

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

Paper- 15: MANAGEMENT ACCOUNTING – ENTERPRISE PERFORMANCE MANAGEMENT

Time Allowed: 3 Hours

Full Marks: 100

The figures in the margin on the right side indicate full marks.  
Attempt Question No. 1 (carrying 25 marks), which is compulsory and any five more questions (each carrying 15 marks) from the rest.

Please: (i) Answer all part of a question at one place only.

(ii) Open a new page for answer to a new question.

Working Notes should form part of the answer.

Whenever necessary, suitable assumptions should be made and indicated in answer by the candidates.

1. (a) In each of the cases given below, only one is the most appropriate option. Indicate the correct answer (=1 mark) and show your workings/reasons briefly in support of your answer (=1 mark): [2×5=10]

(i) Nulook Ltd. Uses a JIT system and back flush accounting. It does not use a raw material stock control account During May, 8000 units were produced and sold. The standard cost per unit is ₹ 100; this includes materials of ₹ 45. During May, ₹ 4,80,000 of conversion costs were incurred.

The debit balance on cost of goods sold account for May was

(A) ₹ 8,00,000

(B) ₹ 8,40,000

(C) ₹ 8,80,000

(D) ₹ 9,20,000

(ii) A concern sells three products. The budgeted fixed cost for the period is ₹ 6,00,000. The budgeted contribution to sales ratio (C/S ratio) and the sales mix are as under

Product	C/S ratio	Mix
Super	25%	20%
Premium	40%	40%
Best	30%	40%

What is the Break Even sales revenue?

(A) ₹ 30,10,181

(B) ₹ 15,23,312

(C) ₹ 18,18,181

(D) ₹ 17,60,500

(iii) The selling price of product P is set at ₹ 1,500 for each unit and sales for the coming year are expected to be 500 units.

If the company requires a return of 15% in the coming year on its investment of ₹ 15,00,000 in product P. The Target cost for each unit for the coming year is.

(A) ₹ 930

(B) ₹ 990

(C) ₹ 1,050

(D) ₹ 1,110

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

---

- (iv) B Ltd. Has earned net profit of ₹ 1 lakh, and its overall P/V ratio and margin of safety are 25% and 50% respectively. What is the total fixed cost of the company?
- (A) ₹ 1,20,000
  - (B) ₹ 1,00,000
  - (C) ₹ 1,15,000
  - (D) ₹ 1,20,000

- (v) If the time taken to produce the first unit of a product is 4000 hrs, what will be the total time taken to produce the 5th to 8th unit of the product, when a 90% learning curve applies?
- (A) 10,500 hours
  - (B) 12,968 hours
  - (C) 9,560 hours
  - (D) 10,368 hours

(b) Expand the following abbreviation:

[1×5]

- (i) PLCM
- (ii) HRP
- (iii) COSU
- (iv) EFQM
- (v) PDCA

(c) Define the following terms:

[1×5]

- (i) Vat analysis;
- (ii) Detector;
- (iii) Control Chart ;
- (iv) Query tools;
- (v) Generic Benchmarking.

(d) State whether the following statements given below are 'True' or 'False'. If True, simply rewrite the given statement (1 mark). If False, state it as False (½ mark) and rewrite the correct statement (½ mark):

[1×5]

- (i) It is appropriate to view the value chain from the customer's perspective, with each link being seen as the customer of the previous link.
- (ii) One of the goals JIT seeks to achieve is batch sizes of one.
- (iii) The concept of value analysis was first conceived by Jerry Kaufman.
- (iv) 'Symbiotic relationship' is one in which the cooperative action of semi-independent sub-systems taken together produces a total output greater than the sum of their outputs taken independently.
- (v) Balance Score Card is a performance measurement tool for controlling individual productivity.

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

**Answer to 1 (a):**

**(i) Correct Answer (B) ₹ 8,40,000**

	₹
Cost of goods sold	8,00,000
Less: Material Cost	3,60,000
Conversion cost allocated	4,40,000
Conversion cost incurred	4,80,000
Excess charged to cost of goods sold account	40,000

Total debit on cost of goods sold account = ₹ 8,00,000 + ₹ 40,000 = ₹ 8,40,000

**(ii) Correct Answer (C) ₹ 18,18,181**

The weighted average contribution to sales ratio

$$= 0.25 \times 0.20 + 0.40 \times 0.40 + 0.30 \times 0.40 = 0.33$$

$$\text{BE Sales} = ₹ 6,00,000 / 0.33 = ₹ 18,18,181$$

**(iii) Correct Answer (C) ₹ 1,050**

	₹
Sales revenue $500 \times ₹ 1,500$	7,50,000
Return on investment required $15\% \times ₹ 15,00,000$	2,25,000
Total cost allowed	5,25,000
Target cost per unit $(5,25,000/500)$	1,050

**(iv) Correct Answer (B) ₹ 1,00,000**

MS = Profit/PV Ratio = ₹ 4 Lakh: MS = 50%; BE Sales =  $(1 - 0.50) = 0.50$

Hence BES = ₹ 4 lakh

Fixed Cost 25% of ₹ 4,00,000 = ₹ 1,00,000

**(v) Correct Answer (D) 10,368 hours**

Units	Average Time (hours)	Total Time (hours)
1	4000	4000
2	3600	7200
4	3240	12960
8	2916	23328

Total time for 5th to 8 units = 23328 - 12960 = 10368 hrs.

**Answer to 1 (b):**

**(i) PLCM:** Product Life Cycle Management.

**(ii) HRP:** Human Resources Planning.

**(iii) COSU:** Committee of Sponsoring Organizations.

**(iv) EFQM:** European Foundation for Quality Management.

**(i) PDCA:** Plan-Do-Check-Act.

**Answer to 1 (c):**

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

---

- (i) Vat analysis: determines the general flow of parts and products from raw materials to finished products. It conceptualises an organization in terms of the interaction of its individual components parts, products and processes.
- (ii) Detector: tracks the performance and can be visualised as a scanning system and it feeds on information. In fact the Detector is another name for Management Information System.
- (iii) Control Chart: is a quality control tool to maintain a process under statistical control.
- (iv) Query tools: allow the users to find the information needed to perform any specific function.
- (v) Generic Benchmarking: is an application of functional benchmarking that compares a particular business function at two or more organizations, selected without regard to their industry.

### Answer to 1 (d):

- (i) **True.** It is appropriate to view the value chain from the customer's perspective, with each link being seen as the customer of the previous link.
- (ii) **True.** One of the goals JIT seeks to achieve is batch sizes of one.
- (iii) **False.** The correct answer is 'Lawrence Milies' and not 'Jerry Kaufman'.
- (iv) **False.** The correct term is 'Chase strategy' and not 'Level strategy'.
- (v) **False.** The correct statement is – Balance Score Card is not a performance measurement.

2. (a) The frequency distribution of Contribution per Unit, Annual Demand and Investment requirement of a manufacturing Company were found as below –

Contribution per Unit (₹)	3	5	7	9	10
Relative frequency	0.1	0.2	0.4	0.2	0.1

Annual demand (in 1000 units)	20	25	30	35	40	45	50
Relative frequency	0.05	0.10	0.20	0.30	0.20	0.10	0.05

Required Investment (₹000s)	1,750	2,000	2,500
Relative frequency	0.25	0.50	0.25

Consider the random number 93, 03, 51, 59, 77, 61, 71, 62, 99, 15 for simulating 10 run, to estimate the Percentage of Return on Investment ( $ROI = \text{Cash inflow} \div \text{Investment} \times 100$ ) for each run. Find the average ROI. [10]

- (b) What is lean manufacturing? Briefly describe the lean/JIT system. [5]

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

Answer to 2 (a):

### A. Random Number Allocation

**Table 1: Random Number for Demand**

Event	Prob.	Cum Prob	Random Nos.
20	0.05	0.05	00-04
25	0.10	0.15	05-14
30	0.20	0.35	15-34
35	0.30	0.65	35-64
40	0.20	0.85	65-84
45	0.10	0.95	85-94
50	0.05	1.00	95-99

**Table 2: Random Number for contribution**

Event	Prob	Cum Prob	Random Numbers
3	0.10	0.10	00-09
5	0.20	0.30	10-29
7	0.40	0.70	30-69
9	0.20	0.90	70-89
10	0.10	1.00	90-99

**Table 3: Random number for Investment**

Event	Prob	Cum Prob	Random Numbers
1750	0.25	0.25	00-24
2000	0.50	0.75	25-74
2500	0.25	1.00	75-99

### B. Simulation Table

Trial (a)	Random No (b)	Demand (₹) (c)	Contri p.u.(₹) (d)	Investment (₹) (e)	Cash inflow (₹) (f) = (c) × (d)	ROI (g) = (f) ÷ (e) × 100
1	93	45	10	2,500	450	18.00%
2	03	20	3	1,750	60	3.43%
3	51	35	7	2,000	245	12.25%
4	59	35	7	2,000	245	12.25%
5	77	40	9	2,500	360	14.40%
6	61	35	7	2,000	245	12.25%
7	71	40	9	2,000	360	18.00%
8	62	35	7	2,000	245	12.25%
9	99	50	10	2,500	500	20.00%
10	15	35	5	1,750	150	8.57%
<b>Total</b>				<b>21,000</b>	<b>2,860</b>	<b>131.40</b>

**Result:** Simple Average ROI = Total ROI ÷ 10 = 131.40 ÷ 10 = 13.14%.

Weighted Average ROI = Total Cash Inflow ÷ Total Investment = [2,860 ÷ 21,000] (₹000s)  
= 13.62%.

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

---

### Answer to 2 (b):

Just in time (JIT) philosophy was first developed in Japan. Toyota introduced it in 50's and later, other companies in Japan have adopted it.

The overriding feature of JIT is that materials or parts are generated in the exact quantity required and just at the time they are needed. A classic JIT system consists of a series of manufacturing units each delivering to one another in successive stages of production. The amount delivered by each unit to the next unit is exactly what the needs for the next production period (usually one day). There are no safety margins in the form of buffer stock, live storage or work-in-progress. JIT is a sophisticated approach in eliminating wastage in the process of manufacturing in different stages, say, from the production design stage to the stage of delivery of finished product. JIT is sometimes regarded as an inventory control technique or a purchasing method. It aims at eliminating all activities which do not add 'value' to the product.

JIT seeks to achieve the following goals:

- Elimination of non value added activities
- Zero inventory
- Zero defects
- Batch size of one
- Zero Breakdown
- A 100% on time delivery service

Schonberger defines JIT as being 'to produce and deliver finished goods just in time to be sold, sub assemblies just in time to be assembled into finished goods, fabricated parts just in time to go into sub assemblies and purchased materials just in time to be transformed into fabricated parts'.

### 3. (a) Distinguish between Standard Costs and Estimated Cost.

[5]

(b) The following data are available:

Item	Budget	Actual
No. of working days	20	22
Output per man-hour	1.0 unit	0.9 unit
Fixed Overhead cost	₹ 1,60,000	₹ 1,68,000
Man-hours per day	8,000	8,400

You are required to calculate:

- (i) Fixed Overhead efficiency Variance
- (ii) Fixed Overhead Capacity Variance
- (iii) Fixed Calendar Variance
- (iv) Fixed Overhead Volume Variance and
- (v) Fixed Overhead Cost Variance.

[2x5]

### Answer 3 (a):

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

**Standard Costs and Estimated Costs:** The distinction between standard costs and estimated costs should be clearly understood. While both standard costs and estimated costs are predetermined costs, their objectives are different. The main differences between the two types of costs are:

- (i) Estimated costs are intended to determine what the costs 'will' be. Standard costs aim at what costs 'should' be.
- (ii) Estimated costs are based on average of past actual figures adjusted for anticipated changes in future. Anticipated wastes, spoilage and inefficiencies, all of which tend to increase costs are included in estimated costs. Standard Costs are planned costs determined on a scientific basic and they are based upon certain assumed conditions of efficiency and other factors.
- (iii) In estimated costing systems, stress is not so much on cost control, but costs are used for other purposes such as fixation of prices to be quoted in advance. Standard costs serve as effective tools for cost control.

### Answer 3 (b).

(i)	(ii)	(iii)	(iv)	(v)
SRSH	SRAH	SRRBH	SRBH	ARAH
1 x 166320	1 x 184800	1 x 176000		
₹166320	₹184800	₹176000	₹160000	₹168000

- $SR = \text{Budgeted FOH} / \text{Budgeted hours} = 160000 / 160000 = 1$
- $RHH = (22/20) \times 160000 = 176000$
- $AH = 22 \times 8400 = 184800$
- $AQ = 184800 \times 0.9 = 166320$
- $SH = 166320 / 1 = 166320$ .

(1) SRSH = Standard Cost of Standard Fixed Overheads = ₹166320

(2) SRAH = Standard Cost of Actual Fixed Overheads (or)

= Fixed Overheads absorbed or recovered = ₹184800

(3) SRRBH = Revised Budgeted Fixed Overheads = ₹176000

(4) SRBH = Budgeted Fixed Overheads = ₹160000

(5) ARAH = Actual Fixed Overheads = ₹168000.

(i) FOH Efficiency Variance = 1 – 2 = ₹166320 – ₹184800 = ₹18480 (A).

(ii) FOH Capacity Variance = 2 – 3 = ₹184800 – ₹176000 = ₹8800 (F).

(iii) FOH Calendar Variance = 3 – 4 = ₹176000 – ₹160000 = ₹16000 (F).

(iv) FOH Volume Variance = 1 – 4 = ₹166320 – ₹160000 = ₹6320 (F).

(v) FOH Cost Variance = 1 – 5 = ₹166320 – ₹168000 = ₹1680 (A).

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

4. (a) Explain briefly the different perspective of a Balanced Score Card. [1+4]

(b) N LTD., has adopted a Standard Costing System. The Standard output for 20,000 units. The Standard Cost and Profit per unit is given below:

Particulars	₹
Direct Materials (6 units @ ₹ 1.50)	9.00
Direct Labour (6 units @ ₹ 1.00)	6.00
Direct Expenses	1.00
Factory Overheads :	
Variable	0.50
Fixed	0.60
Administrative Overheads	0.60
	17.70
Profit per unit	2.30
Selling Price (Fixed by Government)	20.00

Actual production and sales for a period was 14,400 units. The following are the variance worked out at the end of the period:

Particulars	Favourable (₹)	Adverse (₹)
<b>Direct Materials :</b>		
Price Variance	-	8,500
Usage Variance	2,100	-
<b>Direct labour :</b>		
Rate Variance	-	8,000
Efficiency Variance	6,400	-
<b>Factory Overheads :</b>		
Variable Expenditure Variance	800	-
Fixed Expenditure Variance	800	-
Fixed Volume Variance	-	3,360
<b>Administrative Overheads :</b>		
Expenditure Variance	-	800
Volume Variance	-	3,360

You are required to:

- (i) Ascertain the details of cost and prepare the Profit and Loss Account in the statement for the period, showing actual profit.
- (ii) Reconcile the actual profit with the standard profit. [(5+3)+2]

**Answer to 4 (a):**

The perspective of Balanced Score Card (BSC) varies from business to business. A well designed BSC combines financial measures of past performance with measures of firm's drivers of future performance.

The specific objectives and measures of an organization's BSC are derived from the firm's vision and strategy. Generally the BSC has the following perspective from which a company's activity can be evaluated:

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

- (i) **Customer Perspective:** i.e., How customer see us? The Customer Perspective considers the business through the eyes of the customers, measuring and reflecting upon customer satisfaction.
- (ii) **Internal Business Perspective:** i.e., In what processes must the firm excel? The Internal Business Perspective focuses attention on the performance of the key internal processes of the business.
- (iii) **Learning and Growth Perspective:** i.e., Can we continue to improve and create value? This perspective is a measure of potential future performance. It drives attention to the basis of all future success the organization's people and its infrastructure.
- (iv) **Financial Perspective:** i.e., How we look to our shareholders? The Financial Perspective measures the results that the organization delivers to its stockholders.

**Answer to 4 (b):**

**N LTD.  
ASCERTAINMENT OF DETAILS OF COSTS of 14,400 units:**

Particulars	Variance (₹)	Standard Cost (₹)	Actual Cost (₹)
Directs Materials (14,400x9)		1,29,600	
Price Variance (Adv)	8,500		
Usage Variance (Fav)	(2,100)	6,400	1,36,000
Direct Labour (14,400x6)		86,400	
Rate Variance (Adv)	8,000		
Efficiency Variance (Fav)	(6,400)	1,600	88,000
Direct Expenses: (14,400 x 1)		14,400	14,400
Factory Overheads:			
Variable (14,400 x 0.50)		7,200	
Fixed (14,400x0.60)		8,640	
Variable Expenditure (Fav)	(800)		
Fixed Expenditure (Fav)	(800)		
Fixed Volume (Adv)	3,360	1,760	17,600
Administrative Overheads:			
(14,400x0.60)		8,640	
Expenditure (Adv)	800		
Volume Variance (Adv)	3,360	4,160	12,800
<b>Total Cost (14,400 x 17.70)</b>		<b>2,54,880</b>	<b>2,68,800</b>

**Profit and loss Account of N Ltd.  
for the year ending...**

Particulars	₹	₹
Sales Revenue (14400 x 20)		2,88,000
Less: Costs:		
Direct Materials	1,36,000	
Direct Labour	88,000	
Direct Expenses	14,400	
Factory Overhead		

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

Variable	6,400	
Fixed	11,200	
Administrative Overhead	12,800	2,68,800
Profit (Actual)		19,200
Standard Profit (14,400 x 2.30)		33,120

### (ii) Statement of reconciliation of actual profit with standard profit

Particulars	₹	₹
Standard Profit		33,120
Add: Favourable Variance :		
Direct Materials Usage	2,100	
Direct Labour Efficiency	6,400	
Variable OH Expenditure	800	
Fixed OH Expenditure	800	10,100
Less : Adverse Variance :		43,220
Direct Material Price	8,500	
Direct Labour Rate	8,000	
Fixed OH Volume	3,360	
Admn. OH Expenditure	800	
Admn. OH Volume	3,360	24,020
Profit (Actual)		19,200

5. (a) A Company paid ₹2,00,000 and acquired a machine on 1-10-2010. Its annual operation cost is ₹ 15,000 excluding depreciation. The machine will have a 5-year useful life with zero terminal value.

The machine was just put on trial and was used for one day when the supplier offered a different model to do the same job. The annual operating cost of the revised model is ₹ 9,000 exclusive of depreciation. The new machine will cost ₹24,000. The old machine can be sold for ₹10,000. The cost of removal of the old machine is ₹2,000. The new machine will also have a five-year life with zero terminal value. Sales will be ₹2,50,000 per annum and all other cash costs will be ₹2,10,000 per annum regardless of the decision to change the machine. The machine is installed in a separate building and the written down value of the building is ₹5,00,000. If this building is sold now, it will fetch ₹10 lakhs but the company proposes to use the building for installing the machine.

You are required to explain whether each item of income or expense or cost stated above is relevant or not in deciding on the replacement of the machine. [4]

- (b) Five Swimmers are eligible to compete in a relay team that should have four swimmers swimming different styles- backstroke, breaststroke, free style and butterfly. The time taken for the five swimmers - Anand, Balu, Chandru, Deepak and Esvar – to cover a distance of 100 metres in various swimming styles are given below in minutes: seconds. Anand swims backstroke in 1:09, breaststroke in 1:15 and has never

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

competed in free style or butterfly. Balu is a free style specialist averaging 1:01 for 100 metres but can also swim breaststroke in 1:16 and butterfly in 1:20. Chandru swims all styles, backstroke 1:10, breaststroke 1:12, free style 1:05 and butterfly 1:20. Deepak swims only butterfly at 1:11 while Eswar swims backstroke 1:20, breaststroke 1:16, free style 1:06 and butterfly 1:10. Which swimmers should be assigned to which swimming style? Who will not be in the team? [8]

(c) State what is Cause – Effect Diagram and when should it be used? [3]

Answer to 5 (a):

Statement showing relevancy of income or expenditure for replacement decision:

Item of Expenditure	Relevancy
i. Cost of machine ₹2,00,000.	It is a sunk cost and is not relevant for replacement decision.
ii. Operation costs ₹15,000 & ₹ 9,000	These will affect the future cash outflows and relevant.
iii. Cost of new machine ₹ 24,000.	There is a cash outflow and is relevant for decision making.
iv. Sale proceeds of old machine ₹10,000.	This will lead to cash inflow and is relevant.
v. Removal of old machine ₹2,000.	It will affect the future cash outflow and is relevant.
vi. Future sales of ₹2,50,000 p.a. and operating costs of ₹ 2,10,000 p.a.	It is common to both the machines and is not relevant.
vii. WDV of building of ₹ 5,00,000.	It is sunk cost is not relevant.
viii. Sale value of machine ₹ 10,00,000.	There is no intention to sell the machine and it is not relevant for replacement decision.

Answer to 5 (b):

### I. The Time taken matrix is first derived (in seconds)

Swimmers	Backstroke	Breaststroke	Freestyle	Butterfly
Anand	69	75	-	-
Balu	-	76	61	80
Chandru	70	72	65	80
Deepak	-	-	-	71
Eswar	80	76	66	70

The objective is minimization of time taken. The combinations not available for assignment are indicate by M where M = infinity. A dummy column is introduced in the above matrix.

### II. Inserting Dummy Column

69	75	M	M	0
M	76	61	80	0
70	72	65	80	0
M	M	M	71	0
80	76	66	70	0

### III. Row and Column Operations

<del>0</del>	<del>3</del>	<del>M</del>	<del>M</del>	<del>0</del>
<del>M</del>	<del>4</del>	<del>0</del>	<del>10</del>	<del>0</del>
<del>1</del>	<del>0</del>	<del>4</del>	<del>10</del>	<del>0</del>
<del>M</del>	<del>M</del>	<del>M</del>	<del>1</del>	<del>0</del>
<del>11</del>	<del>4</del>	<del>5</del>	<del>0</del>	<del>0</del>

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

### IV. Inserting Dummy Column

0	3	M	M	<del>⊗</del>
M	4	0	10	<del>⊗</del>
1	0	4	10	<del>⊗</del>
M	M	M	1	0
11	4	5	0	<del>⊗</del>

Total Time taken will be 272 seconds or 4 min and 32 seconds.

Swimmer	Anand	Balu	Chandru	Deepak	Eswar
Style	Backstroke	Freestyle	Breaststroke	Dummy - will not be in the race.	Butterfly
Time Taken	69	61	72		70

### Answer to 5 (c):

The Cause –effect Diagram is one of the powerful tools for quality control. It is called a Fishbone Diagram, because of its shape, or an Ishikawa Chart, after its originator Kaoru Ishikawa, who first used it in 1943.

The Cause – Effect Diagram is used to identify and structure the causes of a given effect.

#### It is used:

- when investigating a problem, to identify and select key problem causes to investigate or address.
- when the primary symptom (or effect) of a problem causes are not all clear.
- when working in a group, to gain a common understanding of problem causes and their relationship.
- to find causal relationship, such as potential risks or causes of desired effects.

6. (a) A review, made by the top management of W & W Ltd. which makes only one product, of the result of the first quarter of the year revealed the following:

Sales in units	20,000
Loss	₹20,000
Fixed cost (for the year ₹2,40,000)	₹60,000
Variable cost per unit	₹8.00

The Finance Manager who feels perturbed suggests that the company should at least break even in the second quarter with a drive for increased sales. Towards this, the company should introduce better packing which will increase the cost by ₹0.50 per unit.

The Sales Manager has an alternative proposal. For the second quarter additional sales promotion expenses can be increased to the extent of ₹10,000 and a profit of ₹10,000 can be aimed at during the period with increased sales.

The Production Manager feels otherwise. To improve the demand, the selling price per unit has to be reduced by 3%. As a result the sales volume can be increased to attain a profit level of ₹8,000 for the quarter.

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

The Manager Director asks you as a Cost Accountant to evaluate the three proposals and calculate the additional sales volume that would be required in each case, in order to help him to take a decision. [10]

(b) Outline the limitations of Standard Costing. [5]

Answer to 6 (a):

### Calculation of Selling Price

		₹
Variable cost	(8 x 20,000)	1,60,000.00
Add: Fixed cost		60,000.00
Total cost		2,20,000.00
Profit		(20,000.00)
Sales		2,00,000.00
Selling price	(2,00,000/20,000)	₹10

Statement showing evaluation of alternatives and the number of units required to attain the targets of respective managers.

	Finance Manager	Sales Manager	Production Manager
i) Selling price (₹)	10.00	10.00	9.70
ii) Variable cost (₹)	8.50	8.00	8.00
iii) Contribution per unit (₹)	1.50	2.00	1.70
iv) Fixed cost (₹)	60,000.00	70,000.00	60,000.00
v) Target (₹)	B.E.P	Profit or ₹10,000	Profit of ₹8,000
	(60,000/1.5)	(80,000/2)	(68,000/1.7)
	40,000.00	40,000.00	40,000.00
Additional units required	20,000.00	20,000.00	20,000.00

Answer to 6 (b):

The following are some of the limitations of Standard Costing:

- i. Establishment of standard costs is difficult in practice.
- ii. The standards tend to become rigid, in course of time.
- iii. Inaccurate, unreliable and out of date standards do more harm than good.
- iv. Sometimes, standards create adverse psychological effects. If the standard set is too high, its non achievement would result in frustration.
- v. Standard costing may not sometimes be suitable in the case of industries dealing with non-standardized products and for repair jobs, which will keep on changing, in accordance with the customer's specifications.
- vi. Lack of interest in standard costing on the part of the management makes the system practically ineffective. Management must accept the concept wholeheartedly.

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

---

7. (a) Write a note on Total Quality Management.

(b) Differentiate between Quality Planning, Quality Control & Quality Improvement.

(c) State the uses of Learning Curve.

[5+5+5]

**Answer to 7 (a):**

Quality is considered a by-product of the manufacturing system, i.e. each individual process has some variation that will lead to the production of some defective units. If the resulting defective rate is too high, compared to the established quality standards, quality inspectors will identify and send them back for rework. The approach is expensive and does not guarantee the desired quality, because quality maintenance and ensuring itself cannot be inspected into a product. This approach assigns the responsibility for quality to quality control managers.

A more approach to quality emphasizes building quality into the product by studying and improving activities that affect quality, from marketing through design to manufacturing. This new approach is referred to as Total Quality Management (TQM).

It is an active approach encompassing a company-wide operating philosophy and system for continuous improvement of quality. It demands co-operation from everyone in the company, from the top management down to workers.

The principles of TQM are as follows:

- (i) Customer focus,
- (ii) Managerial Leadership,
- (iii) Belief in continuous improvement.
- (iv) The current thinking on TQM is moving from Quality of product and service to Quality of people to embrace also Quality of environment. ISO 14000 standard supports this.

**Answer to 7 (b):**

**Difference between Quality Planning, Quality Control & Quality Improvement :**

Quality Planning	Quality Control	Quality Improvement
Determine who the Customers are.	Choose control subjects what to Control?	Establish the infrastructure needed to secure annual quality improvement.
Determine the needs of the Customers	Choose units of measurements Evaluate Measurements	Identify the specific needs for improvement - the improvement projects
Develop product features that respond to the customer's needs.	Establish standards of performance	For each project establish a project team with clear responsibility for bringing the project to a successful conclusion.
Develop processes that are able to product feature	Measure actual performance	Diagnose the causes
Transfer the resulting plans to the operating forces.	Interpret the difference (actual versus standard)	Stimulate establishment of a remedy

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

---

### Answer to 7 (c):

The learning curve theory has gained significant importance as a technique for cost prediction and cost control. Some of the uses to which the learning rate may be put to are as follows:-

(i) Developing bid prices for contracts

(ii) **Work Scheduling** – The learning curve concept assists the management in work scheduling and production control in three ways:

- It predicts man-hours and the workforce required for meeting the production plan so that timely action may be taken to procure the required workforce.
- It indicates the time required for production so that schedule deliveries can be maintained.
- It enables production control to take advantage of reducing the time per unit of production by increasing the product lot sizes.

(iii) **Planning Inventory** – The learning curve indicates how with increased efficiency of the worker, the pace of production increases consequent to which more materials are required and work-in-progress and finished goods stocks grow rapidly in size. Awareness of the growth rate enables the management to plan the inventories properly.

(iv) **Planning working capital** – When unit prices are based on average cumulative cost per unit, the cost of the first few units produced will be higher than the cost on which the bid price was based. As a result, the profit level may not be high enough to provide sufficient working capital. In such a situation, the learning curve will indicate the quantum of the shortage of working capital so that suitable action may be taken on time to meet the shortfall.

(v) **Make or buy decision** – The learning curve is useful in make or buy decision-making. While purchasing from outside on long term basis, it is to be seen whether the supplier has already reached the maximum efficiency in which case no learning curve will apply and no reduction in price in future can be expected. In another situation where instead of purchasing, internal production is speeded up, new inexperienced workers may have to be employed resulting in high costs now but gradual lower costs may be expected when the improvement process operates.

8. (a) What is Intranet? What are its advantages?

[1+4]

(b) An engineering company produces two products A and B. The cost data are as under:

Particulars	A (₹)	B (₹)
Selling Price	175	220
Direct Material	40	80
Direct Labour	60	40
Variable Overheads	30	20

Each product undergoes an operation in the two departments, viz. cutting and finishing, before it emerges as a finished product. The unit time taken by the products

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

and the maximum available hours in the cutting and finishing operations are given below:

Product	Cutting hours	Finishing Hours
A	5	10
B	20	15
Maximum hours available	400	450

**Required:**

Formulate the above problem in a linear programming problem.

[3]

(c) Dry Twigs and Fresh Blossoms Ltd. is always discarding old lines and introducing new lines of products and is at present considering three alternative promotional plans for ushering in new products. Various combinations of prices, development expenditures and promotional outlays are involved in these plans. High, medium and low forecasts of revenues under each plan have been formulated; and their respective probabilities of occurrence have been estimated. These budgeted revenues and probabilities along with other relevant data are summarized as under:

Particulars	₹ in lakhs		
	Plan I	Plan II	Plan III
<b>Budgeted Revenue with probability:</b>			
- High	30(0.3)	24(0.2)	50(0.2)
- Medium	20(0.3)	20(0.7)	25(0.5)
- Low	5(0.4)	15(0.1)	0(0.3)
<b>Variable cost as % of Revenue</b>	60%	75%	70%
<b>Initial Investment</b>	25	20	24
<b>Life in years</b>	8	8	8

The company's Cost of Capital is 12%; the income tax rate is 40% (say). Investments in promotional programmes will be amortized by the straight-line method. The company will have net taxable income in each year, regardless of the success or failure of the new products. The present value of an annuity of ₹ 1 at 12% for 8 years is 4.9676.

(i) Substantiating with figures makes a detailed analysis and find out which of the promotional plans is expected to be the most profitable.

(ii) In the event the worst happened, which of the plans would result in the maximizing profit? [7]

**Answer to 8 (a):**

An Intranet is a private computer network that uses internet protocols and network-connectivity to securely share part of an organization's information or operations with its employees. Briefly it can be understood as a "private version of an internet" or as a "version of the Internet confined to an organization". Through such devices and systems, off-site employees can access company information, computing resources and internal communications.

**Advantages of Intranets:** The following are some of the important advantages of Intranets:

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

---

- **Work-force productivity:** Intranets can help users to locate and view information faster and use applications relevant to their roles and responsibilities. Users can access data held in any data base the organization wants to make available, anytime and from anywhere within the company work-stations.
- **Time:** With Intranets, organizations can make more information available to employees on a “pull” basis (i.e., employees can link to relevant information at a time which suits them) rather than being deluged indiscriminately by e-mails.
- **Communication:** Intranets can serve as powerful tools for communication within an organization – both vertically as well as horizontally.
- **Enhance Collaboration:** With information easily accessible by all authorized users, team-work is enabled.
- **Promote Corporate Culture:** Every user is viewing the same information within the Intranet.
- **Cost-effective:** The Intranet enables the system to become cost-effective.
- **Knowledge Management:** Web publishing allows ‘cumbersome’ corporate knowledge to be maintained and easily accessed throughout the company using hypermedia and Web technologies.  
Examples include: employee manuals, benefits documents, company policies, business standards, news feeds, and even training, can be accessed using common Internet standards (Acrobat files, Flash files, CGI applications). Because each business unit can update the online copy of a document, the most recent version is always available to employees using the intranet.
- **Business operations and management:** Intranets are also being used as a platform for developing and deploying applications to support business operations and decisions across the internetworked enterprise.

### Answer to 8 (b):

#### Contribution per unit

Particulars	A (₹)	B (₹)
Selling Price	175	220
Less: Variable Cost	130	140
Contribution	45	80

Let Product A =  $X_1$  and Product B =  $X_2$

The objective function is  $\text{Max } Z = 45x_1 + 80x_2$

Subject to

$$5x_1 + 20x_2 \leq 400 \text{ (available hours constrained)}$$

$$10x_1 + 15x_2 \leq 450 \text{ (available hours constrained)}$$

$$x_1, x_2 \geq 0 \text{ (non-negative)}$$

### Answer to 8 (c):

#### Statement showing Present Value & Profitability Index:

Particulars	Plan I	Plan II	Plan III
Expected Value of Revenue	17.000	20.300	22.50
Profit %	40%	25%	30%
Profit Before Tax	6.800	5.075	6.75

## Answer to MTP\_Final\_Syllabus 2008\_Dec2014\_Set 2

(-)tax@40%	2.720	2.030	2.70
PAT@60%	4.080	3.045	4.05
(+ )tax savings $(25/8) \times 0.4 / (20/8) \times 0.4 / (24/8) \times 0.4$	1.250	1.000	1.20
Total inflows	5.330	4.045	5.24
P.v. factor for 8 years at 12%	4.9676	4.9676	4.9676
Present value of inflows	26.477	20.094	26.08
(-)outlays	25.000	20.000	24.000
NPV	1.477	0.094	2.08
Profitability Index (inflows/ outflows)	1.039	1.005	1.087

The measures indicate that Plan III is the most profitable.

### If worst happens:

Particulars	Plan I	Plan II	Plan III
Sales	5,00,000	15,00,000	
Contribution	2,00,000	3,75,000	
PAT	1,20,000	2,25,000	
(+ )Tax Advantage	1,25,000	1,00,000	1,20,000Q
Inflows	2,45,000	3,25,000	1,20,000
Present value of inflow(4.9676)	12,17,062	16,14,470	5,96,112
(-) outlays	25,00,000	20,00,000	24,00,000
(NPV)	12,82,938	3,85,530	18,04,000

If a maximum criterion were used, Plan II would be the most attractive as it would maximize the minimum profit in the event that the lowest forecasted revenues were realized