

1 (a). Answer

$$i. \quad EQA = \sqrt{\frac{2AB}{C}} = \sqrt{\frac{2 \times 60000 \times 800}{1.5}} = 8000 \text{ units}$$

Where A=60000, B=800, C=10*15%=1.5

$$ii. \quad \text{Re order level} = \text{Safety stock} + \text{lead time consumption} = 600 + 2000 = 2600 \text{ units}$$

Where lead time consumption = 10 days * Average consumption per day = 10 * 60000 / 300 = 2000 units

$$iii. \quad \text{Maximum stock level} = \text{ROL} + \text{ROQ} - (\text{Minimum consumption per day} \times \text{minimum re order period})$$

$$= 2600 + 8000 - (60000 / 300) \times 10 \text{ days} = 2600 + 8000 - 2000 = 8600 \text{ units}$$

Note: As there is no information about minimum consumption & minimum reorder period, Average consumption per day & lead time was taken

$$iv. \quad \text{Average stock level} = \text{EOQ} \times 1/2 = 8000 / 2 = 4000 \text{ units}$$

1 (b) Answer

i.	WIP control a/c Dr	325000	
	FOH control a/c Dr	115000	
	To Stores ledger control a/c Cr		440000
ii.	WIP control a/c Dr	487500	
	FOH control a/c Dr	162500	
	To Wages control a/c Cr		650000
iii.	FOH control a/c Dr	250000	
	To Over Absorption a/c Cr		250000
	Under Absorption a/c Dr	175000	
	To Administration control a/c Cr		175000
iv.	Sundry creditors a/c Dr	150000	
	To Bank/Cash a/c Cr		150000
v.	Bank/Cash a/c Dr	200000	
	To Sundry Debtors a/c Cr		200000

1 (c) Answer

Computation of Earnings and Leverages

Particulars	N	S	T
Selling price p.u	85	130	37
Less: Variable cost p.u	38	42.5	12
Contribution p.u	47	87.5	25
No. of Units sales	17500	6700	31800
Total contribution	822500	586250	795000
Less: Fixed cost	400000	350000	250000
EBIT	422500	236250	545000
Less: Interest Expense	125000	75000	-
EBT	297500	161250	545000
Degree of Operating Leverage			
Contribution/EBIT	822500/422500	586250/236250	795000/545000
	1.95	2.48	1.46
Degree of Financial leverage			
EBIT/EBT	422500/297500	236250/161250	545000/545000
	1.42	1.47	1.00
Degree of Combined Leverage			
DOL*DFL	1.95*1.42	2.48*1.47	1.46*1.0
	2.76	3.64	1.46

1 (d) Answer

At indifference point the EPS of two financial plan is same, given indifference point of EBIT is 2, 40,000

$$\frac{(\text{EBIT}-I)(1-\text{Tax rate})}{\text{No. of Equity Shares}} = \frac{\text{EBIT}-I)(1-\text{Tax Rate})-\text{Prefer dividend}}{\text{No. of Equity Shares}}$$

$$\frac{(240000-2400)(100-30\%)}{40000} = \frac{(240000-0)(100-30\%)-\text{prefer dividend}}{40000}$$

$$151200 = 168000 - \text{prefer dividend}$$

$$\text{Prefer dividend} = 16800$$

$$\text{Rate of prefer dividend} = 8.40\%$$

2(a) Answer

Particulars	Computations	Rs
Depreciation	$= (1800000 - 120000) * 1/15 * 1/12$	9333.33
Insurance charges	$= 1800000 * 3\% * 1/12$	4500
Manager cum accountant salary	Given	8000
Annual tax	$= 50000/12$	4166.66
Garage rent	Given	2500
Annual repairs and Maintenance	$= 150000/12$	12500
Drivers salary	Given	15000
Conductor salary	Given	12000
Stationery	Given	500
Engine oil, lubricants..	$= (20\text{km} * 3 * 2 * 25\text{days}) * 2500/1200$	6250
Diesel and oil	$= (20\text{km} * 3 * 2 * 25\text{days}) * 52/10$	15600
Total cost excluding driver commission	75%	90350
Driver commission	10%	12046.67
Total cost	85%	102396.67
Profit	15%	18070
Revenue(collection)	100%	120466.7

Total cost excluding driver commission = 75%-----90350

Total collection = 100%-----?

Total collection = $90350 * 100/75 = 120466.7$

Passenger km = $20\text{km} * 3 * 2 * 40\text{passengers} * 25\text{days} = 120000\text{Passengers km}$

$$\text{Fare} = \frac{\text{Total collection}}{\text{Passenger km}} = \frac{120466.7}{120000} = 1.003 \text{ per passenger km}$$

2 (b) Answer

Given working capital (CA-CL) = 1, 50,000

Current Ratio = 1.5: 1

Current liabilities = $1, 50,000/0.5 = 3, 00,000$

Current Assets = $3, 00,000 * 1.5 = 4, 50,000$

Quick ratio = Quick Assets/ current liabilities

Bank Credit = $3,00,000 * 1/3$

Given Quick Ratio = 0.8:1

Quick Assets/Quick liabilities = 0.8

Quick Assets = $0.8 \times 2,00,000 = 2,40,000$

Total current Assets – stock = 2,40,000

Stock = $4,50,000 - 2,40,000 = 2,10,000$

Inventory Turnover = Cost of Goods Sold / Average Inventory

Cost of goods sold = Average inventory * inventory turnover = $2,10,000 \times 5 = 10,50,000$

Cost of goods sold = Total Sales – gross margin

Total Sales = cost of goods sold / (100 – gross margin %) = $10,50,000 / (100 - 25\%) = 14,00,000$.

Average Debtors = Total Sales * Average collection period / 12
 $= 14,00,000 \times 1.5 / 12 = 175,000$

Cash and Bank balances = Total current Assets – Stock – Debtors = $4,50,000 - 2,10,000 - 1,75,000$
 $= 15,000/-$

Reserves and Surpluses = $15,000 \times 4 = 60,000/-$

Balance sheet of SONA Ltd. As on 31/03/2013

Particulars	Amount
<u>Equity and Liabilities</u>	
Share Capital	575000
Reserves and Surplus	260,000
Bank credit	100000
Other Current Liabilities	200000
Total	1135000
<u>Assets</u>	
<u>Non Current Assets:</u>	
Fixed Assets B/F	685000
<u>Current Assets</u>	
Inventory	210000
Trade receivables	175000
Cash & Bank	65000
Total	1135000

3(a) Answer

i. Labour T/O under separation method = S/L

$$5\% = 40/L$$

Where, number of separations = 40

$$\text{Average Labour force (L)} = 40/5\% = 800$$

ii. Labour T/O under replacement method = R/L

$$8\% = R/800$$

$$\text{Replacements (R)} = 800 \times 8\% = 64$$

iii. Labour T/O under FLUX method = $(S+A)/L$

$$13\% = (40+A)/800$$

$$40+A = 800 \times 13\% = 104$$

$$\text{Accessions} = 104 - 40 = 64$$

$$\text{No. of new accessions} = \text{No. of accessions} - \text{No. of replacement} = 64 \text{ workers} - 64 \text{ workers} = 0$$

iv. We know that accessions = Number of workers at the end + Number of separations – Number of workers at the beginning

In this case we don't know no. Of workers at the beginning & end, so let's take

$$\text{No. Of workers at the beginning} = X$$

$$\text{No. Of workers at the end} = Y$$

$$\text{Accessions} = 64$$

$$\text{Separations} = 40$$

By taking all the values in the above equation

$$64 = Y + 40 - X$$

$$Y - X = 24 \dots\dots\dots 1$$

We know that average labour in force = $(\text{No. Of workers at the beginning} + \text{No. Of workers at the end}) / 2$

$$800 = (X + Y) / 2$$

$$Y + X = 1600 \dots\dots\dots 2$$

By solving the above 2 equations

$$Y = 812, X = 788$$

$$\text{No. Of workers at the beginning} = 788$$

3(b) Answer

Since the project life and investment size are different the project is evaluated by using equated annual cash flows method.

Particulars	Machine A	Machine B
Initial Investment	800000	600000
Life of project	3	2
Present value of annuity factor @10%	2.4868	1.7355
Equated annual initial investment	321699	345722
Annual operating Cost	130000	250000
Total Equated annual cash out flow	451699	595722

Since the annual net out flow is less with machine A, it would be worthwhile to buy Machine A.

Note: As there is given ignore the tax effect, then need not consider the tax benefit on depreciation and operating expenses.

4(a) Answer

- i. Material usage variance=SPSQ-SPAQ= $45 \times 9000\text{Kg} - 45 \times 8900\text{kg} = 100\text{kg} \times 45 = 4500\text{F}$

Computation of SQ

Standard for one packet (10kg) -----10kg

Standard Quantity for actual output of 9000kg=?

SQ=9000kgs but actual consumption is 8900kg, so 100kg saved

Material Usage variance=100kg saved*45=4500Favorable effect

- ii. Material price variance=SPAQ-APAQ= $45 \times 8900 - 46 \times 8900 = 8900\text{A}$
 iii. Material cost variance=SPSQ-APAQ= $45 \times 9000 - 46 \times 8900 = 4400\text{A}$
 iv. Labour efficiency variance=SRSR-SRAH= $50 \times 7200 - 50 \times 7000 = 10000\text{F}$

Computation of SH

Standard hours for 10kg out=8hours

Standard hours for 9000kgs output=?

SH= $9000 \times 8/10 = 7200\text{hours}$ but actual taken is 7000hours, so here time saved due to more efficiency, so favourable effect

- v. Labour rate variance=SRAH-ARAH= $50 \times 7000 - 52 \times 7000 = 14000\text{A}$
 vi. Labour cost variance=SRSR-ARAH= $50 \times 7200 - 52 \times 7000 = 4000\text{A}$
 vii. Variable OH cost variance=Absorbed VOH-actual VOH=SRSR-Actual VOH= $10 \times 7200 - 72500 = 500\text{A}$
 viii. Fixed OH cost variance=Absorbed OH-Actual OH= $9000 \times 200/10 - 192000 = 180000 - 192000 = 12000\text{A}$

Computation of Absorbed FOH

Standard recovery rate per kg of output= $200/10 = 20\text{per kg}$

Absorbed =Actual output*20perkg= $9000 \times 20 = 180000$

4(b) Answer

Statement showing the change in Working Capital:

Particulars	31/03/2012	31/03/2013
<u>Current Assets</u>		
Stock	300000	230000
Debtors	180000	200000
Cash & Bank	66000	152000
Total	546000	582000
<u>Current Liabilities</u>		
Sundry Creditors	171000	167000
Bills payable	20000	30000
Working Capital	355000	385000

Funds from Operations

Particulars	Amount
Increase in Profit and Loss A/c	110000
Transfer to General Reserve	40000
Depreciation 40000+40000	80000
Provision for Income tax	190000
Interim Dividend	80000
Dividend Tax	13596
Funds generated from operations	513596

Sources of Funds	Amount	Application of Fund	Amount
Funds from operations	513596	Purchase of Plant	190000
		Purchase of long term investment	30000
		Income Tax Paid	170000
		Interim dividend paid	80000
		Dividend tax paid	13596
		Increase in Working capital	30000
	513596		513596

6(a) Answer

Particulars	Computations	Rs
Depreciation	$(25,00,000 - 1,25,000) * 3,000 / 25,000$	2,85,000
Power	Working note no. 1	3,25,000
Cost of repairs & maintenance	Given	26,000
Chemical cost	$2,600 * 12$	31,200
Overhead charge	$18,000 * 12$	2,16,000
Insurance	$25,00,000 * 2\%$	50,000
Operator salary	$(18,500 * 12 * 2)/3$	1,48,000
Total Cost		10,81,200
Effective working hours	Working note no. 1	2,407.41 Hours

$$\begin{aligned} \text{Machine hour rate} &= \frac{\text{Total Cost}}{\text{Effective workinh hours}} \\ &= \frac{10,81,200}{2,407.41} = 449.11 \text{ per hour} \end{aligned}$$

Working note no.1

Total working hours per annum = 3000

Maintenance hours = 400

Working hours including set up time = $3,000 - 400 = 2,600$

Set up time = 8% of actual working hours

Lets take Actual working hours = 100

Set up time = $100 * 8\% = 8$

Working hours including set up time = 108

Set up time = $2,600 * 8/108 = 192.59$ hours [108.....8 ; 2,600.....?]

Therefore effective working hours = $2,600 - 192.59 = 2,407.41$ hours

Power cost = $2,600 \text{ hours} * 25 \text{ units} * 5 \text{ per unit} = 3,25,000$

Notes:

1. It was assumed that working hours are inclusive of maintenance hours & Set up time
2. power is required during set up time

6(b) Answer

Evaluation of different credit alternative approaches

Particulars	Present	option-I	Option-II
Annual Credit Sales	3000000	4200000	4500000
Less: Variable cost @70%	2100000	2940000	3150000
Contribution	900000	1260000	1350000
Total debtors @ variable cost	2100000	2940000	3150000
Debtors turnover	4	3	2.4
Average debtors	525000	980000	1312500
Interest on Avg. debtors @ 20%	105000	196000	262500
Loss due to bad debts	90000	210000	270000
Net Benefit	705000	854000	817500

We calculated the debtors at variable cost since it gives more appropriate investment decision.

Based on net benefit is more with option -1, it is advisable to go to with option-I.

NOTE: Dear students, Verify the solutions and let us know any queries/corrections to be made