COST AND MANAGEMENT ACCOUNTING-I---HONOURS

First Paper

(CC 2.1 Ch)

Full Marks:80

Group-A

1. What do you mean by the term 'Cost accounting'? Distinguish between Cost Center and Cost Unit (2+3)

5

5

Or,

How cost can be classified on the basis of Management Decision Making

- 2. (a) What do you mean by period cost? (2+3)
 - (b) Mention the cost unit to be applicable against each of the following industries.
 - i Automobile
 - ii Coal
 - iii Hospital
 - iv Pharmaceutical
 - v Transport (Rail/ Road)
 - vi Nursing
- 3. State with reason the behavior of the following cost and calculate cost for 2800 units: (5 marks)

Production	1500 units	2000 units
Cost A (Rs)	12,000	16,000
Cost B (Rs)	9,000	9,000
Cost C (Rs)	7,000	8,000

Or,

What do you mean by under and over absorption of factory overhead? State any two methods of treatment of such under and over absorption in cost accounts. 5

4. The following particulars are available in respect of a contract as on 31.03.2018:

	Rs
Contract Price	10,00,000
Total cost of contract till 31.03.2018	5,50,000
Cost of uncertified work	25,000
Cash received (retention money being 15%)	5,31,250

Compute the amount of profit that may be transferred to profit and loss account and the value of Work in progress.

Or,

A company estimated its cost as below:

Direct materials – Rs 14,000; Direct wages—Rs 10,000; factory overhead—60% of direct wages; Administration and selling overhead (excluding commission)—20% of Work cost.

If sales commission is 5% on sales and rate of profit is 25% on total cost, find the selling price.

Group- B (Marks: 30)

- 5. (a) Discuss the concept of Economic Ordering Quantity (3+7)
 - (b) From the following particulars compute:
 - i Reorder level
 - ii Reorder quantity
 - iii Average stock level
 - iv Maximum re order period: Normal usage:- 100 units per day Minimum usage-60 units per day Minimum level—1400 units Re order period: Normal 25 days, Minimum20 days.

maximum usage—130 units per day maximum level—7800 units

Or,

The particulars of receipts and issues of materials in a factory in March 2018 are as under: (10 marks)

March 1	Opening balance	1000kgs	@Rs 5 kg
March 8	Purchased	2000 kgs	@Rs 6 per kg
March 17	Issued	1400 kgs	
March 21	Purchased	1000 kgs	@Rs 7 per kg
March 30	Issued	2000 Kg	

Calculate the value of stock as on 31-03-2018 and the value of materials issued using LIFO method and weighted average method. (preparation of stores ledger account is not mandatory).

- 6. A, B, C in a particular day had produced 200, 250 and 300 pieces respectively of a product "P". The time allowed for production of 25 units of "P" is 1 hour and the hourly rate of wage payment is Rs 8. Calculate for each of these three workers the following under Halsey premium bonus (50% sharing) and Rowan premium Bonus methods of labour remuneration.
 - i Earnings for the day (8 hours per day) and
 - ii Effective rate of earnings per hour

Or,

What is overtime premium? How can it be treated in costs accounts? Suggest two steps that can be taken to control overtime. (10 marks)

7. The following is the trading and profit and loss account of Deep Industries Ltd. For the year ended 31st December 2018:

	Rs		Rs
To materials	45,000	By sales (4,800 units)	96,000
To wages	33,000	By Closing Stock	20,400
		(1,200 units)	

To works expenses	24,000	
To administrative	6,000	
expenses		
To net profit	8,400	
	1,16,400	1,16,400

The company's cost records show that:

- 1. Works overhead have been absorbed at Rs 3 per unit produced and
- 2. Administrative overheads have been absorbed at Rs 1.50 per unit produced Assuming there is nothing by way of WIP either at the beginning or at end and there is no opening stock of finished goods, prepare:
 - 1. A statement of cost indicating the net profit and
 - 2. A statement reconciliation the profit as disclosed by cost accounts and that shown in financial accounts.

<u>Group -C</u> (Marks- 30)

8. Y Ltd. Produces a single product which undergoes two processes. From the following information prepare process accounts, Normal loss account, abnormal loss account and abnormal gain account (15 marks)

Process	Α	В
Raw materials (3000 units) Rs	15,000	-
Additional materials (Rs)	1000	780
Direct wages (Rs)	14,000	20,000
Production overhead (Rs)	3000	7500
Normal Loss % of Input	10%	5%
Scrap value per unit	Rs2	Rs5
Output in units	2,800	2,600

Or,

A transport company is running four buses between Delhi and Alwar, covering a distance of 100 kms. The seating capacity of each bus is 40 passengers. The following particulars are obtained from its books for the month of October 2012:

Wages of drivers, conductors	48,000
Salaries of office staff	15,000
Honorarium of account	5,000
Diesel, oil etc.	80,000
Repairs and maintenance	16,000
Road tax and insurance	32,000
Depreciation	52,000
Interest and other charges	40,000

Actual passengers carried were 75% of the seating capacity. All the busses ran for 30 days. Each bus made one round trip per day. Find out the fare the company should charge per passenger/km if it wants a profits of 20% on the takings.

9. From the following particulars relating to production and sales for the year ended 31.03.2019 prepare a statement showing cost and profit: (15 marks)

	Rs	Rs		Rs	Rs
Raw materials (1.04.2018)		12,500	Direct labour		1,35,000
WIP (1.04.2018)			Office expenses Rs 2 pu		
At prime cost	15,000		Selling expenses Rs 1 Pu		
Factory expenses	3,000		Distribution expenses		15,000
		18,000	Sales (28,000 units)		4,00,000
Material purchased		1,10,000	Raw materials (31.03.2019)		20,000
Freight on materials		5,000	WIP (31.03.2019)		
Loss of material by fire		5,000	At prime costs	10,000	
Factory expenses		70,000	Factory expenses	8,000	
Chargeable expenses		25,000			18,000
Stock of finished good	ls	•		•	
Date		Units	Valu	ie	
1.04.2018		8,000	60,0	00	

Assumes sales are made on FIFO basis.

31.03.2019

Solutions:

?

1. "Cost accounting" is concerned with setting up budgets and actual cost of operations, processes, departments or products and the analysis of variances, profitability or social use of funds. The managers, to support decision making to cut a company's costs and improve profitability, use cost accounting.

The distinction	between	cost centre	and	cost unit are:

10,000

Cost centre	Cost unit
Cost centre is a location, person or an item of	Cost unit is a unit of quantity of product,
machinery or a group of machineries in	service in respect of which cost is ascertained
respect of which all costs are accumulated for	
the purpose of cost ascertainment and cost	
control	
Cost centre may be personal or impersonal or	No distinction is made in respect of cost unit
it may be production or service cost centre	
Cost centre is unique	Cost unit may be composite cost unit e.g.
	ton-km or bed per day etc.
OR,	

Classification of cost on the basis of management decision making

- i. Differential cost
- ii. Relevant cost
- iii. Sunk cost
- iv. Opportunity cost
- i. Differential cost:- the concept of differential cost is important for decision making. All alternative costs are evaluated at the time of decision making
- ii. Relevant costs:- it is the cost that are effected by decisions. The cost for example in case of three joint products x1, x2,x3 where futher processing cost is considered for each product but joint cost is irrelevant
- iii. Sunk Costs:- the cost which is incurred in the past and is nothing to do with the future decisions.
- iv. Opportunity cost:- it is the cost which has not been incurred and paid in cash. It is the loss of earnings or potential benefits arising out of utilizing an asset for another purpose.
 - 2. (a). Period costs are those costs which are not included in the product costs. At the time of stock valuation, no part of these costs are taken into consideration. Sales commission, advertisement are good example of period cost. The costs are charged to the profit and loss account of the period in which they have been incurred.
 (b).

Industry	Cost per unit
Automobile	1 or 100 unit
Coal	Ton
Hospital	patient per day/ outdoor patient visit
Pharmaceutical	Gram/ jar/tube/kg
Transport	Passenger-km, ton –km
Nursing	Per bed per day

3. Ans: Solution

Cost item	Nature of cost	
А	Variable cost	
В	Fixed cost	
С	Semi variable cost	
(a) Cost item A	Rs12000/1500U= Rs 8 per unit	
(b) Cost item B	Rs9000 (fully fixed cost)	
(c) Cost item C:	Change in total cost/ change in output	
1. Variable proportion	= Rs8000-Rs7000/2000u-1500 u	
	=Rs1000/500 units	
	= Rs 2 per unit	
2. Fixed cost included therein	Rs7,000- (1500*Rs2)= Rs4,000	
Computation of total cost for Rs 2800 units of output:		
Δ (2800 units@8)	22 400	

A (2800 units@8)	22,400
B (fully fixed cost)	9,000
C (2,800 units @Rs2 +Rs 4000)	9,600
Total Cost	41,000
Or,	

Over and under absorption of overhead:

Actual overhead costs incurred are equal to the total overhead absorbed. If there is any difference between the estimated costs/ activities and actual costs/ activities, the result is over or under absorption of overhead.

If the overhead incurred is more than overhead absorbed an under absorption of overhead occur

If the overhead incurred is less than the overhead absorbed an over absorption of overhead will occur.

Disposal of over/ under absorption of overhead

1. Transfer to costing profit and loss account: under this method and under/ over absorption of overhead are charged or credited to costing profit and loss account for the period. In case of under absorption it is debited to costing profit and loss account and in case of over absorption it is credited to costing profit and loss account.

2. Use of supplementary rate:

A supplementary overhead rate is calculated by taking into consideration under / over absorption of overhead and the base for calculation of original overhead rate (eg: labour hour, machine hour)

Supplementary rate= actual overhead- overhead absorbed/ base (machine hr, labour hr etc.)

Supplementary over head rate is computed at the end of each month and it is used to adjust the value of finished product/ job, WIP of the concerned period.

Ans: 4

- a) Value of work certified= cash received/ 100%-retention percentage
 - = 5,31,250/ 100%-15%

= 6,25,000

b) Calculation of notional profit

Value of work certified	6,25,000
+ cost of work uncertified	25,000
	6,50,000
(-) total cost of contract price up to date	5,50,000
	1,00,000

Calculation of percentage of completion

= value of work certified + cost of work uncertified/ contract price * 100

= 6,25,000 + 25,000/ 10,00,000 * 100

c) Profit to be credited to the profit and loss account

 $\frac{2}{3}$ * Notional profit * cash received/ work certified

 $=\frac{2}{3}$ * 1,00,000 * 5,31,000/625000

= 56,667

d) Value of WIP

Cost of contract till date	5,50,000
+ profit transferred to P/L	56667
	6,06,667
- Cash received	5,31,250
Value of WIP	75,417

Or,

Let the selling price be "X"

Particulars	Amount
Direct material costs	14,000
Direct wages	10,000
Prime costs	24,000
Add: factory overhead (60% of direct wages)	6,000
Works costs	30,000
Add: adm & selling overhead (20% of WC)	6000
Add: sales commission (5% of sales of Rs X	0.05X
Cost of sales (total costs)	36,000 + 0.05 X
Add: profit (25% on total cost)	9000 + 0.0125 X
Selling price	45,000 + 0.0625 X

We already assumed selling price as X

Therefore,

45,000 + 0.0625X = X

Or, 45,000= X - 0.0625X

Or, 45,000= 0.9375X

Or, X=45,000/0.9375

=Rs 48,000

Therefore selling price is Rs 48,000

Sales commission = 0.05X= 0.05* Rs 48,000

Rs 2400

Profit = 9,000 + 0.0125X= 9000+0.0125*48,000= 9000+600= Rs 9600

Group-B

5 (a). Economic order quantity EOQ is the order size that minimize the sum of the costs of ordering stock , the cost of holding stock and the shortage cost

 $EOQ = \frac{\sqrt{2AO}}{H}$ Where, E= EOQ A= annual demand O= Ordering cost H= Holding cost per unit per year

5 (b)

We know,
Minimum level = Re order level - (Normal usage * Normal reorder period)
1,400 units= Reorder level- (100 units*25)
Or, Reorder level = 1400 units+ 2500 units
Or, Reorder level = 3900 units
ii Maximum level= re order level - (Min usage * min reorder period) + reorder quantity
7800 u = 3900 u - (60u *20) + re order quantity
Or, 7800u = 2700 u + re order quantity
Or, re order quantity = 7800 units - 2700 u
Or, re order quantity = 5,100 units.
iii. average stock level = maximum level + minimum level /2

= 7800 units + 1400 units /2

= 4600 units

v. Normal re order period = maximum re order period + minimum reorder period/2

2*25days= maximum re order period +20 days

Or, 50 days- 20 days= maximum re order period

Or, maximum reorder period= 30 days

5 or,

	RECEIVED				ISSUE	D	BAANCE			
DT	QTY	RATE	AMOUNT	QTY	RATE	AMOUNT	QTY	RATE	AMOUNT	
March	-	-	-	-	-	-	1000	5	5000	
1/2019`										
March8/	2000	6	12000	-	-	-	1000	5	5000	
2019							2000	6	12000	
March	-	-	-	1400	6	8400	1000	5	5000	
12/2019							600	6	3600	
March	1000	7	7000	-	-	-	1000	5	5000	
21/2019							600	6	3600	
							1000	7	7000	
March	-	-	-	1000	7	7000	600	5	3000(cl	
30/2019				600	6	3600			stock)	
				400	5	2000				

STORE LEDGER ACCOUNT)LIFO

Store ledger (weighted average)

	RECEIVED				ISSUE	D	BAANCE			
DT	QTY	RATE	AMOUNT	QTY	RATE	AMOUNT	QTY	RATE	AMOUNT	

March	-	-	-	-	-		-	1000	5	5000	
1/2019`											
March8/	2000	6	12000	-	-		-	3000	5.67	17010	
2019											
March	-	-	-	1400	5.6	7	7938	1600	5.67	9072	
17/2019											
March	1000	7	7000	-	-		-	2600	6.18	16068	
21/2019											
March	-	-	-	2000	6.1	8	12,360	600	6.18	3708)cl	
30/2019										stock)	
Workings	:										
Opening	stock 100	0 kg	5,000			St	ock in hand	1600	5.67	9072	
	•	01	10 000			21		1000	0.07	<i>y</i> or <u>-</u>	
+purchase	e 200	0kg	12,000			+r	ourchase	1000		7000	
	200	0.1	17.000			1					
	300	0 kg	17,000					2600		16072	
Cost por l	$r_{\alpha} = 17000$	/2000-56	7								
Cost per kg= $17000/3000 = 5.67$					6.	18					

Ans 6

Statement showing time taken, time allowed and time saved

	А	В	С
Production in units	200	250	300
Time allowed(@25 pieces per	8	10	12
hr)			
Time taken in hours	8	8	8
Time saved	0	2	4

1. Calculation of earnings per day

(a) Halsey premium bonus method
 earnings = hours worked * rate per hour + 50% of time saved * rate per hour

A's earning per day= 8*8+50% of nil* Rs 8= Rs64

B's earnings per day= 8*8 +50% *2* Rs 8= Rs72

C's earnings per day= 8*8 + 50% *4* Rs 8= Rs 64 + Rs16= Rs80

(b) Rowan premium bonus methods

Earnings=hours worked * rate per hour + $\frac{timesaved}{timeallowed}$ * time taken * rate per hour

A's earnings per day = 8 * Rs 8 (0/8) * 8 * Rs 8 = Rs 64

B's earnings per day= 8 * Rs8 +(2/10)*8*Rs8 = Rs 64+ Rs12.80= Rs 76.80

C's earnings per day = 8 * Rs 8 + (4/12) * 8 * Rs 8 = Rs 64 + Rs 21.33 = Rs 85.33

Calculation of effective earnings per hour

	Α	В	С
Halsey premium	Rs64/8 = Rs8	Rs72/8 = Rs9	Rs80/8=Rs10
Rowan premium bonus	Rs64/8 = Rs8	Rs 76.80/8=Rs9.60	Rs85.33/8=Rs 10.67
method			

Or,

Overtime premium:-

Overtime hours at normal rate will be treated as direct labour cost and it is to be charge to the job. Overtime premium will be treated according to situations. The cost accounting treatment depends upon the following reasons:

- 1. When overtime is restored at the request of the customer, the entire amount of wages including overtime premium should be charged to the job itself
- 2. When overtime is required to make up lost production due to fire, flood, strike etc the overtime premium should be charged to profit and loss account
- 3. A particular job may be taken on urgent basis with prior knowledge that overtime will be required and the quotation of the job may include the overtime premium factor.
- 4. If there is any bottleneck in the production process and overtime is necessary the overtime premium should be treated as factory overhead
- 5. When overtime is necessary due to negligence of workers of other department the overtime premium should be charged to the concerned department.

Control of overtime

- 1. All overtime should be properly authorized and the document authorizing overtime should be transferred to the payroll department for verification of overtime booking.
- 2. If there is any bottleneck in the production process for which overtime is arising proper steps should be taken to remove that bottlenecks
- 3. A daily report of overtime time work should be submitted to the works manager
- 4. There should be a system of preventive maintenance to avoid or reduce machine breakdown
- 5. Skill development programme should be undertaken for the workers to improve labour efficiency and to reduce overtime.

Ans 7:

Deep Industries Ltd

Statement of cost and profit as per cost accounts

Materials	45,000
Wages	33,000
Prime cost	78,000
Works overhead (6,000*3)	18000
Factory cost/ works cost	96,000
Administrative overheads (6,000* Rs1.50)	9,000
Cost of production (6,000 u)	105,000
Less: closing stock (workings)	21,000
Cost of goods sold	84,000
Selling and distribution overheads	Nil
Cost of sales	84,000
Net profit (Bal fig)	12,000
Sales	96,000

Statement showing the reconciliation of profit/ loss as per cost and financial accounts

Net profits as per financial accounts		8400
Add: under –absorption of works overhead		
As per financial accounts	24,000	
As per cost accounts	18,000	
Add: overvaluation of closing stock as per		
cost accounts:		
As per cost accounts	21,000	
As per financial accounts	20,400	
		600
		15,000
Less: over absorption of administrative	9,000	
overhead:		
As per cost accounts		
As per financial accounts	6,000	3,000
Net profit as per cost accounts		12,000

Working notes:

- a. Number of units produced= number of units sold+ number of units unsold = 4800 u +1200 u= 6,000u
- b. Cost of production = Rs1,05,000
- c. Number of units unsold= 1,200 units
- d. Value of closing stock= Rs 1,05,000/ 6,000 * 1200= Rs 21,000

Ans. 8

In the books of Y ltd.

Process A account

Particulars	Q	R	А	Particulars			Q	R	А
To R/M	3,000	5	15,000	By	Normal	Loss	300	2	600
				(Note 1)					

To materials (add)	-	-	1,000	By process B a/c	2800	12	33,600
To direct wages			14,000				
To production			3,000				
overhead							
To abnormal gain	100	12	1200				
(note 2)							
	3100		34,200		3100		34,200

Process B account

Particulars	Q	R	А	Particulars	Q	R	А
To process A a/c	2800	12	33600	By Normal Loss	140	5	700
				(Note 1)			
To materials (add)	-	-	780	By abnormal loss a/c	60	23	1380
To direct wages			20,000	By finished stock	2600	23	59800
To production			7500				
overhead							
	2800		61880		2800		61880

Normal Loss account

Particulars	Q	R	А	Particulars	Q	R	А
To process A a/c	300	2	600	By abnormal gain a/c	100	2	200
To Process B a/c	140	5	700	By Bank a/c- Process	200	2	400
				A			
				By Bank a/c- process	140	5	700
				В			
	440		1300		440		1300

Normal Loss account

Particulars	Q	R	А	Particulars	Q	R	А
To process A a/c	300	2	600	By abnormal gain a/c	100	2	200
To Process B a/c	140	5	700	By Bank a/c- Process	200	2	400
				А			
				By Bank a/c- process	140	5	700
				В			
	440		1300		440		1300

Abnormal Gain account

Particulars	Q	R	А	Particulars	Q	R	А
To Normal loss a/c	100	2	200	By process A a/c	100	12	1200
To profit and loss a/c			1000				
	100		1200		100		1200

Abnormal Loss account

Particulars	Q	R	А	Particulars	Q	R	А
To Process B	60	23	1380	By BANK	60	5	300

		By profit and loss a/c		1080
60	1380		60	1380

Working Notes:

Process A

- 1. Normal loss is 10% of input=10% of 3,000 units=300 units Scrap value = 300*2 = Rs 600
- 2. Expected output (3,000-300)2700 unitsActual output2800 units100 units

b) Cost per unit= total process cost- scrap value of normal loss/ expected output (Input- Normal Loss)

= 33,000-600/ 3,000-300= 32,400/2700= Rs12

- Value of abnormal gain= 100 * 12= Rs 1200 Process- B
- 4. 1. Normal loss is 5% of input= 5% of 2800 units= 140
- 5. Scrap value= 140 units *Rs 5= Rs700
- 6. Expected output (2800-140)
 7. Actual output
 Abnormal loss
 Cost per unit= Total process cost- scrap value of normal loss/ expected output (input normal loss)
 = 61880-700/2800-140= 61180/2660= Rs 23
 Value of abnormal loss= 60* 23= Rs 1380

Or,

Calculation of passenger km

Passenger-km=

Distance*seating capacity*occupancy rate*no of days *no of trips* no of buses

= 100 km * 40 passengers * 75% * 30 days *2*4

= 7,20,000 passenger km

One round trip = 2 one way trips

Operating cost sheet for the month of October

Particulars		
Standing charge:		
Wages of drivers, conductors	48,000	

Salaries of office staff	15000	
Honorarium of accountant	5,000	
Road tax and insurance	32,000	
Deprecation	52,000	
Interst and other charges	40,000	
		1,92,000
Running and maintenance cost:		
Diesel, oil etc	80,000	
Repairs and maintenance cost	16,000	
—		96,000
Total operating cost for the month of October		2.88.000

Cost per passenger – km= Total operating cost/Total passenger-km

= 2,88,000/ 7,20,000= Rs 0.40 per passenger-km

Let fare per passenger km = x

X = Rs 0.40 + 20% of x

Or, x-0.20x= Rs0.40

X=Rs 0.50

9.

Cost sheet for the year ended 31/3/2019

5		
Opening stock of R/m	12,500	
Purchase of R/m	1,10,000	
Freight on R/M	5,000	
	1,27,500	
- Closing stock	20,000	
- Material lost by fire	5,000	
	1,02,500	
Direct labour	1,35,000	
Chargeable expenses	25,000	
TOTAL	1,60,000	
+ op stock of WIP (at prime	15,000	
cost)		
	1,75,000	
- Cl stock of WIP (PC)	10,000	
PC		267500
+ factory o/h		70,000
		337500
+ op stock of WIP (at FC)		3000
		340500
- Closing stock of WIP		8000
		332500
+office exp (2* 30,000)		60,000
Cost of production		392500

+ op stock of FG	60,000
	452500
- Cl stock of fg	130800
Cost of goods sold	321700
+ selling exp (1* 28,000_	28,000
	3,49,700
+distribution exp	15,000
Cost of sales	364700
Sales	4,00,000
Profit	35300

Value of cl stock of	U
finished goods	
Opening stock	8,000
+produced	30,000
	38000
- Sales	28000
Cl stock	10,000 U

Value of cl stock= 13.08* 10,000 u {3,92,500/30,000} 1,30,800 Units produced: Op stock+ produced= sales+ cl stock 8000+x= 28,000+ 10,000 8000+x = 38,000 X = 30,000 u