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THE INSTITUTE OF  
**CHARTERED** ACCOUNTANTS  
OF SRI LANKA

# **SUGGESTED SOLUTIONS**

**KB 2 – Business Management Accounting**

**December 2018**

# SECTION 1

## Answer 01

### Relevant Learning Outcome/s: 1.1.1

Assess the key features of the absorption costing method and ABC method.

Study text reference: Pages 13 and 22

(a)

- (i) The hospital operates in a highly competitive market evident by the competitive pricing, upgrading of existing facilities, and the coming up of new hospitals.
- (ii) The hospital incurs a large proportion of indirect costs, which are presently not identified with specific products/services (cost objects).
- (iii) Products and customers differ significantly in terms of consuming overhead resources.
- (iv) The hospital offers many different products and services.

All of the features identified above require the hospital to establish the cost of providing a particular service as accurate as possible. For this purpose the costs need to be assigned to services as well as to customers. Otherwise the hospital will not be in a position to offer its wide range of services at competitive prices, and with high quality, to satisfy customers.

(b)

- Some (arbitrary) measure of cost apportionment may still be required at the cost pooling stage for items like rent, rates and building depreciation. Facility sustaining costs such as rent form a significant part of total costs for which establishment of cost drivers may be impossible.
- A single cost driver may not explain the cost behaviour of all the items in its associated pool.
- Unless costs are caused by an activity that is measurable in quantitative terms and can be related to production output, cost drivers will not be usable.
- ABC is sometimes introduced because it is fashionable, not because it will provide the management with meaningful product cost or extra information. If the management is not going to use ABC information, an absorption costing system may be simpler to operate.
- It is often difficult to define products that are of an intangible nature. Cost objects are therefore difficult to be specified.
- CHC does not have a sophisticated costing system and much of the information required to set up an ABC system is lacking.
- Introducing ABC is likely to be expensive and problematic.

**(Total: 10 marks)**

## Answer 02

### Relevant Learning Outcome/s: 1.2.1 and 5.1.2

1.2.1 Assess the key features of marginal costing and throughput accounting (including different types of measures used in throughput accounting).

5.1.2 Discuss cash management options (surplus and deficit managing options).

Study text reference: Pages 59 – 61, 613 – 616

(a)

- (i) Present manufacturing companies cannot hire experienced workers on a daily basis and lay them off subsequently when there is not enough work to do. Further, present labour laws do not allow companies to terminate employment as and when the company wants.

As a result labour cost is virtually committed, which is against the traditional limiting factor analysis where labour cost is considered variable. In throughput accounting labour is not considered as a variable cost, which is in line with the factual condition in present manufacturing companies where workers are employed.

- (ii) In a JIT environment all inventory is a bad thing and the ideal inventory level is zero. Products should not be made unless a customer has ordered them. When goods are made, the factory effectively operates at the rate of the slowest process and there will be unavoidable idle capacity in other operations.

WIP should be valued at material cost only until the output is eventually sold so that no value will be added and no profit earned until the sale takes place.

- (iii) Profitability is determined by the rate at which 'money comes in at the door' (i.e. sales are made) and in a JIT environment, this depends on how quickly goods can be produced to satisfy customer orders. Since the goal of a profit-oriented organisation is to make money, inventory must be sold for that goal to be achieved. The bottleneck resource slows the process of making money.

(b) **Cash management options (in January when there is a cash surplus)**

- Since there is an excess cash balance the company could temporarily place such excess funds in a deposit.
- Negotiate with trade debtors for early settlement so that the money will be available for the company when needed.

#### *Merits*

- By placing excess funds in a deposit the company could earn a return.
- By negotiating with customers the company could get cash that can be used by the company in case of an emergency.

*Demerits*

- Sufficient cash will not be available if the entire excess cash available is deposited.
- There is a possibility of customers moving away if they are pressurised to make early payments.

**Cash management options (in February when there is a cash shortage)**

- As there is a negative cash balance in the month of February the company should think of postponing the purchase of new machines.
- Negotiate with suppliers to purchase on credit or delay payment for the purchase of materials as the company is facing a cash shortage.
- Offer discounts for earlier payment to speed up collections from debtors.
- Arrange a temporary overdraft facility to overcome the cash shortage.
- Factoring of debtors.

*Merits*

- Cash flow will be improved.
- The company will be in a position to manage the cash shortage.

*Demerits*

- Some new non-current assets may be needed for the development and growth of the business.
- Suppliers may refuse to supply in the future if they are not willing to give a longer credit period.

**(Total: 10 marks)**

### Answer 03

**Relevant Learning Outcome/s: 3.4.1**

Discuss the financial implications of various pricing methods, such as cost-based and market-based pricing (including skimming, penetration, loss leader pricing, premium pricing and price discrimination).

Study text reference: Page 360

(a) (i)

		<b>Rs.</b>
Target ROI	96 million x 25%	24,000,000
Fixed costs		<u>35,200,000</u>
Target contribution margin (TCM)		<u>59,200,000</u>
TCM per room night	59,200,000/16,000	3,700
Variable cost		<u>300</u>
Price to be charged per room night		<u>4,000</u>

(ii)

ROI per room night	24 million/16,000	Rs. 1,500
Percentage mark-up on full cost	1,500/2,500	60%

(b)

		<b>Rs.</b>
New contribution margin per room	4,000 x 90% - 300	3,300
New number of room nights	16,000 x 110%	17,600
New contribution margin (total)	17,600 x 3,300	58,080,000
Reduction in contribution	59,200,000 - 58,080,000	1,120,000

The total contribution reduces by Rs. 1,120,000 thereby reducing profit by the same amount. Therefore, the proposal to reduce the price is not recommended.

**(Total: 10 marks)**

**Alternative answer**

Current revenue	4,000 x 16,000	→	Rs. 64 million
New revenue	3,600 x 17,600	→	Rs. 63.36 million

Revenue decreases and variable cost increased due to increase in room nights. Therefore, the contribution would decrease and the overall profit would also decrease.

It is not recommended to proceed with the price reduction.

## Answer 04

### Relevant Learning Outcome/s: 4.1.1 and 4.3.1

4.1.1. Discuss decentralisation and different types of responsibility centres (revenue, cost, profit and investment centres).

4.3.1 Assess divisional performance using Return on Investment (ROI), Residual Income (RI) and Economic Value Added (EVA).

Study text reference: Pages 559, 577, 586 and 587

(a) **Advantage:** Managers become aware of the costs involved in supporting the work of their automobile center.

**Disadvantage:** Managers are made accountable for an arbitrary apportionment of head office costs over which they have no direct control.

(b)

		Automobile Center A		Automobile Center B	
		Current year	Last year	Current year	Last year
(i)	Before apportionment	20%	14%	25%	16%
(ii)	After apportionment	14%	8%	15%	10%

(c) Both centers have improved their performance in terms of ROCE (under both methods). The improved performance in Center A is due to the increase in profits while that of Center B is due to the reduction in capital employed.

#### Factors to be considered

- Age of the non-current assets of each center.
- Whether capital employed consists of assets that cannot be directly traced back to each center and not controlled by the center manager.
- Whether the reduction in capital employed in Center B is due to the disposal of assets and outsourcing of some of the operations, or whether it is due to maintenance of aged assets.
- Whether a target of 15% ROCE is fair even after apportionment of head office fixed overhead costs in light of the fact that the company's cost of capital is only 8%.
- Improved performance in Center A in terms of ROCE shows that the acquisition of assets did not have a major impact on its ROCE.
- Whether the increase in profits of Center A due to the acquisition of new assets has had a greater effect in increasing its ROCE than the lowering effect due to the increase in the asset base.

(d) RI can reduce the problem that ROCE perpetuates of discouraging investment in assets with a ROCE in excess of the target but lower than the current ROCE. RI also highlights the cost of financing to Automobile center managers.

However, as RI is an absolute measure it does not facilitate comparison between automobile centers. The absolute nature of the performance metric does not relate the value of the assets employed by an automobile center to the profit generated.

**(Total: 10 marks)**

**Answer 05**

**Relevant Learning Outcome/s: 5.1.4**

Discuss available options of inventory management.

Study text reference: Page 644

(a)

- By maintaining the right quantity CBA could minimise the cost of inventory. If CBA holds too much inventory, inventory holding costs would be excessive.
- By managing its inventory CBA could avoid stock out situations which would result in a loss of sales.
- Continuous supply of materials will make the customers satisfied.

(b) (i)

$$EOQ = \sqrt{\frac{2C_0D}{C_h}}$$

$$= \frac{(2 \times 128,000 \times (40,000 \times 12))}{(50 + 5,000 \times 0.16\%)}$$

$$= 12,024\text{kg}$$

Computation of effective rate of interest =  $(1 + 0.15/12)^{12} - 1 = 16\%$

Holding cost

(ii) Re-order level = (max usage\*max lead time)

Max usage = $1,600 \times 2 - 500 =$	2,700kg
Max lead time = $20 \times 2 - 10 =$	30 days
Re-order level =	81,000kg

(iii) Maximum inventory level = Re-order level + re-order quantity - (minimum usage\*minimum lead time)

Re-order level	=	81,000
Re-order quantity	=	12,024
Minimum usage	=	500
Minimum lead time	=	10

Maximum inventory level = 88,024kg

(iv) Minimum inventory level = ROL - (average usage\*average lead time)  
 $= 81,000 - (1,600 \times 20)$   
 $= 49,000\text{kg}$

**(Total: 10 marks)**

## SECTION 2

### Answer 06

**Relevant Learning Outcome/s: 2.1.5, 2.2.2 and 2.2.3**

2.1.5 Demonstrate the impact of the learning/ experience curve on planning and controlling.

2.2.2 Assess the behavioural implications of different budgeting approaches (imposed style, participatory style, negotiated style, incremental style, zero based, ABB).

2.2.3 Analyse the budgetary control statement (original budget, flex budget, actual and variances).

Study text reference: Pages 193, 194, 211, 216, 224, 225 and 226

(a)		Time to manufacture the first unit = 8 hours	
	(i)	Average labour time for first 3,000 units = 8 hours * $3,000^{-0.152} =$	2.3690 hours
		Standard labour hours for first 3,000 units	7,107 hours
		Standard labour cost at Rs. 200	1,421,400
	(ii)	Average labour time for first 5,000 units = 8 hours * $5,000^{-0.152} =$	2.1920 hours
		Standard labour hours for first 5,000 units	10,960 hours
		Standard labour cost at Rs. 200	2,192,000

(b)	Average labour time for first 4,999 units = 8 hours * $4,999^{-0.152} =$	2.1921 hours
	Total hours for first 4,999 units	10,958.31
	Labour time for 5,000 <sup>th</sup> unit	1.69 hours
	<u>Standard labour for 11,000 units in June 2018</u>	
	2,000 units with learning effect	3,853 hours
	Balance 9,000 units (11,000 – 2,000) (9,000 x 1.69)	15,210 hours
	<b>Total standard labour hours</b>	<b>19,063 hours</b>
	Actual labour hours	21,000 hours
	There is an adverse variance in the utilisation of labour of 1,937 hours.	
	The labour rate is also Rs. 5 higher than the budgeted rate.	
	Therefore the production manager's performance is not satisfactory.	



(c)	<b>Budgetary control statement</b>				
		<b>Flexed budget</b>	<b>Actual</b>	<b>Variance</b>	
	Output	11,000	11,000	-	
	Material cost	11,000,000	12,705,000	(1,705,000)	
	Direct labour	3,816,380	4,305,000	(488,620)	
	Variable overheads	4,400,000	4,180,000	220,000	
	Fixed overheads	7,000,000	7,500,000	(500,000)	

(d)

- (i) The top-down approach is where the top management sets budgets and imposes it on the operational staff. In the budget preparing process there is no involvement from the operational staff who usually perform according to the budgeted targets. Sales budgets could be set on this basis.

Incremental budgeting is where the budgets are made by adding/subtracting a percentage/proportion from the records of the past period. Expenditure such as lease rentals, water, electricity etc. could be budgeted on this basis.

Zero-based budgets require the management to gather all the information of the item under budgeting and the budget to be made from scratch/zero. Every item of expenditure must be justified in its entirety in order to be included in the next year's budget. Any discretionary item of expenditure such as a special advertising campaign, training programme etc. can be made on this basis.

- (ii)
- It is based on information from employees most familiar with the department.
  - Knowledge spread among several levels of management is pulled together.
  - Staff's morale and motivation is improved.
  - It increases operational managers' commitment to organisational objectives.
  - In general it is more realistic.
  - Co-ordination between units is improved.
  - Specific resource requirements are included.
  - Senior managers' overview is mixed with operational level details.

(iii) Why ZBB should be used for the dealer training programme and award ceremony

This is not a recurring item in the company's calendar. As it is a discretionary item, the number of participants, nature of events, food, gifts and awards will be different from the previous ones. Therefore the expenditure on this item should be estimated from scratch. It would not be practical to obtain the amount by just multiplying the expenditure incurred in the past by a percentage/proportion. As such ZBB is the most suitable budgeting mechanism for this type of discretionary expenditure.

Why not for other items

The ZBB mechanism is very time consuming and costly since everything is estimated from zero. Expenditure such as salaries of the HR division, cost of welfare etc. can be easily budgeted based on past data on an incremental basis. Therefore the ZBB method is not suitable for budgeting all types of expenditure.

**(Total: 25 marks)**

**Answer 07**

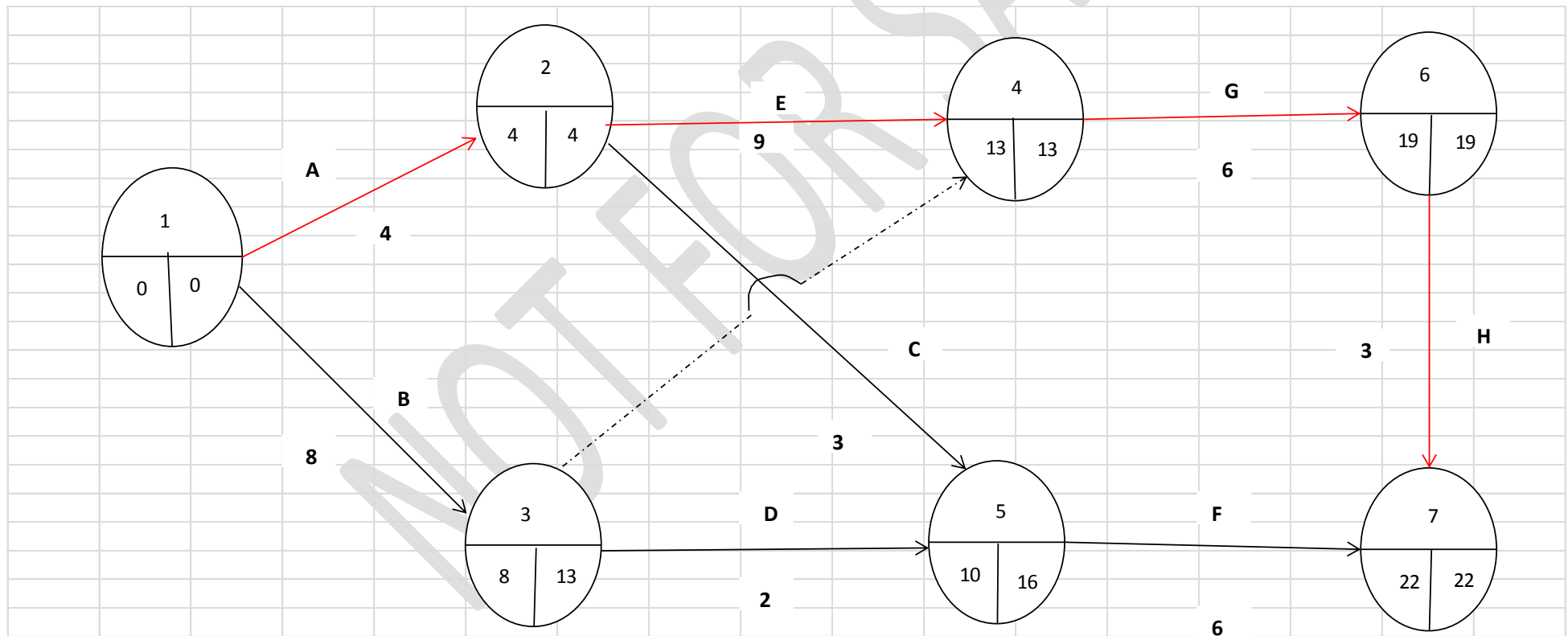
**Relevant Learning Outcome/s: 3.6.1 and 3.8.2**

3.6.1 Demonstrate critical path analysis, project duration, total float, cost and resource scheduling.

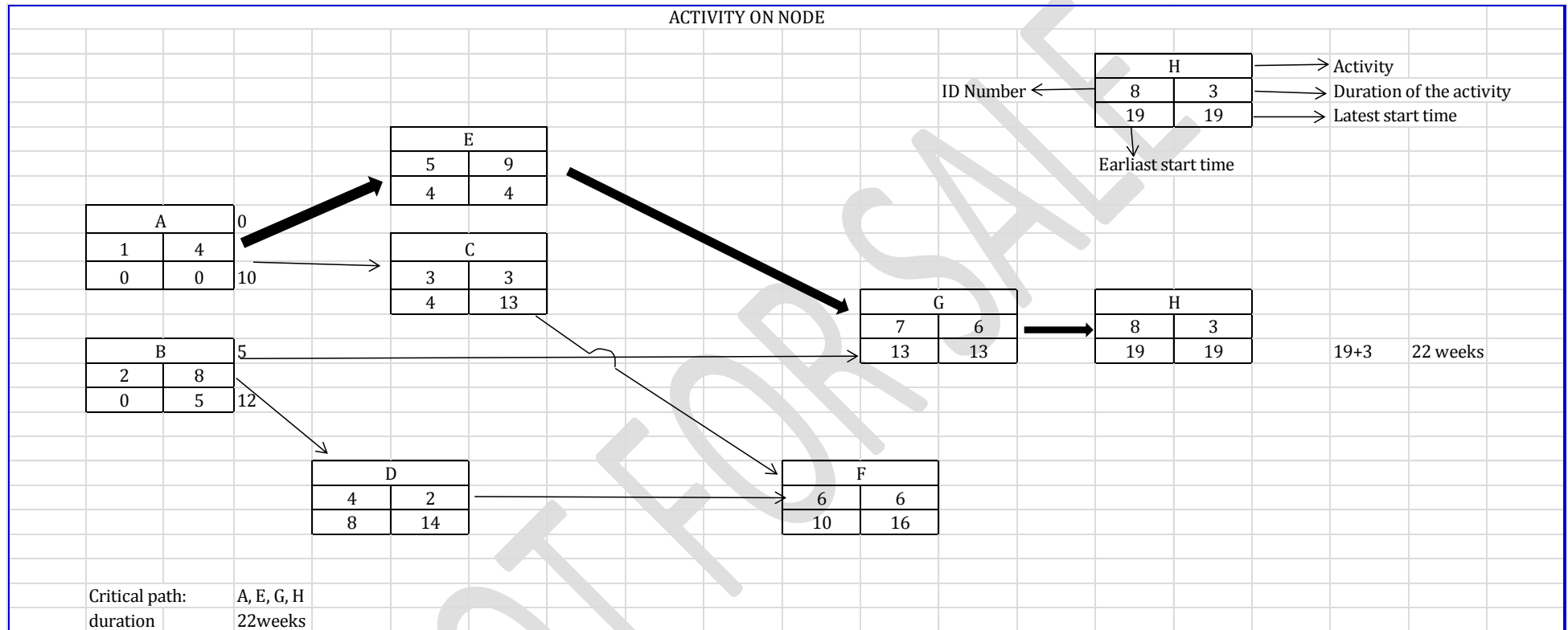
3.8.2 Demonstrate how a decision would be made under conditions of uncertainty, using:

- Decision tree-based expected value calculations
- Data tables
- Alternative decision criteria (minimax, maximax and minimax regret)

Study text reference: Pages 430 and 528



### Alternative answer



- (b) Earliest start time of Activity E is 4 weeks where as it is 8 weeks for Activity G when the two activities are considered independently.

However, since the two activities cannot be done simultaneously, they have to be done one after the other.

If G is done after E, both E and G can be completed by  $4 + 9 + 6 = 19$  weeks

If E is done after G both E and G can be completed by  $8 + 6 + 9 = 23$  weeks.

Therefore, in order to achieve shorter duration the order should be E and G.

- (c) A-E-G-H = 22 weeks

Critical activities are A-E-G-H → Duration = 22 weeks

- (d)

	2 <sup>nd</sup> shift successful		2 <sup>nd</sup> shift unsuccessful	
P = 40	<b>Total contribution</b>		<b>Contribution on 1<sup>st</sup> 100k</b>	
	$(40 - 38) \times 100,000$	200,000	$(40 - 38) \times 100,000$	200,000
	$(40 - 44) \times 100,000$	(400,000)	Loss on 2 <sup>nd</sup> 100k	
			$(50 - 40) \times 100,000$	(1,000,000)
			Net contribution	(800,000)
	$EV = (200,000) \times 75\% - 800,000 \times 25\% = (350,000)$			
			$(350,000) \times 0.9 = (315,000)$	
P = 44	<b>Total contribution</b>		<b>Contribution on 1<sup>st</sup> 100k</b>	
	$(44 - 38) \times 100,000$	600,000	$(44 - 38) \times 100,000$	600,000
	$(44 - 44) \times 100,000$	-	Loss on 2 <sup>nd</sup> 100k	
			$(50 - 44) \times 100,000$	(600,000)
			Net contribution	-
	$EV = 600,000 \times 75\% - 0 \times 25\% = 450,000$			
			$450,000 \times 0.6 = 270,000$	
P = 48	<b>Total contribution</b>		<b>Contribution on 1<sup>st</sup> 100k</b>	
	$(48 - 38) \times 100,000$	1,000,000	$(48 - 38) \times 100,000$	1,000,000
	$(48 - 44) \times 100,000$	400,000	Loss on 2 <sup>nd</sup> 100k	
			$(50 - 48) \times 100,000$	(200,000)
			Net contribution	800,000
	$EV = 1,400,000 \times 75\% + 800,000 \times 25\% = 1,250,000$			
			$1,250,000 \times 0.2 = 250,000$	

**Alternative answer**

		Joint probability				Rs.	
P = 40	W 0.9	S 0.75	0.675	100,000 * 2 =	200,000		
				100,000 * (4) =	-400,000		
					-200,000	-135,000	
	N 0.25		0.225	100,000 * 2	200,000		
				100,000 * (10)	-1,000,000		
					-800,000	-180,000	
						<b>-315,000</b>	
	L 0.1						
	P = 44	W 0.6	S 0.75	0.45	100,000 * 6 =	600,000	
					100,000 * - =	-	
					600,000	270,000	
N 0.25			0.15	100,000 * 6	600,000		
			100,000 * (6)	-600,000			
				-	-		
					<b>270,000</b>		
P = 48	W 0.2	S 0.75	0.15	100,000 * 10	1,000,000		
				100,000 * 4	400,000		
					1,400,000	210,000	
	N 0.25		0.05	100,000 * 10	1,000,000		
			100,000 (2)	-200,000			
				800,000	40,000		
					<b>250,000</b>		
L 0.8							

**(Total: 25 marks)**

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