SUGGESTED SOLUTION

FINAL Nov. 2018 EXAM

Advance Management Accounting

Prelims (Test Code - FMJ6059)

Ans. 1

(a)

Let Variable Cost per unit be `X		
Particulars	**Continue Operations**	**Shutdown**
1. Revenue	5,000 units × `14 = `70,000	Nil
2. Variable Cost	5,000 X	Nil
3. Contribution (1-2)	70,000 - 5,000 X	Nil
4. Fixed Costs	30,000	30,000 - 20,000 + 2,000 = 12,000
5. Profit (3-4)	40,000 - 5,000 X	(12,000)

For indifference between Continue and Close down Options, the profits of the two options should be equal.

So,   40,000 - 5,000X = - 12,000,

-5,000X = -52,000

On solving, **X** = **10.40**= Desired Variable Cost p.u.

Conclusion: If Variable Cost per unit is greater than `10.40, Shut-Down Option is preferable.

(b) The Δ_{ij} matrix = Δ_{ij} = $Ci_j - (u_i + v_j)$

Where c_i is the cost matrix and $(u_i + v_j)$ is the cell evaluation matrix for allocated cell.

The Δ_{ij} matrix has one or more 'Zero' elements, indicating that, if that cell is brought into the solution, the optional cost will not change though the allocation changes.

Thus, a 'Zero' element in the Δ_{ij} matrix reveals the possibility of an alternative solution..

(c)

1. Interpretation of percentages given

(a) Revised Budgeted Sales after considering 10% Price Reduction	`1,080 Lakhs
(b) So, Revised Budgeted Sales before considering Price Reduction = $\frac{Rs.1,080\ Lakhs}{90\%}$	`1,200 Lakhs
(c) As expected level is only 80% of the Original Budget, Original Budgeted Sales = $\frac{Rs.1,200\ Lakhs}{80\%}$	`1,500 Lakhs

2. Statement showing the break-up of the original and revised budget for a year (`Lakhs)

Particulars	Original Budget	Revised Budget
(a) Sales Revenue (A)	1,500	1,080
(b) Variable Costs: Direct Materials @ 40%	600	480
Direct Labour @ 20%	300	240
Factory Overheads @ 10%	150	120
Selling & Administration Overheads @ 5%	75	60
Total Variable Costs (B)	**1,125**	**900**
(c) Contribution = (a) - (b)	375	180
(d) Fixed Overheads: Factory Overheads	150	150
Selling & Administration Overheads	180	180
Total Fixed Overheads (D)	330	330
Profit / Loss (c) - (d)	**45**	**(150)**

Note: Sale Prices only have been reduced. Hence costs would be computed in relation to the Original Sale Price.

(d)

1. **Competitive Benchmarking:** It involves the comparison of one's own products, processes and business results with that of competitors. Benchmarking Partners are drawn from the same industry. To protect confidentiality, it is common for Firms to undertake this type of benchmarking through associations of third parties.
2. **Strategic Benchmarking:** It involves a systematic process by which a Firm seeks to improve its overall performance by examining the long-term strategies. It involves comparing

high-level aspects such as developing new products and services, core competencies, etc. It is similar to Process Benchmarking in nature but differs in its scope and depth.

3. **Global Benchmarking:** It is a benchmarking through which distinction in international culture, business processes and trade practices across Firms are bridged, and their ramification for business process improvement are understood and utilised. Globalisation and advances in information technology leads to use of this type of benchmarking.

4. **Process Benchmarking:** It involves the comparison of a Firm's critical business processes and operations against a best practice organisation that performs similar work or deliver similar services.

5. **Functional Benchmarking:** This is used when Firm look to benchmark with Partners drawn from different business sectors or areas of activity, to find ways of improving similar functions or work processes. This sort of benchmarking can lead to innovation and dramatic improvements.

6. **Internal Benchmarking:** It involves seeking Partners from within the same Firm, for example, from business units located in different areas. The main advantages are - (a) Easy access to sensitive data and information, (b) Availability of standardised data, and (c) Lesser requirement of time and resources. However, real innovation may be lacking.

7. **External Benchmarking:** It involves seeking help of outside Firm that are known to be best in class. It provides opportunities of learning from those who are at leading edge. However, this type of benchmarking may take up more time and resource to ensure the comparability of data and information, the credibility of the findings and the development of sound recommendations.

Benchmarking can also be categorised into –

1. **Intra-Group Benchmarking:** Here, the groups of Companies in the same industry agree that similar units within the co-operating Companies will pool & share data on their processes. The processes are benchmarked against each other at or near operational level. 'Improvement Task Forces' are established to identify and transfer best practice to all members of the group.

2. **Inter-Industry Benchmarking:** In Inter-Industry Benchmarking, a non-competing business with similar process is identified and asked to participate in a benchmarking exercise. For example, a Publisher of Schoolbook may approach a Publisher of University Level Books to establish benchmarking relationship.

Ans. 2

(a)

Particulars	W	X	Y	Z
1. Sales Price per unit	`56	`67	`89	`96
2. Variable Costs per unit: Materials	`22	`31	`38	`46
Labour	`15	`20	`18	`24
Variable Overhead	`12	`15	`18	`15
Sub-Total	`49	`66	`74	`85
3. Contribution per unit (1-2)	**`7**	**`1**	**`15**	**`11**
4. Limiting Factor =Time	10 Minutes	10 Minutes	15 Minutes	15 Minutes
5. Contribution per minute (3 ÷ 4)	`0.70	`0.10	`1.00	`0.73
6. Rank based on Contribution per minute	**III**	**IV**	**I**	**II**
7. Budgeted Sales Mix (given)	2	3	3	4
8. Overall Contribution Ratio (3 ×7)	14	3	45	44
9. Fixed Costs `15,000 apportioned in ratio of (8), for achieving BEP (Since Contribution = Fixed Costs)	`1,981	`425	`6,368	`6,226
10. Budgeted BEP (9÷ 3)	**283 units**	**425 units**	**425 units**	**566 units**
11. Throughput Contribution (Sales less Materials)	**`34**	**`36**	**`51**	**`50**
12. Throughput Contribution per minute (11÷ 4)	`3.40	`3.60	`3.40	`3.33
13. Rank based on Product Return per minute	**II**	**I**	**II**	**III**

1. Product Y is the most profitable product in terms of Contribution per unit, and also Contribution per minute.
2. Budgeted BEP of W = 283 units.
3. Product X is the highest ranked product, in terms of Product Return per minute.

(b)

Given Matrix

Zones		E	W	N	S
Sales Value		4,80,000	3,84000	2,88,000	2,40,000
Manager	**Proportion**				
M	16/48	1,60,000	1,28,000	96,000	80,000
N	14/48	1,40,000	1,12,000	84,000	70,000
O	10/48	1,00,000	80,000	60,000	50,000
P	8/48	80,000	64,000	48,000	40,000

Loss / Opportunity Matrix (in `'000)

Manager / Zones	E	W	N	S
M	0	32	64	80
N	20	48	76	90
O	60	80	100	110
P	80	96	112	120

Raw Minima

Manager / Zones	E	W	N	S
M	0	32	64	80
N	0	28	56	70
O	0	20	40	50
P	0	16	32	40

Column Minima

Manager / Zones	E	W	N	S
M	0	16	32	40
N	0	12	24	30
O	0	4	8	10
P	0	0	0	0

Revised Matrix

Manager / Zones	E	W	N	S
M	0	12	28	36
N	0	8	20	26
O	0	0	4	6
P	4	0	0	0

Revised Matrix

Manager / Zones	E	W	N	S
M	0	12	24	32
N	0	8	16	22
O	0	0	0	2
P	8	4	0	0

Revised Matrix

Manager / Zones	E	W	N	S
M	0	4	16	24
N	0	0	8	14

O	~~8~~	~~0~~	0	2
P	~~16~~	4	~~0~~	0

Maximum Sales

Manager	Zones	Sales
M	E	1,60,000
N	W	1,12,000
O	N	60,000
P	S	40,000
	Total	**3,72,000**

(c) Since the first unit takes 10 hours and an 80% Learning Curve applies, average time will become 8 hours, when production is doubled and it will become 6.4 hours per unit when production is quadrupled and so on. Hence the following details can be derived.

Incremental Quantity	Cumulative Quantity	Average time per unit (hours)	Cumulative Time taken (hours)
(1)	**(2) = Total of (1)**	**(3)**	**(4) = (3) ×(2)**
1	1	(given) = 10.0000	(as per Col.3) = 10.0000
1	2	(80% of 10) = 8.0000	(8 ×2) = 16.0000
2	4	(80% of 8) = 6.4000	(6.4 × 4) = 25.6000
4	8	(80% of 6.4) = 5.1200	(5.12 ×8) = 40.9600
8	16	(80% of 5.12) = 4.0960	(4.096 × 16) = 65.5360
16	32	(80% of 4.096) =3.2768	(3.2768 × 32) = 104.8576

From the above table, the following calculations are made:

1. Total Time required for the first 8 units   =   40.96 hours (from Column 4)
   Total Labour Cost of first 8 units at `12 per hour   =   40.96 ×`12   =`**491.52**
   Average Labour Cost per unit (for the first 8 units)   =   `491.52 ÷ 8   =`**61.44**

2. Total time required for 32 units   =   104.8576 hours (from Column 4)
   Total time for the first 8 units   =   40.96 hours (from Column 4)
   Hence time required for the second order of 24 units= 63.8976 hours
   Labour Cost for second order of 24 units at `12 p.h. =   63.8976 ×12   =`**766.77**
   Average Labour Cost per unit (for the next 24 units) =   `766.77 ÷ 24   =`**31.95**

Ans. 3

Material Variance:

Material Price Variance = 800 A

$AQ \times SP - AQ \times AP = -800$

$AQ \times 3 - 8000 = -800$

$AQ = \frac{7200}{3}$

AQ = 2400 Units

Material usage Variance = 405 F

$SP (SQ - AQ) = 405$

$3 (SQ - 2400) = 405$

SQ = 2535 Units

Actual Production $\frac{2535}{5\ Units}$ = 507 Units

Material Cost Variance = 800 A + 405 F

= 395 A

Labour Variance:

Labour Rate Variance = 975 F

$AH \times SR - AH \times AR = 975$

AH × 5 − 12,000 = 975

$AH = \dfrac{12,975}{5\ Units}$

AH = 2,595 Hrs

Labour Efficiency Variance = 300 A

SH × SR − AH × SR = - 300

SH × 5 − 2,595 × 5 = - 300

$SH = \dfrac{12,675}{5\ Units}$

SH = 2,535 Hrs.

Labour Cost Variance = 300 A + 975 F = 675 F

OH Variance:

AQ × SR	AH × SR	BFOH = BO × SR	AFOH
507 × 20	2,595 × 4	490 × 20	10,000
= 10,140	= 10,380	= 9,800	(W.N. 2)
(From Material)	(From Material)	(W.N. 3)	

OH Efficiency Variance = 10,140 − 10,380 = 240A

Working Note:
1. Budgeted Price = Total Cost + Profit
   = 15 + 25 + 20 + (33% of 60)
   = 60 + 20
   = 80

2. OH Expenditure Variance = 200 A
   BFOH − AFOH = - 200
   9,800 − AFOH = - 200
   AFOH = 10,000

3. Budgeted Output = $\dfrac{Budegetd\ Sales}{Budgeted\ Price} = \dfrac{39,200}{80} = 490\ Units$

OH Capacity Variance
= AH × SR − BO × SR
= 10,380 − 9,800
= 580 F

Or

(Budgeted Hrs − Actual Hrs) × A.R. per hr
(2450 − 2595) × 4 = 580 F

Sales Variance
Sales Volume Variance = BQ × BP − AQ × BP
= 39,200 − 507 × 80
  (Given)   (From Material)
= 1,360 F

$AP = \dfrac{Actual\ Sales}{Actual\ Units} = \dfrac{35,000}{507} = 69.03$

Sales Price Variance = AQ × BP − AQ × AP
= 507 × 80 − 507 × 69.03
= 40,560 − 35,000
= 5,560 A

Sales Variance = 1,360 F + 5,560 A
= 4,200 A

1. Actual Production = $\dfrac{SQ}{Units} = \dfrac{2,535}{5 Units} = 507\ Units$

2. Actual Profit = Sales – Cost
   = 35,000 – 8,000 – 12,000 – 10,000= 5,000
3. Actual Hours Worked = 2,595 Hrs
4. Budgeted Hours = 490 × 5 = 2,450 Hrs
5. OH Efficiency Variance=240 A
6. OH Capacity Variance =580 F
7. Sales Price Variance = 5,560 A
8. Sales Volume Profit Variance = 1,360 F × 25% = 340 F

Reconciliation Statement:

Budgeted Profit (490 × 20)	**`9,800**
Adjustment(+/-)	
Sales Volume Variance (Calculation no. 8 above)	340 F
Sales Price Variance	(5,560) A
Material usage Variance	405 F
Material Price Variance	(800) A
Labour Efficiency Variance	(300) A
Labour Rate Variance	975 F
FOH Efficiency Variance	(240) A
FOH Capacity Variance	580 F
FOH Expenditure Variance	(200) A
Actual Profit	**`5,000**

Ans. 4

(a)

1. Random Number Allocation Tables

Table 1A: Random Numbers for Production

Minutes	Prob.	Cum Prob.	R. Nos.
2	0.10	0.10	00-09
3	0.25	0.35	10-34
4	0.40	0.75	35-74
5	0.10	0.85	75-84
6	0.10	0.95	85-94
7	0.05	1.00	95 - 99

Table 1B: Random Numbers for Installations

Minutes	Prob.	Cum Prob.	R. Nos.
2	0.30	0.30	00-29
3	0.45	0.75	30-74
4	0.15	0.90	75-89
5	0.10	1.00	90-99

2. Simulation Table (Information in Minutes)

Trial	R. No (Arrival)	Arrival Time (min)	Cum Arrival time (min)	R. No (Install)	Installa-tion Time (min)	Installa-tion Start (Note 1)	Installa-tion End	Idle Time (Note 2)	Queue Time (Note 3)
1	20	3	3	03	2	3	5	3	Nil
2	74	4	7	62	3	7	10	2	Nil
3	94	6	13	61	3	13	16	3	Nil
4	22	3	16	89	4	16	20	Nil	Nil
5	93	6	22	01	2	22	24	2	Nil
6	45	4	26	27	2	26	28	2	Nil
7	44	4	30	49	3	30	33	2	Nil
8	16	3	33	50	3	33	36	Nil	Nil
9	04	2	35	90	5	36	41	Nil	1
10	32	3	38	98	5	41	46	Nil	3
								14	**4**

Note:
1. Installation Start Time is the Arrival Time or Installation End Time of previous arrival, whichever is **higher.**
2. Idle Time arises when the End Time of previous arrival (component) is less than the arrival time of the next component.
3. Queue Time arises when the newly arrived component has to wait for the previous component installation to be completed.

Average Idle Time = $\frac{14}{10}$ = 1.4

Average Queue Time $= \frac{4}{10} = 0.4$

(b)

1. Computation of Cost per 100 units of good components without inspection

Particulars		Xolo Ltd	Yoyo Ltd
a.	Purchase Price	`360 $\times \frac{10,000}{100}$ = 36,000	`340$\times \frac{10,000}{100}$ = 34,000
b.	Production Damage	(36,000 × 3%) = 1080	(34,000 × 5%) = 1700
c.	Total Costs (a + b)	`**37,080**	`**35,700**
d.	Number of good components	(10,000 - 300) = 9,700 units	(10,000 - 500) = 9,500 units
e.	Cost per 100 good components (c ÷ d)	$\frac{Rs.37,080}{9,700\ units}$ × 100 =`**382.27**	$\frac{Rs.35,700}{9,500\ units}$ × 100 =`**375.79**

2. Computation of Cost per 100 units of good components with inspection

Particulars	XoloLtd	Yoyo Ltd
(a) Total Units Required	10,000 units	10,000 units
(b) Defective Units	3% of 10,000 = 300 units	5% of 10,000 = 500 units
(c) Defectives not detected (10%)	30 units	50 units
(d) Defectives Detected	270 units	450 units
(e) Components paid for (a - d)	9,730 units	9,550 units
(f) Purchase Price	(9,730 × 360) ÷ 100 =`35,028	(9,550 × 340) ÷ 100 =`32,470
(g) Inspection Cost	(10,000 ×40) ÷ 100 =`4,000	(10,000 ×40) ÷ 100 =`4,000
(h) Production Damage	(30 × 250) ÷ 100 =`75	(50 × 250) ÷100 =`125
(i) Total Costs (f + g + h)	`39,103	`36,595
(j) Cost per 100 good components	$\frac{Rs.39,103}{9,700\ units}$ × 100 =`**403.12**	$\frac{Rs.36,595}{9,500\ units}$ × 100 =`**385.21**

Conclusion:
➤ Inspection at the point of receipt is **not** advantageous, due to additional cost per 100 good components, i.e. (`**403.12 - `382.27**)=`**20.85** in case of Xolo Ltd, and (`**375.79 - `385.21**)=`**9.42** in case of Yoyo Ltd.
➤ Purchase from Yoyo Ltd is cheaper, as there is cost saving of (`**382.27 - `375.79**)=`**6.48**&(`**403.12-`385.21)=`17.91**per 100 good components.

Ans. 5

(a)

1. Customer Profitability Statement

Particulars	Customer EXE	Customer WYE	Customer ZED	Total
A. INCOME: Interest at 3%	55,000 × 3% = 1,650	40,000 × 3% = 1,200	12,50,000× 3% = 37,500	40,350
Service Charges	-	12,000	-	12,000
Total Income	**1,650**	**13,200**	**37,500**	**52,350**
B. EXPENDITURE				
Teller	40 × 125 = 5,000	50 × 125 = 6,250	5 × 125 = 625	11,875
ATM	10 × 40 = 400	20 × 40 = 800	16 × 40 = 640	1,840
Prearranged Monthly Basis	-	12 × 25 = 300	60 × 25 = 1,500	1,800
Bank Cheques written	9 × 400 = 3,600	3 × 400 = 1,200	2 × 400 = 800	5,600
Foreign Currency Drafts	4 × 600 = 2,400	1 × 600 = 600	6 × 600 = 3,600	6,600
Inquiries about Account balance	10 × 75 = 750	18 × 75 = 1,350	9 × 75 = 675	2,775
Total Expenditure	**12,150**	**10,500**	**7,840**	**30,490**
C. PROFIT (A - B)	**(10,500)**	**2,700**	**29,660**	**21,860**

2. Cross Subsidisation: Since the lossin Customer EXE's account is set off by profits in the other two accounts, resulting in an overall profit for all the three customers, there is an

element of cross-subsidization. Even though there is an overall profit, the Bank might worry about this cross-subsidization due to the following –

   a. Had the loss in Customer EXE account been avoided, the overall profit would have increased.

   b. There should be a positive contribution from each customer account, to meet General Overhead Costs.

   c. Cost of services rendered to Customer EXE is not fully recovered from the customer.

3. **Changes / Suggestions:** The Bank may avoid cross-subsidization, and recover the cost of services rendered to the customers, with the following measures –

   a. Increase in the average account balance to avail unlimited free usage of services,

   b. Restriction on the number of "free" transactions per annum,

   c. Differential service charges from different customers based on account usage,

   d. Differentiation between "free" services and "chargeable" services.

(b) Max. $Z = 6x_1 + 3x_2 - 4x_3 + 8x_4$

Subject to $2x_1 - x_2 + x_3 + 2x_4 \geq 40$

$$3x_1 - x_3 + x_4 \leq 90$$
$$\therefore \; -3x_1 + x_3 - x_4 \geq -90$$
$$2x_1 + x_2 + x_4 \geq 60$$
$$x_1, x_2, x_3, x_4 \geq 0$$

Dual Problems

Min $Z = 40y_1 - 90y_2 + 60y_3$

Subject to $2y_1 - 3y_2 + 2y_3 \leq 6$

$$-y_1 + y_3 \leq 3$$
$$y_1 + y_2 \leq -4$$
$$2y_1 - y_2 + y_3 \leq 8$$
$$y_1, y_2, y_3 \geq 0$$

OR

Min $Z = 40y_1 - 90y_2 + 60y_3$

Subject to $2y_1 - 3y_2 + 2y_3 \leq 6$

$$y_1 - y_3 \geq -3$$
$$y_1 + y_2 \leq -4$$
$$2y_1 - y_2 + y_3 \leq 8$$
$$y_1, y_2, y_3 \geq 0$$

Ans. 6 Statement of Relevant Costs & Revenues

Particulars	Nature and Computation	`Lakhs
Land	Cost of 2 Grounds to be borne by LIG is not a relevant cash outflow. Cost of 1 Ground to be borne by SSE is relevant as out-of-pocket cost.	30
Drawings /Design	Sunk Cost. Hence irrelevant. (Payment of 90% is not relevant, since the Drawings have already been prepared, and entire cost has to be incurred in any case.)	Nil
Registration	Out-of-Pocket Cost, hence relevant.	10
Cement & Sand	Already available, regularly used, hence Current Replacement Cost is relevant as Out-of- Pocket Cost.	8
Bricks and Tiles	Already available, hence Purchase Cost `4 Lakhs is irrelevant. However, NRV foregone is relevant as Opportunity Cost.	5
Steel	Incremental Cost, hence relevant.	10
Other Materials	**Interior Decoration:** Already available, hence Purchase Cost `2 Lakhs is irrelevant. But, NRV foregone is relevant as Opportunity	1
	Cost. **Balance Materials** = `10 Lakhs - `2 Lakhs (Interior Decoration) being Incremental Cost, hence relevant.	8
Skilled Labour	Has alternative use. Hence Variable Cost `12 Lakhs + Opportunity Costs (Profit foregone) `2 Lakhs is relevant. [**Note:** Alternatively, only Opportunity Cost of `2 Lakhs can be considered, by treating Labour Cost `12 Lakhs as committed and irrelevant.]	14
Unskilled	Incremental Cost, hence relevant.	8

Labour		
Supervisor's Salary	Committed Cost not affected by any decision on the contract. Irrelevant.	Nil
Overheads	Absorbed OH is irrelevant. Specific or Avoidable OH only is relevant.	6
Depreciation	Apportionment of Historical Cost, hence irrelevant.	Nil
Replacement Cost of Machinery	Fall in Replacement Cost = (`62 Lakhs - `50 Lakhs) is considered relevant. (**Note:** Alternatively, this cost can be ignored, since the asset is not intended to be sold.)	12
Loss of Profit	Profit foregone on other contract is relevant as Opportunity Cost.	15
	Total Relevant Cost of the contract	**127**
	Relevant Revenue if the contract is completed (given)	100
	Additional Loss by accepting the Contract	**(27)**

Conclusion: The Contract should not be accepted due to additional relevant **outflow** of `27 Lakhs.

Ans. 7

(a)

Particulars	Cost Reduction	Cost Control
1. **Meaning**	Cost Reduction is the achievement of real and permanent reduction in unit cost of products manufactured / services rendered.	Cost Control involves a comparison of actual with the standards or budgets, to regulate the actual costs.
2. **Permanence**	**Permanent**, Real and genuine savings in cost.	Could be a **temporary** saving also.
3. **Saving Focus**	Saving in **Cost per unit.**	Saving either in **Total Cost** or **Cost per unit**
4. **Product Quality**	Product's Utility, Quality & Characteristics are retained.	Quality Maintenance is net a guarantee.
5. **Performance Evaluation**	It is not concerned with maintenance of performance according to standards.	The process involves setting up a target, investigating variances and taking remedial measures to correct them.
6. **Nature of Standards**	Continuous process of critical examination, includes analysis and **challenge of standards.**	Control is achieved through compliance with standards. Standards by themselves are **not examined.**
7. **Dynamism**	**Fully dynamic** approach.	**Less dynamic** than Cost Reduction.
8. **Coverage**	**Universally applicable** to all areas of business. Does not depend upon standards, though target amounts may be set.	**Limited applicability** to those items of cost for which standards can be set.
9. **Nature of Costs**	Emphasis here is partly on present costs and largely on **future costs.**	Emphasis on **present and past behaviour** of costs.
10. **Analysis**	To find out **substitute ways and new means**, e.g. waste reduction, expenses reduction and increased production.	Competitive analysis of **actual results with established norms.**
11. **Nature of Function**	**Corrective Action** - operates even when efficient cost control systems exist. There is room for reduction in the achieved costs.	**Preventive Function** - Cost Variances are analysed, evaluated and investigated.
12. **Tools & Techniques**	Value analysis, Automation, Quality Control	Budgetary Control and Standard Costing.

(b)

1. **Total Float of an activity :**
    a. Total Float is equal to the difference between the earliest and latest allowable start or finish times for an activity.
    b. Activity Float = [LST - EST] or [LFT - EFT]

    c. Total Float indicates the amount of time by which an activity can be delayed without causing any delay in the project duration. It refers to the **free time** associated with an activity, which can be used before, during or after the performance of this activity.

    d. For all **Critical Path Activities, Total Float = Zero**. This is because these activities cannot be delayed.

2. Free Float :

    a. Free Float is the **portion** of the Total Float, within which an activity can be manipulated without affecting the float of the **succeeding** activities.

    b. Free Float = Total Float less Head Event Slack.

    c. It indicates the value by which an activity in question can be delayed beyond the earliest starting point without affecting the Earliest Start, and, the Total Float of the activities following it.

    d. It is always either **equal to or less than the Total Float** of an activity. If a negative value is obtained, then the Free Float is taken to be **Zero**.

3. Independent Float :

    a. Independent Float is the **portion** of the Total Float, within which an activity can be delayed for start without affecting the float of the **preceding** activities.

    b. Independent Float = Free Float lessTail Event Slack.

    c. It is always either **equal to or less than the Free Float** of an activity. If a negative value is obtained, the Independent Float is taken to be **Zero**.

4. Interfering Float :

    a. It is a **part of the Total Float** which **causes a reduction** in the Float of the Successor Activities.

    b. It refers to that portion of the Activity Float, which cannot be consumed without affecting adversely the float of the subsequent activity or activities.

    c. Interfering Float = Latest Finish Time of the activity under consideration Less Earliest Start Time of the following activity, or Zero, whichever is **larger**.

(c)

1. Reduction in Inventory Levels: Unnecessary piling up of Raw Materials, WIP and Finished Goods are avoided. The focus is on production and purchase as per the Firm's requirements.

2. Reduction in Wastage of Time: Wastage of time in various ways like Inspection Time, Machinery Set-Up Time, Storage Time, Queue Time, Defectives Rework Time, etc. are reduced.

3. Reduction in Scrap Rates: There will be sharp reductions in the rate of defectives or scrapped units. The workers themselves identify defects and take prompt action to avoid their recurrence.

4. Reduction in OH Costs: By reducing unnecessary (non value-added) activities and the associated time and cost- drivers, OH can be greatly reduced, e.g. material handling costs, re-work costs, facility costs, etc.

(d) The implementation of a scheme of Inter-Firm Comparison suffers from the following limitations-

1. No Utility: Middle Management is usually not convinced with the utility of such a comparison.

2. Unreliability of data: The figures supplied may not be reliable for the purposes of comparison, when there is no suitable Cost Accounting System.

3. Lack of Basis for Comparison: Suitable basis for comparison of all units taken together may not be readily available.

4. Loss of Confidentiality: Management of individual Firms feel that secrecy will be lost.

(e) Generally, the BSC has the following perspectives from which a Company's activity can be evaluated –

1. Customer Perspective, i.e. How customers see us? In order to translate effective internal processes into organisational success, Customers / Clients must be happy with the service they receive. The Customer Perspective considers the business through the eyes of the customers, measuring and reflecting upon Customer satisfaction.

2. **Internal Perspective, i.e. in what processes must the Firm excel?** The Internal Perspective focusses attention on the performance of the key internal processes, which drive the business.The nature of the processes is dependent on the nature of the Firm.
3. **Innovation and Learning Perspective, i.e. Can we continue to improve and create value?** The Learning and Growth Perspective is a measure of potential future performance - it directs attention to the basis of all future success - the Firm's people and infrastructure. Adequate investment in these areas is critical to all long-term success.
4. **Financial Perspective, i.e. How we look to our Shareholder..?** The Financial Perspective measures the resultsthat the Firm delivers to its Stakeholders.

MARKS ALLOCATION SHEET

Que. No.	Sub point No.(if any)	Name of Chapter	Description of Concept	Mark Allocation	Total Marks
1	(a)	CVP	Continue operation profit calculation	1	
1	(a)	CVP	Shutdown profit	1	
1	(a)	CVP	Indifference point calculation	1	
1	(a)	CVP	Desired Variable Cost Per Unit	1	
1	(a)	CVP	Conclusion	1	5
1	(b)	Transfer pricing	Each point 1 marks (any five point)	5	5
1	(c)	Budgetary	Original budget	2.5	
1	(c)	Budgetary	Revised Budget	2.5	5
1	(d)	Development in Business Environment	Each point 1 marks	5	5
2	(a)	Development in Business Environment	Contribution Per Unit& Contribution Per Limiting Factor	1.5	
2	(a)	Development in Business Environment	Budgeted BEP, Throughput Contribution, Throughput ContributionPer Minute, Ranking	1.5	
2	(a)	Development in Business Environment	Which is most profitable product	1	
2	(a)	Development in Business Environment	What is the number of units of W that would be sold at the Budgeted Break-Even Point	1	
2	(a)	Development in Business Environment	Which is the highest ranked product	1	6
2	(b)	Assignment	Matrix including W.N.	2	
2	(b)	Assignment	Opportunity matrix	1	
2	(b)	Assignment	Raw minima	0.5	
2	(b)	Assignment	Colum minima	0.5	
2	(b)	Assignment	Revised matrix	1.5	
2	(b)	Assignment	Final answer	0.5	6
2	(c)	Learning curve	Table calculation	1	
2	(c)	Learning curve	Calculation of Total Time and Labour Cost of regular order	1.5	
2	(c)	Learning curve	Calculation of Total Time and Labour Cost in case of repeat order	1.5	4
3	-	Standard costing	Sales Volume variance	1	
3	-	Standard costing	Sales Price variance	1	
3	-	Standard costing	Sales variance	0.5	
3	-	Standard costing	Material Price variance	1	
3	-	Standard costing	Material Usage variance	1	
3	-	Standard costing	Material Cost variance	0.5	
3	-	Standard costing	Labour Efficiency variance	1	
3	-	Standard costing	Labour Rate variance	1	

3	-	Standard costing	Labour Cost variance	0.5	
3	-	Standard costing	Fixed OverheadEfficiency variance	1	
3	-	Standard costing	Fixed OverheadCapacity variance	1	
3	-	Standard costing	Fixed OverheadExpenditure variance	1	
3	-	Standard costing	Actual Production	0.5	
3	-	Standard costing	Actual Profit	0.5	
3	-	Standard costing	Actual Hours worked	0.5	
3	-	Standard costing	Budgeted Hours	0.5	
3	-	Standard costing	Production Overhead Efficiency Variance	0.5	
3	-	Standard costing	Production Overhead Capacity Variance	0.5	
3	-	Standard costing	Sales Volume Profit Variance	0.5	
3	-	Standard costing	Reconciliation	2	16
4	(a)	Simulation	Random no for production Table	1	
4	(a)	Simulation	Random no for installation Table	1	
4	(a)	Simulation	Simulation table with Idle & Queue Time	4	
4	(a)	Simulation	Average Idle time& Average Queue time Including W.N.	2	8
4	(b)	Total Quality Management	Inspection at point of receipt calculation with inspection	3	
4	(b)	Total Quality Management	Inspection at point of receipt calculation Without inspection calculation	3	
4	(b)	Total Quality Management	Analysis of suppliers for supply	2	8
5	(a)	Activity Based Costing	Customer profitability statement calculation	6	
5	(a)	Activity Based Costing	Analysis of Cross Subsidisation	3	
5	(a)	Activity Based Costing	Analysis of Recommendation	3	12
5	(b)	Linear Programming	Each equation 1 marks	4	4
6	-	Relevant costing	Each Point 1 marks Including W.N.	14	
6	-	Relevant costing	Analysis of Profit &Loss	2	16
7	(a)	Target costing	Each point 1 marks	4	4
7	(b)	CPM&PERT	Each point 1 marks	4	4
7	(c)	Just In Time	Each point 1 marks	4	4
7	(D)	Uniform costing	Each point 1 marks	4	4
7	(e)	Performance measurement	Each point 1 marks	4	4