Solution 1(a)

Selling price per unit (SPPU) = Rs 14
Variable Cost per Unit (VCPU) = Rs 9
Contribution per Unit (CPU) = Rs 5
BEP in units =20,000 Units
BEP in units =Fixed Cost/CPU
20,000 Units = Fixed Cost/Rs 5
Fixed Cost = Rs 1, 00,000

Particulars	25000 units (in Rs)	30000 units
Sales @ Rs 14 per Unit	350000	420000
Less: Variable Cost@ Rs 9 per unit	225000	270000
Contribution	125000	150000
Less: Fixed Cost	100000	100000
EBIT	25000	50000
% Change in EBIT = New EBIT- Old EBIT Old EBIT	= Rs 50000- Rs 25000 * 100 Rs 25000 = 100%	
% Change in SALES = New SALES- Old SALES Old SALES	= Rs 420000- Rs 350000 * 100 Rs 350000 = 20%	
DOL= % Change in EBIT % Change in Sales	= 100% 20% =5 times	

Soluti0n 1 (b)

Replacement Method:- Number of Employees replaced during the year *100
Average number of employees on roll during the year

8% =36 / Average number of employees on roll during the year
Average number of employees on roll during the year =450

Separation Method:- Number of Employees separated during the year *100
Average number of employees on roll during the year
6% = Number of Employees separated during the year/450
Number of Employees separated during the year = 27

Flux Method:- Employees replaced +Employees Separated *100
Average number of employees on roll during the year
(36+27)/450 =14%

Solution 1(c)

Amount Invested (Principal) = Rs 240000
Rate of Interest =10%
Time = Three years
(i) Interest compounded Annually

Amount = $P(1+r)^n$
= $240000(1+10\%)^3$
=Rs 319440

(ii) Interest compounded Semi-Annually
Amount = $P(1+r)^n$
= $240000(1+5\%)^6$
=Rs 321623

Solution 1(d)

Annual Demand = 8000 units * 4 Quarters = 32000 units
Annual requirement of Raw material= 32000 units * 3 = 96000 kg
Unit Price = Rs 20 per unit
Ordering Cost per order = Rs 1000
Carrying Cost per unit per annum= Rs 20* 15% = Rs 3 per unit per annum

Calculation of EOQ

$$\textbf{EOQ} = \sqrt{\frac{2AO}{C}}$$

$$= \sqrt{\frac{2 * 96000 * 1000}{3}}$$

= 8000 Units

Calculation of Total Cost

Particulars	EOQ Policy is followed	4 orders are placed annually (24000 units per order)
Annual Purchase cost Annual Requirement * unit Price	96000*20 = Rs 19,20,000	96000*(20-2% of 20) 96000* 19.6= Rs 1881600
Annual Ordering Cost = No of Orders * ordering cost per order No of orders = Annual Requirement / Quantity ordered	96000/8000 = 12 orders 12 orders * Rs 1000 = Rs 12000	4 orders * Rs 1000 = Rs 4000
Annual Carrying Cost= 50% of Quantity Ordered * carrying cost per unit per annum	=50% *8000 units* Rs 3 per unit = Rs 12000	50% *24000 units* Rs 2.94per unit = Rs35280 CCPUPA= 15% *19.6= Rs 2.94 p.u.p.a
Total Cost	Rs 19,44,000	Rs 19,20,880

2% Discount offer is accepted.
Note:- Carrying cost per unit per annum is effected by the discount policy.

Q 2

Statement Showing Primary Distribution of Overhead

Particulars	Basis	Ratio	X	Y	Z	A	B	Total (Rs)
Indirect Material	Allocated		20000	30000	45000	25000	5000	125000
Indirect Labour	Allocated		45000	50000	70000	60000	35000	260000

Superintendent' s Salary	Allocated				96000			96000
Fuel & heat	Radiator Section	2:4:6:5:3	1500	3000	4500	3750	2250	15000
Power	Kilowatt Hours	35:40:30:15:0	52500	60000	45000	22500	0	180000
Rent & Rates	Area (Sq ft)	44:40:30:24:12	44000	40000	30000	24000	12000	150000
Insurance	Asset	4:6:5:1:2	4000	6000	5000	1000	2000	18000
Meal Charges	No of Emloyees	6:7:12:3:2	12000	14000	24000	6000	4000	60000
Depreciation	Assets	4:6:5:1:2	60000	90000	75000	15000	30000	270000
Total Primary Distributed OH			239000	293000	394500	157250	108250	1174000

Total cost of the service department: *(By using simultaneous equation method).*
Let A and B be the total costs of service departments A & B respectively. These costs can be determined by using the following simultaneous equations:

A = 157250 + 10% of B
B = 108250 + 20% of A
or B = 108250 + 20% of (157250 + 10% of B)
or B = 108250 + 31450 + 0.02B
or 0.98B = 1,39700
or B = Rs. 142551
and A= Rs. 171505

Statement Showing Secondary Distribution of Overhead

Particulars	Ratio	X	Y	Z	A	B
Primary Distributed OH		239000	293000	394500	157250	108250
Redistribution of A	3:3:2:0:2	51452	51451	34301	(171505)	34301
Redistribution of B	25:40:25:10:0	35638	57020	35638	14255	(142551)
		326090	347471	464439	0	0

Q2 (b)

a) Sales Rs 3000000
b) GP 25%
c) Gross Profit in Rs Rs 3000000*25% =Rs 750000
d) Cost of Goods Sold = Sales- GP
Rs 3000000-750000 = Rs 2250000

e) Cash Sale +Credit Sale = Total Sale
0.25 x + x =Rs 3000000
1.25 x = Rs 3000000

X (Credit Sale) = 24,00,000
Cash Sale Rs 600000

f) Debtors Turnover Ratio= Net Credit Sales / Average Debtors
8 times = Rs 24 lakh/Average Debtors
Average Debtors = Rs 3 lakh

g) Average Collection Period = 365 /Debtors turnover Ratio
=365/8
=45.625 days

h) Inventory Turnover Ratio= Cost of Goods Sold / Average Inventory
6 times = Rs 2250000/ Average Inventory
Average Inventory = Rs 375000

i) Average Inventory = (Opening inventory + Closing Inventory)/2
Rs 375000 = (x+ x+80000)/2
X (Opening Inventory) = Rs 335000
Closing Inventory = Rs 415000

j) Purchases = COGS + Closing – Opening
=Rs 2250000+415000-335000
=Rs 2330000

k) Credit purchases = Purchases- cash Purchases
= Rs 2330000-230000
=Rs 2100000

l) Creditors Turnover Ratio= Credit Purchases / Average Creditors
10 times = Rs 2100000/ Average Creditors
Average Creditors = Rs 210000

m) Average Payment Period = 365 / Creditors Turnover Ratio
=365/10
=36.5 days

n) Current Assets – Current liabilities = Working Capital
Current Ratio = 2.4/1
WC= 2.4-1=1.4
Working capital = Rs 280000
So , Current Assets = 280000/1.4 == Rs 480000
Current Liabilities = Rs 480000/2.4 = Rs 200000

Q3 (a)
Schedule Change in Working Capital

Particulars	2011 (Rs in Lac)	2012(Rs in Lac)	Increase in WC (Rs in Lac)	Decrease in WC (Rs in Lac)
Current Assets				
Stock	8.6	12.7	4.1	
Sundry Debtors	10.2	13	2.8	

Bills receivable	1	0.7		0.3
cash	7.2	8.9	1.7	
Current Liabilities				
Bills payable	2	1.8	0.2	
Sundry Creditors	3.5	4.6		1.1
Total			8.8	1.4
Net Increase in Working Capital				7.4

Adjusted Profit & Loss A/c

Particulars	Amount(Rs in Lac)	Particulars	Amount(Rs in Lac)
To Depreciation On Plant	3	By Net Profit for 2011	5.3
To Depreciation On Land	0.50	By Dividend on Investment	0.25
To Loss on Sale of machinery	0.20	By Funds from Operation	26.15
To Goodwill Written off	0.80		
To Share issue Exp Written off	0.20		
To Provision for tax	4.8		
To Transfer to GR	2		
To Interim Dividend	2.5		
To proposed Dividend	11		
By Net Profit for 2012	6.7		
	31.70		31.70

Funds Flow Statement

Sources of Funds	Amount(Rs in Lac)	Application of Funds	Amount(Rs in Lac)
Funds from Operation	26.15	Increase in Working capital	7.4
Dividend on Investment	0.40	Tax paid	3.8
Sale of machinery	1.50	Interim Dividend	2.5
Issue of Shares	5.0	Dividend	8
Sale of land	4.0	Purchase of investments	1.65
		Purchase of Plant	13.70
	37.05		37.05

Income Tax Provision A/c

To Bank A/c	380000	By Balance b/d	400000
To Balance c/d	500000	By P&L A/c (New Provision made during the year)(B/F)	480000
	880000		880000

Investment A/c

To Balance b/d	200000	By Dividend A/c	15000
To Bank (Purchase B/F)	165000	By Balance c/d	350000
	365000		365000

Land & Building A/c

To Balance b/d	2000000	By Bank A/c (sale)	400000
To Capital Reserve (profit on sale)	250000	By Depreciation	50000
		By Balance c/d	1800000
	2250000		2250000

Plant & machinery A/c

To Balance b/d	2200000	By Bank A/c (sale)	150000
To Bank (Purchase B/F)	1370000	By P & L (Loss on sale)	20000
		By Depreciation	300000
	3570000	By Balance c/d	3100000
			3570000

Q 3(b) Answer

Working Notes

1. *Computation of estimated profit*

	Rs.	*Rs.*
Contract price		15,30,000
Less: Total expenditure to date	8,50,000	
Less: Estimated further expenditure to complete the contract	1,70,000	10,20,000
Estimated profit		5, 10,000

2. *Computation of Notional Profit*

Value of work certified	10,00,000
Less: Cost of work certified: (Total expenditure to date – work not certified) *(Rs. 8,50,000 – Rs. 85,000)*	7,65,000
Notional Profit	2,35,000

Four methods of computing the conservative estimates of profits (when 80% of the contract is complete)

(i) Estimated profit × $\frac{\text{Work Certified}}{\text{Contract price}}$ (Refer to working note 1)

= Rs. 5,10,000 × $\frac{1000000}{1530000}$ = Rs 333333.33

(ii) Estimated profit × $\frac{\text{Work certified}}{\text{Contract price}} \times \frac{\text{Cash received}}{\text{Work certified}}$

= Rs. 510000 × $\frac{1000000}{Rs.1530000} \times \frac{Rs.816000}{Rs.1000000}$

= Rs 272000

(iii) Notional profit × $\frac{\text{Work certified}}{\text{Contract price}}$ (Refer to working note 2)

= Rs. 235000 × $\frac{Rs.1000000}{Rs.15,30,000}$ = Rs 153594

(iv) $\frac{2}{3}$ × Notional Profit × $\frac{\text{Cash received}}{\text{Work certified}}$

= $\frac{2}{3} \times$ Rs. 235000 $\times \frac{Rs.816000}{Rs.10,00,000}$

= Rs 127840

Q4 (a)

Category of Workers	Std Hours for Actual output	S td rate per hou r	Amount	Actual hours (Including idle hours)	Actual rate per hour	Amount	Idle Hours	Actual hours Excluding Idle hours	Revised Std hours= T A H X SH / TSH
Skilled	65 X 40 X 1800 / 2000 = 2340 Hours	45	105300	50 X 40=2000 Hours	50	100000	50 X 2=100 Hours	1900 hours	4000 X 2340 / 3600 =2600 hours
Semi-Skilled	20 X 40 X 1800 / 2000 = 720 Hours	30	21600	30 X 40=1200 Hours	35	42000	30 X 2=60 Hours	1140 Hours	4000 X 720 / 3600 =800 hours
Unskilled	15 X 40 X 1800 / 2000 = 540 Hours	15	8100	20 X 40=800 Hours	10	8000	20 X 2=40 Hours	760 hours	4000 X 540 / 3600 =600 hours
Total	3600 Hours		135000	4000 hours		150000	200 Hours	3800 Hours	3800 Hours

Labour Cost Variance (LCV)

LCV= (SH X SR) – (AH X AR)

Rs 135000-Rs 150000 =15000(A)

Labour Rate Variance (LRV)

LRV= (SR –AR) X AH

Skilled (45-50) *2000 =10000(A)

Semi-Skilled (30-35) *1200=6000(A)

Unskilled (15-10)*800= 4000 (F)

Net LRV = 12000(A)

Labour Efficiency Variance (LEV)

LEV= (SH –AH) X SR

Skilled (2340-2000)45=15300(F)

Semi-Skilled (720-1200)30=14400(A)

Unskilled (540-800)15= 3900 (A)

Net LEV= 3000 (A)

Idle time Variance

ITV= Idle hours X SR

Skilled 100 *45 =4500 (A)

Semi-Skilled 60* 30=1800(A)

Unskilled 40 *15=600 (A)

Net ITV 6900(A)

Labour Mix Variance (LMV)

LMV= (RSH –AH) X SR

(2600-1900)*45 =31500 (F)

(800-1140)* 30=10200(A)

(600-760) *15=2400(A)

Net ITV 18900(F)

Labour Yield Variance (LYV)

LYV= (SH-RSH) X SR

(2340-2600)*45 =11700(A)

(720-800)*30= 2400(A)

(540-600)*15= 900(A)

Net LYV 15000(A)

Q 4(b)

Particulars	NM-A1	NM-A2
Annual Savings		
Direct Wages	700000	900000
Scrap	60000	100000
Total Annual Savings	760000	1000000
Annual Cost		
Indirect material	30000	90000
Indirect labour	40000	50000
Repair & maintenance	45000	85000
Total annual cost	115000	225000
Net Savings per annum	645000	775000
Less Depreciation	400000	500000
Profit Before Tax	245000	275000
Tax (30%)	73500	82500
Profit After Tax	171500	192500
Add Depreciation	400000	500000
Cash Inflows after tax	571500	692500

1. Payback period = Amount Invested/Annual Cash Inflows after tax
   NMA1 = Rs 2000000/571500=3.50 years (approx)
   NMA2 = Rs 2500000/692500=3.61 years (approx)
   NMA1 is selected
2. ARR = Average Annual Return/ Average Investment
   NMA1=171500/200000=8.575%
   NMA2 =192500/250000=7.7%
   NMA1 is selected
3. NPV = PV of Inflows -PV of Outflows

NM	Annual Inflows	Period	PV factor	PV of Inflows	PV of Outflows	NPV
A1	571500	1-5	4.112	2350008	2000000	350008
A2	692500	1-5	4.112	2847560	2500000	347560

NMA1 is selected

Q5 *Discuss the essential of a good cost accounting system?*

Essentials of a Good Cost Accounting System

The essential features of a good Cost Accounting system are as follows:

(i) The Cost Accounting System should be tailor made, practical, simple and capable of meeting the requirements of a business concern.

(ii) The method of costing should be suitable to the industry and serve its objectives.

(iii)The Costing System should receive co-operation and participation of executives from various departments.

(iv)The cost of installing and operating the system should justify the results.

(v) The system of costing should not sacrifice the utility by introducing meticulous and unnecessary details.

(vi) The system should consider the organisational structure of the business and it should be designed as a sub-system of the overall organisation.

(vii) There should be a harmonious relationship between costing and financial accounts departments. Unnecessary duplication should be avoided. A single integrated accounting system may be designed.

(viii) The system should provide adequate checks on ordering, receipts, stocking, issuing and recording of materials. The pricing method and the issue of materials should be efficient.

(ix) The costing system should ensure proper recording of worker's time and their wages. Wages should be determined from wage analysis sheets. Proper attention should be paid in preparing payrolls and in the payment of wages. The treatment of idle time, over-time and holiday-pay should not be overlooked.

(x) The cost accounting system should ensure that overheads are collected, accumulated, allocated and apportioned suitably.

Q5(b) What is inter Process profit? State its Advantages & disadvantages.

Inter process profit

The difference between cost and transfer price is known as inter-process profits. Transfer price may be market price or cost plus a fixed percentage of profit. In some industries, the output of one process is transferred to the next process not at a cost but at market value or cost plus a percentage of profit. This is called transfer price.

Advantages:-

a) Each process is made to stand by itself as to the profitability.
b) It is possible to compare cost of output and market value at each stage of completion.
c) It is easier to fix responsibility of Process Managers for Cost Control.

Disadvantages:-

a) It is a complicated method involving transfer-pricing considerations. The determination of appropriate. Transfer Price is not a simple affair.
b) It might promote conflicts and misunderstanding among managers on comparative profitability.
c) It requires reconciliation between profits booked at each stage and actual realized profit since it shows profits locked up in unsold stock.

Q5(c) What do you understand by operating costing? How are the composite units computed?

(i) operating Costing method is applied by undertaking providing services, not tangible products.

(ii) it is also called service costing.

(iii) operating Costing is defined by the CIMA Terminology as "that form of operation costing which applies where standard standardized services are provided either by an undertaking or by a service cost centre within an undertaking." The costs incurred in providing a service are called ' Operating Costs' and the method used for computing such costs is called 'Operating Costing'.

Cost Unit

There are large varieties of services and therefore, there are different cost units for different services. Selection of a suitable cost unit for each service sometimes provides difficult. For some services cost units are simple involving only one characteristic, whereas in other cases, it may be composite reflecting two or more characteristic.

Simple Cost Unit: **Composite Cost Unit**

Examples of simple cost unit are:		Examples of composite cost unit are	
Nature of service	**Cost unit**	**Nature of service**	**Cost Unit**
Taxi	per kilometer	Bus or Train journey	per passenger-km
Hire of a complete Bus	per kilometer	Goods carriage in a train,. truck etc	Per ton-km
Hire of a complete Truck	per kilometer	Hospitalisation	per bed per day
Course in a college	per student	Hotel room	per room per day
Buffer Lunch/Dinner	per guest		per guest per day
Tea in a Canteen	per cup of tea	Electricity/ Powder	per kilowatt-hour
Supply of gas/steam	per cubic feet	Cinema/Circus	per seat per show

Q 59(d) List of fundamental principles governing capital structure.
The following are the major principles governing capital structure -

1. **Profitability:**
   A capital structure should be most profitable from the point of view of equity shareholder. Therefore maximum debt financing should be opted to increase the returns available to the equity shareholders.
2. **Flexibility:**
   The flexibility of a capital structure refers to ability of the firm to raise additional capital funds whenever needed to finance profitable and viable investment opportunities.
3. **Minimization of Risk:**
   According to this principle reliance should be placed more on equity than debt. Excessive use of debt and preference share capital affects share value. There are two risks associated with this principle:
   Business Risk: Business risk may be defined as the relationship between the firm's sales and its earnings before interest and taxes (EBIT) or Operating Leverage. The greater the firm's operating leverage the fixed operating cost is higher and consequently higher will be the business risk. The higher a firm's business risk, more cautious the firm must be in establishing its capital structure. Firm with high business risk therefore tend toward less levered capital structure, and vice-versa.
   Financial Risk: Financial risk may be defined as the relationship between earning before interest and taxes (EBIT) and earning per share (EPS). The more fixed cost financing i.e. debt and preferred stock, a firm has in capital structure, the greater its financial risk.
4. **Control:** While designing a capital structure, the finance manager may also keep in mind that existing management control and ownership remain undisturbed. Issue of new equity will dilute the existing control patterns and also it involves higher cost. Issue of more debt causes no dilution in control, but causes a higher degree of financial risk.

Q 6 (a)

Sales 24000 units
BEP 12000 units or BEP in Rs 12000 *200= Rs 2400000
MOS sales in units = Actual sales- BEP Sales =12000 units
SPPU Rs 200
PV Ratio 25%, so, Variable cost ratio 75%
VCPU = Rs 150 Per unit CPU = Rs 50 per unit

(i) BEP in Units = fixed cost/ CPU
12000 units = Fixed cost/50
Fixed cost= Rs 600000

(ii) MOS in units = Profits/ CPU
12000 =Profit/50
Profit = Rs 600000

(iii) Desired Sales in units = (Fixed Cost+ Desired Profit)/CPU
(Rs 600000+ Rs 1100000)/50
= 34000 units

(iv) 25% profit On Cost, means 20% profit on sales.
Let no of units sold = x
SPPU =Rs 200
Sales =200x
Profit =20% on 200x = 40x
Desired Sales in units = (Fixed Cost+ Desired Profit)/CPU
X= (Rs 600000+ 40x) 50
X = 60000 units

(v) BEP in units= fixed cost/ CPU
4000 =600000/ (SPPU-150)
New SPPU = Rs 300

Q 6 (b)Reconciliation Statement

Net loss as per cost Accounts	**(34500)**
Add	
Factory OH over recovered	135000
Dividend received	20000
Bank Interest	13600
Notional rent	60000
Opening Stock over valued in cost book	20000
Closing Stock under valued in cost book	6500
Less	
Administrative OH under recovered	(25500)
Depreciation under charged in cost Accounts	(26000)
Loss due to obsolesce	(16800)
Income tax provided	(43600)
Goodwill written off	(25000)
Provision for bad & doubtful debts	(15000)
Profits as per financial books	**67800**

Q7 (a) *Discuss the conflicts in Profit versus Wealth maximization principle of the firm.*

Answer

Conflict in Profit versus Wealth Maximization Principle of the Firm

The company may pursue profit maximisation goal but that may not result into creation of shareholder value. The profits will be maximized if company grows through diversification and expansion. But all growth may not be profitable. Only that growth is profitable where

ROA > WACC or ROE > K_E or Firms invest in positive NPV profits.

However, profit maximisation cannot be the sole objective of a company. It is at best a limited objective. If profit is given undue importance, a number of problems can arise like the term profit is vague, profit maximisation has to be attempted with a realisation of risks involved, it does not take into account the time pattern of returns and as an objective it is too narrow.

Whereas, on the other hand, wealth maximisation, as an objective, means that the company is using its resources in a good manner. If the share value is to stay high, the company has to reduce its costs and use the resources properly. If the company follows the goal of wealth maximisation, it means that the company will promote only those policies that will lead to an efficient allocation of resources.

Q 7(c) Distinguish between business risk & financial risk

Business Risk	Financial Risk
Risk associated with operating fixed cost which will be incurred irrespective of the fact whether the entity makes any sales or not	Risk is created by the use of fixed cost securities that is Debt & Preference Shares
Termed as Operating Risk	Fixed Cost Securities Risk
Examples Are:- Electricity, Rentals, Salaries, Telephone Expenses etc.	Examples are:- Interest on Debt , Preference Dividend etc.
It is linked to Economic Climate.	It is linked to use of Debt fund
It is unavoidable	It is avoidable, a firm which is entirely financed by equity(i.e. unlevered firm) will have almost no financial risk
It is not within the control of the company	It is a controllable risk because it is associated with the capital structure decisions of the firm.
It can be Measured through:- DOL= Contribution/ EBIT	It can be Measured through:- DFL= EBIT/ EBT
It represents the chance of loss and variability of return created by firm's uses of funds	It represents the chance of loss and variability of owner's return created by firm's sources of funds

Q 7(e) "financing a business through borrowing is cheaper than using equity" briefly explain
Ans: financing a business through borrowing is cheaper than using equity is because of the following reasons:

(i) Lenders require lower return as compared to ordinary shareholders. Debt finance securities present a lower risk than shares for the finance providers because they have prior claim on annual income and liquidation.

(ii) A profitable business effectively pays less for debt capital than equity for another reason. The phenomenon along with the tax deductibility of Interest payable leads to the magnification of rate of return on equity capital.

(iii) Issuing and transacting costs associated with raising and servicing debt are generally less than for equity shares.