Question No.1 is compulsory

Answer **any 5** questions from the **remaining 6** questions

(Key Covers only Problems does not include theory)

1.

a.

i.	
Annual Demand	60,000 Units
Cost	Rs. 10 Per unit
Cost of Placing order	Rs. 800 per order
Carrying Cost p.a per unit	Rs. 10 X 15%
	1.50

$$EOQ = \sqrt{\frac{2 \times \text{Annual Demand} \times \text{Ordering Cost}}{\text{Carrying Cost}}}$$

$$= \sqrt{\frac{2 \times 60{,}000 \times 800}{1.5}}$$

$$= \sqrt{64000000}$$

EOQ 8,000 Units

ii.

Reorder level = Safety Stock + (Avg Consumption X Lead Time)

Safety Stock 600

Lead Time / Re-order Level: 10

Average Consumption $\frac{60{,}000}{300}$

Average Consumption 200 Units

Reorder level = 2,600 Units

iii. Maximum Stock = Saftey Stock + EOQ

= 600 + 8000 = 8,600 Units

iv. Minimum Level

$$\frac{\text{Maximum Stock + Minimum Stock}}{2}$$

Or

= Minimum Level + 1/2 X Reorder Quantity

$\frac{\text{Maximum Stock + Minimum Stock}}{2}$	= Minimum Level + 1/2 X Reorder Quantity
Reorder Quantity	8000
$\frac{\text{8,600 + Minumum Stock}}{2}$	= Minimum Level + 1/2 X 8000
$\frac{\text{8,600 + Minumum Stock}}{2}$	= Minimum Level + 4000
8,600 + Minumum Stock	= 2 Minimum Level + 8000
Minimum Level	**600 units**
Average Stock	= 600 + 4000
Average Stock	4,600 Units

b.

Particulars	**Dr. ₹**	**Cr. ₹**
Working in Progress A/c Dr. Factory Overhead To Stores Ledger (Direct Material & Indirect issued to Production)	325,000 115,000	 440,000
Factory Overheads A/c Dr. Working in Progress A/c Dr. To Wages Control A/c (Direct wages charged to production, Indirect wages Charged to Overheads)	162,500 487,500	 650,000
Factory Overheads Dr. To Costing P&L a/c Factory Overheads over absorbed charged to P&L a/c	250,000	 250,000
Costing P&L a/c Dr. To Adminstrative Overheads Admin Overheads Under absorbed charged to P&L a/c	175,000	 175,000
Creditors a/c Dr. To Bank (Payment to Creditors)	150,000	 150,000
Bank a/c Dr. To Sundry Debtors (Amount Received from Debtors)	200,000	 200,000

c. Calculation of Operating Leverage, Finance Leverage & Combined Leverage

Particulars	N	S	D
No Of Units	17,500	6,700	31,800
Selling Price Per Unit (Rs.)	85	130	37
Variable Cost Per Unit (Rs.)	38.00	42.50	12.00
Contribution	47.00	87.50	25.00
Total Contribution - A	**822,500**	**586,250**	**795,000**
Fixed Cost - B	400,000	350,000	250,000
EBIT - (A-B)	**422,500**	**236,250**	**545,000**
Interest	125,000	75,000	-
EBT - (EBIT - Interest)	**297,500**	**161,250**	**545,000**

Degree of Operating Leverage	**Contribution/ EBIT**		
	1.947	2.481	1.459
Degree of Financial Leverage	**EBIT / PBT**		
	1.420	1.465	1.000
Degree of Combined Leverage	DOL X DFL		
	2.765	3.636	1.459

d.

Particulars	Plan - I (Rs.)	Plan - II (Rs.)
Equity Shares of Rs. 10 Each	400,000	400,000
12% Debentures	200,000	-
Preference Shares of Rs 100 each	-	200,000
Total Capital Structure	**600,000**	**600,000**
Interest	24,000	-
No of Shares	40,000	40,000
EBIT at Indifference Point	240,000	

Alternative - 1	$\frac{\text{(EBIT- Interest(Plan - I))(1-Tax Rate)}}{\text{No of Shares}}$
	$\frac{\text{(2,40,000 - 24,000)X 0.7}}{\text{40,000}}$
EPS at Plan 1	3.78

Alternative - 2	$\frac{\text{(EBIT- Interest(Plan - 2))(1-Tax Rate) - Preference Dividend}}{\text{No of Shares}}$
	$\frac{\text{(2,40,000 X 0.7) - Preference Dividend}}{\text{40,000}}$
	$\frac{\text{= 1,68,000 - Preference Dividend}}{\text{40,000}}$

Indifference point EPS of both Plans are equal, Hence

$$3.78 = \frac{\text{1,68,000 - Preference Dividend}}{\text{40,000}}$$

$$151{,}200 = \text{1,68,000 - Preference Dividend}$$

Preference Dividend	16,800
Rate of Preference Dividend	= Preference Dividend / Preference Share Capital
Rate of Preference Dividend	8.40%

2. a.

Operating Cost Statement Per annum in	**₹**
Standing Charges	
Insurance Charges	54,000
Manager-cum accountant's salary	96,000
Annual Tax	50,000
Depreciation (18,00,000-1,20,000)/15)	112,000
Stationery	6,000
Total	**318,000**
Maintenance Charges	
Garage rent	30,000
Annual repairs & Maintenance	150,000
Total	**180,000**
Operating or Running charges	

Driver's Salary	180,000
Conductor's Salary	144,000
Engine oil	75,000
Diesel & Oil	187,200
Total	**586,200**
Total Cost	**1,084,200**

Total Cost Per Passenger Km (₹		**0.75**
Loading		
Commission (₹	10/75 on 0.75	0.10
Profit (₹	15/75 on 0.75	0.15
Fare per Passenger KM (₹		**1.00**

Notes:

No of Trips	3 Round Trips	
Number of KMs per Month	3X2 X 20 X25 Days	3000
No of KM in a year		36000

Passenger KM per Month	3000 X 40	120,000
Passenger KM per Annum	3000 X 40 X 12	1,440,000

Engine Oil, Lubricants (₹ 2,500 X 36,000 Km/1,200 Km	75,000

Diesel & Oil (₹ 52 X 36,000 Kms/10 Kms	187,200

Loading:	**₹**
Collection	100
Commission	10
Profit	15
Cost	**75**

2. b.

Balance Sheet of Sona Ltd as on 31st March 2013

Equity & Liability	Amount	Assets	Amount
Share Capital	575,000	Fixed Assets **(Balancing Fig)**	685,000
Reserve & Surplus **[WN 7]**	260,000	Current Assets	
Current Liabilities		Inventory **[WN 2]**	210,000
Bank Credit **[WN 8]**	200,000	Debtors **[WN 5]**	175,000
Other Liabilities	100,000	Cash & Bank **[WN 6]**	65,000
	1,135,000		**1,135,000**

Working Notes :

1. Calculation of Current Assets

Current Ratio	**1.5**
Current Assets = 1.5 X Current Liabilities	
Working Capital	
Current Assets	1.5 CL
Less Current Liabilities	CL
Working Capital	**0.5 CL**
Working Capital	150,000
CL	**300,000**
Current Assets	1.5 CL
Current Assets	**450,000**

2. Calculation of Inventory

Quick Ratio	**0.8**
Quick Assets	= Current Assets - Inventory
	= 4,50,000 - Inventory
Current Liabilities - WN 1	300,000
4,50,000 – Inventory	= 3,00,000 X 0.8
Inventory	**210,000**

3. Calculation of Cost of Goods

Inventory Turn over Ratio	**5**
Inventory - WN 2	**210,000**
CGS	?
CGS	= 2,10,000 X 5
CGS	**1,050,000**

4. Calculation of Credit Sales

Let Sales be X	
Sales	X
Less: Gross Profit	0.25X
Cost of Goods Sold	**0.75X**
Cost of Goods Sold (WN -3)	1,050,000
Sales	**1,400,000**

5. Calculation of Debtors

Avg Collection period	**1.5 months**
Debtors = Credit Sales X Avg Collection / 12	
Credit Sales	1,400,000
Debtors	**175,000**

6. Calculation of Cash & Bank Balance

Inventory - WN - 2	210,000
Debtors WN - 5	175,000
Cash & Bank (Balancing Fig)	**65,000**
Total Current Assets - WN -1	**450,000**

7. Calculation of Reserves & Surplus

Reserves & Surplus	4 times of Cash & Bank
Cash & Bank Balance	65,000
Reserves & Surplus	**260,000**

8. Breakup of Current Liabilities

Bank Credit	2:1 times
Current Liabilities	3 Times
Current Liabilities - WN -1	300,000
Bank Credit	**200,000**

3.

a.

Given	
Labour Turnover as per	
Flux	13%
Replacement Method	8%
Separation Method	5%
Number of Separations during this year	40

Given	
Labour Turnover as per	
Flux	13%
Replacement Method	8%
Separation Method	5%
Number of Separations during this year	40
i. Computation of Average number of workers on roll	

$\frac{\text{Number of employees Separated}}{\text{Average number of employees on Roll}} \times 100$	
5% = 40 / Average number of employees on roll	
Average Number of Employees	=40/5%
Average Number of Employees	800
ii. No of Workers Replaced during the year	
$\frac{\text{Number of employees replaced}}{\text{Average number of employees on Roll}} \times 100$	
8% = Number of employees Replaced/ 800	
No of workers replaced	=800 X 8%
No of workers replaced	64
iii. New Accessions	
Flux	
$\frac{\text{No of Employees Seperated + No of Accessions}}{\text{Avg Number of Employees}} \times 100$	
13% = 40 + No of Accessions/ 800	
No Of Accessions	64
iv. Number of workers at the beginning of the year	
Let X be the Opening Employees	
Opening Employees	X
New Accesions	64
No of Replacements	64
Less: No of Separations	-40
Closing Employees	X + 88
Avg Employees = Opening + Closing /2	
800 = X + X + 88/2	
1600 = 2X + 88	
X = 756	
Opening Employees = 756	

b. **Statement Showing evaluation of Two Machines**

Particulars	**Machine A**	**Machine B**
Purchase Cost - i	800,000	600,000
Life of Machine	3	2
Operating Cost - ii	130,000	250,000
Cumulative PV Factor 1-3 Years - iii	2.4868	
Cumulative PV Factor 1-2 Years - iv		1.7355
PV of Operating Cost - v	323,284	433,875
Cash Outflow (I + v) = vi	1,123,284	1,033,875
Equivalent present value of annual cash flows - vii	**451,699**	**595,722**
	Vii/iii	Vii/iv

Decision: Company Should buy Machine A as equivalent present value of annual cash flow is less than Machine B

4.

a.

i. Material Usage Variance		
Standard Rate	45 Rs per Kg	
Actual Output (Kg)	9,000	
Standard Cost for Actual Output	405,000	
Actual Quantity Consumed	8,900	
Standard Cost for Actual Quantity Consumed	400,500	
Material Ussage Variance	**4,500**	**Favorable**

ii. Material Price Variance		
Standard Rate	45 Rs per Kg	
Actual Rate	46 Rs per Kg	
Actual Quantity Consumed in Kgs	8,900	
Actual Cost	409,400	
Standard Cost for Actual Quantity Consumed	400,500	
Material Price Variance	**(8,900)**	**Adverse**

iii. Material Cost Variance		
Standard Rate	45 Rs per Kg	
Actual output	9,000	
Actual Rate	46 Rs per Kg	
Actual Quantity Consumed in Kgs	8,900	

Standard Cost for Actual Output	405,000	
Actual Cost	409,400	
Material Cost Variance	**(4,400)**	**Adverse**

Iv. Labour Efficiency Variance		
Actual output	9000 Kgs	
	10kgs Require 8	
Standard Time Required for Actual output	Hours	
Standard Time Required for Actual output (Hours)	7,200	
Standard Rate Per Hour (Rs.)	50	
Standard Cost of Standard time for Actual Output	360,000	
Actual Time in Hours	7,000	
Standard Cost of Actual Time Taken	350,000	
Labour Efficiency Variance	**10,000**	**Favourable**

V. Labour Rate Variance		
Actual Hours	7,000	
Standard Rate Per Hour (Rs.)	50	
Actual Rate per Hour (Rs.)	52	
Standard Cost for Actual time	350,000	
Actual Cost	364,000	
Labour Rate Variance	**(14,000)**	**Adverse**

Vi. Labour Cost Variance		
Standard time for Actual Output in Hours	7,200	
Standard Rate Per Hour (Rs.)	50	
Actual Cost	364,000	
Standard Cost of Standard time for Actual Output	360,000	
Labour Cost Variance	**(4,000)**	**Adverse**

Vii. Variable Overhead Cost Variance		
Standard Variable Overhead rate per Hour	10	
Standard Hours for Actual Production	7,200	
Standard cost for Actual Production	72,000	
Actual cost	72,500	
Variable Overhead Cost Variance	**(500)**	**Adverse**

Viii. Fixed Overhead Cost Variance		
Standard Overheads Rate per unit - **A** (Rs)	200 Rs for 10 Kgs	
Actual Production in Units - **B** (Kgs)	9,000	
Standard Overhead rate per unit for Actual output	180,000	
Absorbed Fixed Overheads - **A X B** (Rs)		
Actual Overheads	192,000	
Fixed Overhead Cost Variance	**(12,000)**	**Adverse**

b.

i. Statement Showing Working Capital

Particulars	31st March		Working Capital	
	2012 ₹	2013 ₹	Increase ₹	Decrease ₹
A: Current Assets				
Stock	300,000	230,000		70,000
Debtors	180,000	200,000	20,000	
Cash & Bank	66,000	152,000	86,000	
Total (A)	**546,000**	**582,000**	**106,000**	**70,000**
B: Current Liabilities				
Sundry Creditors	171,000	167,000	4,000	
Bills Payable	20,000	30,000		10,000
Total (B)	**191,000**	**197,000**	**4,000**	**10,000**
Working Capital (A-B)	355,000	385,000	110,000	80,000
Increase in Working Capital				30,000
Total			**110,000**	**110,000**

ii. Funds Flow Statement for the year ended 31-03-2013

Sources of Funds	₹	Application of Funds	₹
Funds From Operation	420,000	Purchase of Plant	190,000
		Payment of Tax	170,000
		Investments	30000
		Increase in Working Capital	30,000
	420,000		**420,000**

Working

Funds From Operation

Adjujsted P& L A/c

Particulars	₹	Particulars	₹
To Depreciation		By Balance B/d	160,000
Plant	40,000	By Funds from Operation	420,000
Building	40,000		
To Provision for Tax	190,000		
To General Reserve	40,000		
To Balance C/d	270,000		
	580,000		**580,000**

Building A/c			
Particulars	**₹**	**Particulars**	**₹**
To Balance B/d	400,000	By Depreciation	40,000
		By Balance C/d	360,000
	400,000		**400,000**

Plant A/c			
Particulars	**₹**	**Particulars**	**₹**
To Balance B/d	370,000	By Depreciation	40,000
To Bank	190,000	By Balance C/d	520,000
	560,000		**560,000**

Provision For Tax			
Particulars	**₹**	**Particulars**	**₹**
To Bank	170,000	By Balance b/d	160,000
To Balance C/d	180,000	By P&L a/c	190,000
	350,000		**350,000**

General Reserve			
Particulars	**₹**	**Particulars**	**₹**
To Bank		By Balance b/d	140,000
To Balance C/d	180,000	By P&L a/c	40,000
	180,000		**180,000**

6.

a. **Calculation of Machine Hour Rate**

Cost of Machine	2,500,000
Salvage	125,000
Estimated Life of the machine – Hours	25,000
Working Hours (per Annum) – Hours	3,000
Hours required for maintenance – Hours	400
Setting-up time required	8% of Actual working Hours
Setting-up time required	208

Repairs & Maintenance	26,000
Chemicals Required for Operating (Rs. 2,600 per month)	31,200
Overheads Chargeable to machine (Rs. 18,000 per month)	216,000
Insurance Premium p.a (25,00,000 X 2%)	50,000
Salary of Operator (2 X Rs. 18,500)	111,000
Power (Rs.125 X 3000)	-
Depreciation [WN 1]	285,000
Total Cost P.a	719,200
Machine Hour Rate (Total Cost p.a / Machine hours per annum [WN 2]	301

Working Notes

1. Depreciation	
Cost of Asset	2,500,000
Salvage Value	125,000
Life Asset in Hours	25,000
Working Hours (per Annum)	3,000
Life of Asset in Years	8.33
Depreciation = Original Cost - Salvage value / Life asset	**285,000**

2. Machine Hours	
Working Hours (per Annum) – Hours	3,000
Hours required for maintenance – Hours	400
Setting-up time required – Hours	208
Machine Hours per Machine per annum	2,392

b.

Particulars	**Present Policy**	**Policy Option 1**	**Policy Option 2**
Annual Credit Sales	3,000,000	4,200,000	4,500,000
Less: Variable Cost (70% on Sales)	2,100,000	2,940,000	3,150,000
Contribution	900,000	1,260,000	1,350,000
Incremental Contribution – **A**		360,000	450,000
Investment in Debtors (Variable Cost)	2,100,000	2,940,000	3,150,000
Debtors Turn over ratio	4	3	2.4
Average Investment in Debtors	525,000	980,000	1,312,500
Additional Investment in Debtors		455,000	787,500
Required Return on Investment 20% - **B**		91,000	157,500
Bad debts	3% of Sales	5% of Sales	6% of Sales
Bad debts	90,000	210,000	270,000
Incremental bad debts – **C**		120,000	180,000
Incremental Profit		149,000	112,500

Decision : The Company should implement Credit policy Option 1