}{₹ 30}$$
 i.e. Contribution = ₹ 20

(a) BEP (in rupees) = 
$$\frac{\text{Fixed cost}}{\text{P/V Ratio}} = \frac{\text{₹ 4,80,000}}{67.67\%} = \text{₹ 7,20,000}$$

**(b)** Profit at sales unit is 50,000 units i.e. Profit = Contribution – Fixed cost

= (Sales × P/V Ratio) - Fixed cost = (50,000 × 30 × 2/3) - 4,80,000 = ₹ 5,20,000

**Annual Production Budget** 

Annual budget sales (18,000 + 22,000 + 25,000 + 27,000)	92,000 units
(+) Closing Stock of Finished Goods	8,000 units
(-) Opening Stock of Finished Goods	(-) 6,000 units
Annual budgeted production	94,000 units

# <u>Quarter – Wise Production Budget</u> <u>Budgeted Production</u>

Quarter	70% of Sales of Current Quarter	30% of Sales of Next Quarter	Total
ı	70% of 18,000 units= 12,600 units	30% of 22,000 units= 6,600 units	19,200 units
II	70% of 22,000 units= 15,400 units	30% of 25,000 units= 7,500 units	22,900 units
III	70% of 25,000 units= 17,500 units	30 % of 27,000 units = 8,100 units	25,600 units
IV	70% of 27,000 units= 18,900 units	7,400 units(Bal.fig.)	26,300 units(Bal.fig.)
Annual Budgeted Production		94,000 units	

# Ans. to Q.12 (A)

**Case 1**: [Setting up time is unproductive]

Total Productive hours = 2,592 - 300 - 92 = 2,200 hours.

Particulars		Factory Overheads		
Sanding Charges		Total	Per Machine hour	
(1) Cost of chemical solution (400 × 52)		20,800		
(2) Wages of operators (4 × 420 × 52)	87,360			
(+) Fringe Benefits (15%)	13,104			
	1,00,464			
For one machine = 1,00,164/8		12,558		
(3) Departmental and General overheads $\left(\frac{50,000+10\%}{8 \text{ machines}}\right)$		6,875		
(4) Depreciation [(12,70,000 - 70,000)/12]		1,00,000		
		1,40,233	₹ 63.74	
Machine Running Expenses				
(1) Maintenance		25,000	₹ 11.36	
(2) Power (16 units/hr. ×₹ 3/unit × 2,200 hrs.)		1,05,600	₹ 48.00	
Machine hour rate			₹123.10	

# Case 2: [Setting up time is productive]

Total Production hours = 2,592 – 300 = 2,292 hours

Particulars	Facto	Factory Overheads		
Sanding Charges	Total	Per Machine hour		
(total as above)	1,40,233	₹61.18		
Machine Running Expenses				
(1) Maintenance	25,000	₹ 10.91		
(2) Power	1,05,600	₹46.00		
Machine hour rate		₹118.16		

# Ans. to Q.12 (B)

Calculation of comprehensive machine hour rate (for Machine B)

Standing charges per annum:	Basis	Amount (₹)
Depreciation (50,00/10)	Actual	5,000
Rent, Heating and Lighting [(90,000/80,000) × 3,000]	Area	3,375
Supervision (1,50,000/25)	No. of Machines	6,000
Reserve Equipment	Actual	5,000
		19,375

Standing charges per hour = 19,375/4,000 = ₹ 4.84

### **Solutions**

#### Two-tier Rate

Particulars	Set up cost per machine (₹)	Operation cost per machine (₹)		
Standing charges	4.84	4.84		
Power	_	0.50		
Machine Hour Rate	4.84	5.34		
Labour	3.00	1.50		
Comprehensive machine hour rate	7.84	6.84		

### Statement showing machine overhead charged to jobs

Particulars	Rate	Hrs.	Job 1102 (₹)	Hrs.	Job 1308 (₹)
Set up	7.84	80	627.20	40	313.60
Operation	6.84	130	889.20	160	1,094.40
Total			1,516.40		1,408.00

### Ans. to Q.13

(1)

(2)

### **Cost Control Vs. Cost Reduction**

#### Cost control

#### Cost reduction

- 1) It means the procedure which is adopted for keeping the cost within pre-decided limits.
- This procedure to an end as soon as the targets are achieved.
- The emphasis is on past period cost and the objective to control the current period cost.
- 4) It is less dynamic approach because the objective is to control the cost.
- 5) It is in the nature of preventive function, i.e., the standards are pre-decided and attempt is to be made for achieving such standards.
- It means the procedure for reducing the cost without reducing the quality or suitability of the product or service provided to the customers.
- This procedure is never-ending because the scope of improvement is always there.
- 3) The emphasis is on current period cost and the objective is to reduce the future period cost.
- It is more dynamic approach because the objective is to frame new favourable targets without sacrificing the quality.
- 5) It is in the nature of corrective function, i.e., new favourable standards are established in the interest of business organization.

### Cost Accounting Vs. Management Accounting

### **Cost Accounting**

#### Management Accounting

- Cost Accounting Concentrates on (a) Cost Determination (b) Cost Control and (c) Cost Reduction.
- 2) Cost Accounting uses the techniques like Standard Costing, Marginal Costing and Budgetary Control.
- 3) Cost Accounting can be installed without Management Accounting
- As Compared to Management Accounting, Cost Accounting is placed at lower level of hierarchy.
- 5) It records only quantitative matters.

**Example**:- Material Cost & Labour Cost are regarded as very important component in Cost Accounting.

- Management Accounting Concentrates on gathering relevant information from Cost & Financial Accounting for controlling & decision-making.
- 2) Apart from Cost accounting techniques like Ratio Analysis, Cash Flow Statement & Funds Flow Statement are used here.
- 3) Management Accounting system cannot be installed without Cost Accounting system.
- 4) As Compared to Cost Accounting, Management Accounting is placed at upper level of hierarchy.
- 5) It records both quantitative as well as qualitative matters.

**Example**:- Apart from Material & Labour Cost, other factors like honest worker and reliable supplier are recorded in Management books.

# (3) Controllable Cost Vs. Uncontrollable Cost

From the point of view of control over the cost, various types of expenses are classified as follows:-

### (A) Controllable Cost:-

- 1) It represents such type of cost which can be controlled or influenced by specific activities of specific manager. For example, material cost is controlled and influenced by purchase manager (in relation to purchases) and production manager (in relation to consumption).
- 2) Most of the variable expenses are covered within the scope of Controllable Cost. The expense like Materials, Labour & other variable expenses are dependent upon the activity level.

# (B) Uncontrollable Cost:-

- (1) It means such type of cost which cannot be controlled or influenced by specific activities of specific manager. For example, it Advertisement Expense is allocated by H.O. among various branches, it is outside the controllable or influential power of Branch Manager.
- (2) Most of the Fixed Expenses like rent, salary, insurance etc. can be regarded as "Uncontrollable Cost" as it is not dependent upon the activity level.

**Note**:- In decision-making process, controllable expenses are considered and uncontrollable expenses are ignored.