

# Solved Scanner Appendix

**CMA Inter Gr. II (New Syllabus)**

**(Solution of December 2014)**

**Paper - 10: Cost and Management Accountancy**

## **Chapter - 2: Integrated & Non-Integrated Accounting System**

**2014 - Dec [1] (e)**

**Integrated accounts:** Under integrated accounting system only one set of account books are maintained under both financial & cost accounts. These accounts are called integrated accounts. This method requires complete details of all receipts, payments, assets and liabilities.

### **Advantages:**

1. Centralisation of accounts
2. Less time consuming as cost accounts are posted directly from the books of original entry.
3. It is simple method of accounting.
4. This method saves money

There is no need for cost ledger control account as all the transactions are recorded into respective accounts.

(a) Various subsidiary ledgers are as follows:

- (b) Stores ledger
- (c) WIP ledger
- (d) Finished good ledger
- (e) Sales ledger
- (f) Purchased ledger
- (g) Overhead ledger

**Chapter - 4 Contract Costing**

2014 - Dec [2] (a) (ii)

(a)

**Contract Account of contract No. HB-108  
for the period 1<sup>st</sup> July 2013 to 31<sup>st</sup> March, 2014**

Dr.	Particulars	Amount ₹	Cr.	Particulars	Amount ₹
	To Material issued	8,00,000		By Work certified	20,00,000
	To Material from contract 101	50,000		By Work uncertified	2,50,000
	To Wages paid	6,31,000		By Cash	
				(Sale of material)	11,000
	To Wages outstanding	35,000		By P&L Account	4,000
	To Supervisor's salary	1,80,000			
	To Establishment expenses	41,000			
	To Depreciation on crane [(20,00,000-1,10,000)/6 × 73/ 365]	63,000			
	To Depreciation on plant [10,00,000 × 6/12 × 15/100]				
	[9,20,000 × 3/12 × 15/100]	1,09,500			
	To Notional profit	3,55,500			
		22,65,000			22,65,000

(b)

To Profit & Loss a/c	1,77,750	By Notional profit	3,55,500
To Reserve for contingency	1,77,750		
Total	3,55,500		3,55,500

Profit to be transferred to Profit & Loss A/c will be computed as follows:

$$\text{Notional profit} \times \frac{2}{3} \times \frac{\text{Cash received}}{\text{work certified}}$$

$$= 3,55,500 \times \frac{2}{3} \times \frac{15,00,000}{22,00,000}$$

$$= ₹ 1,77,750$$

**Chapter - 5 Process Costing**

2014 - Dec [1] (c)

**Statement of equivalent production**

Output	%	% of Completion	Equivalent units
Opening WIP	400	25%	100
Introduced	8400	100%	8400
Closing WIP	800	50%	400
			8900

**Chapter - 7 Unit Costing, Multiple Costing & Cost Sheet****2014 - Dec [2] (b)**

(i) Let x and y be the cost and profit respectively.

$$x + y = 75000 \quad (i)$$

$$\text{Material} = 0.4x$$

$$\text{Labour} = 0.3x$$

$$\text{Overheads} = 0.3x$$

After increase of cost

$$\text{Material cost} = 0.4x \times 110\% = 0.44x$$

$$\text{Labour Cost} = 0.3 \times 120\% = 0.36x$$

$$\text{Overhead} = \frac{0.30x}{1.10x}$$

$$\text{Profit} = 0.80y$$

Now,

$$1.10x + 0.80y = 75000 \quad (ii)$$

After solving equation (i) and (ii)

$$x = ₹ 50,000$$

$$y = ₹ 25,000$$

**Statement of profit per unit of equipment**

$$\text{Material } 50,000 \times 40\% = 20,000$$

$$\text{Labour } 50,000 \times 30\% = 15,000$$

$$\text{Overheads } 50,000 \times 30\% = \underline{15,000}$$

$$\text{Total Cost} = 50,000$$

$$\text{Add: Profit @50\% of cost} = \underline{25,000}$$

$$\text{Total} = \underline{75,000}$$

Computation of New selling price to get same percentage of profit

$$\text{Material } 20,000 \times 110\% = 22,000$$

$$\text{Labour } 15,000 \times 120\% = 18,000$$

$$\text{Overheads} = \underline{15,000}$$

$$\text{Total Cost} = 55,000$$

$$\text{Add: Profit @50\% of cost} = \underline{27,500}$$

$$\text{New Selling price} = \underline{\underline{82,500}}$$

**Hence, New Selling price is ₹ 82,500**

**Chapter - 8 Marginal Costing****2014 - Dec [1]** (a), (d)

$$(a) \text{ Margin of safety} = \frac{\text{Profit}}{\text{PV Ratio}}$$

$$\begin{aligned} \text{PV Ratio} &= \frac{\text{contribution/unit}}{\text{selling price}} \times 100 \\ &= \frac{100 - 80}{100} \times 100 = 20\% \end{aligned}$$

$$\text{Margin of safety} = \frac{3,00,000}{20\%} = ₹ 15,00,000$$

- (d) Total repair and maintenance expenses at 60% capacity = ₹ 1,50,000  
 Fixed repair and maintenance expenses = 1,50,000 × 40% = ₹ 60,000  
 Variable expenses = 1,50,000 – 60,000 = 90,000  
 Variable expenses for 80% capacity level = 90,000/60 × 80 = ₹ 1,20,000  
 Fixed expenses at 80% capacity level = ₹ 60,000  
 Total repair and maintenance expenses at 80% capacity level = 1,20,000 + 60,000 = ₹ 1,80,000

**2014 - Dec [2]** (c) (i)

$$(1) \text{ PV Ratio} = \frac{\text{change in profit}}{\text{change in sales}} \times 100 = \frac{2,70,000 - (-50,000)}{15,30,000 - 10,50,000} \times 100 = 66.67\%$$

$$(2) \text{ Fixed Cost} = \text{Sales} \times \text{PV Ratio} - \text{Profit} = 15,30,000 \times 66.66\% - 2,70,000 = ₹ 7,50,000$$

$$(3) \text{ Break Even Point} = \frac{\text{Fixed cost}}{\text{PV Ratio}} = \frac{7,50,000}{66.67\%} = ₹ 11,25,000$$

(4) Amount of profit when sales are ₹ 25,00,000  
 Profit = Sales × PV Ratio - Fix cost  
 25,00,000 × 66.67% - 7,50,000  
 = ₹ 9,16,667

(5) Sales required to earn a profit of ₹ 6,50,000  
 Required sales =  $\frac{\text{Fix Cost} + \text{Desired Profit}}{\text{PV Ratio}} = \frac{7,50,000 + 6,50,000}{66.666\%} = ₹ 21,00,000$

(6) Sales required to earn a profit of 25% on cost  
 25% on cost = 20% on sales  
 Let the sales be x

$$X = \frac{\text{Fix Cost} + \text{Desired Profit}}{\text{PV Ratio}} = \frac{7,50,000 + 0.2x}{0.6667}$$

$$0.6667x - 0.2x = 7,50,000$$

$$X = \frac{7,50,000}{0.4667} = ₹16,07,000$$

### Chapter - 9 Throughput Accounting

2014 - Dec [1] (b)

$$\begin{aligned} \text{Return per hour} &= \frac{\text{Selling Price} - \text{Material Cost}}{\text{Time of Bottleneck resource}} = \frac{50 - 20}{10 \text{ minutes}} \times 60 \text{ minutes} \\ &= \frac{30}{10} \times 60 = ₹ 180 \end{aligned}$$

Hence, return per hours for product -X is ₹ 180.

2014 - Dec [2] (b) (ii)

- Total Factory Costs = Total of all costs except materials  
 $= 48,000 + 23,650 + 3,150 + 40,500 + 14,400 + 6,300 + 9,000 = ₹ 1,45,000$

- Cost per Factory Minute = Total Factory Cost ÷ Minutes available =  
 $\frac{1,45,000}{58,000} = ₹ 2.5$

- Return per bottleneck minute for Product P =  $\frac{\text{Selling Price} - \text{Material Cost}}{\text{Minutes in bottleneck}}$   
 $= \frac{50 - 32}{6} = ₹ 3$

$$\begin{aligned} \text{Return per bottleneck minute for Product Q} &= \frac{\text{Selling Price} - \text{Material Cost}}{\text{Minutes in bottleneck}} \\ &= \frac{50 - 26}{12} = ₹ 2 \end{aligned}$$

- Throughput Accounting (TA) Ratio for Product P =  $\frac{\text{Return per Minute}}{\text{Cost per Minute}} = \frac{3}{2.5}$   
 $= ₹ 1.2$

$$\begin{aligned} \text{Throughput Accounting (TA) Ratio for Product Q} &= \frac{\text{Return per Minute}}{\text{Cost per Minute}} = \frac{2}{2.5} \\ &= ₹ 0.8 \end{aligned}$$

- Throughput cost per week = Standard minutes of throughput for the week × cost per minute

$$= (7,300 \times 6 + 1,050 \times 12) \times 2.5$$

$$= 56,400 \times 2.5 = ₹ 1,41,000$$

$$6. \text{ Efficiency Ratio} = \left( \frac{\text{Throughput cost}}{\text{Actual TFC}} \right) \%$$

$$= \frac{1,41,000}{1,45,000} \times 100 = 97.24\%$$

**Chapter - 12 Budgeting & Budgetary Control****2014 - Dec [2] (c) (ii)****Cash budget for the period December 2014 to March 2015****(Amount in ₹ lakhs)**

Particulars	December 2014	January 2015	February 2015	March 2015
Opening balance (A)	10	9.75	9.1	9.25
Add: Receipts (B)				
Cash sales	2756.35	25.5	2459.15	28.5
Collection from Debtors		59.85		59.85
Total (A + B)	93.35	95.1	92.25	97.6
Payments (C)				
Cash Purchases	12	8	7	9.2
Creditors	41.6	48	32	28
Wages	19	19	16.5	19.5
Rent	0.5	0.5	0.5	0.5
Overheads	5.5	6.5	8	8.75
Total (C)	78.6	82	64	65.95
Balance (A+ B – C = D)	14.75	13.1	28.25	31.65
Fix Deposit (E)	5	4	19	22
<b>Closing cash balance (D - E)</b>	<b>9.75</b>	<b>9.1</b>	<b>9.25</b>	<b>9.65</b>

**Statement of collection from debtors**

Particulars	December 2014	January 2015	February 2015	March 2015
October 2014	11.2			
November 2014	26.25	10.5		
December 2014	18.9	31.5	12.6	
January 2015		17.85	29.75	11.9
February 2015			16.8	28
March 2015				19.95
<b>Total</b>	<b>56.35</b>	<b>59.85</b>	<b>59.15</b>	<b>59.85</b>

**Chapter - 13 Standard Costing****2014 - Dec [2] (a) (i)**

(i) Rate variance of Semi – skilled workers = 6400 (F)

$$\text{Rate Variance} = (\text{Standard Rate} - \text{Actual Rate}) \times \text{Actual hours}$$

$$6400 = (30-20) \times \text{Actual hours}$$

$$\text{Actual hours} = 640$$

$$\text{No. of Semi-skilled workers} = \frac{640}{40} = 16$$

$$\text{No. of Un-skilled workers} = \frac{16}{2} = 8$$

$$\text{No. of skilled workers} = 36 - 16 - 8 = 12$$

**Analysis of Given Data**

	Standard				Actual			
	No.	Hours	Rate	Amount	No.	Hours	Rate	Amount
Skilled	16	640	60	38,400	12	480	70	33,600
Semi skilled	12	480	30	14,400	16	640	20	12,800
Un-skilled	8	320	10	32,000	8	320	20	6,400
				56,000				52,800

**Computation of standard hours:**

$$\text{SH} = \frac{\text{SH hours for that worker}}{\text{SH for all the workers}} \times \text{Actual Quantity for that worker}$$

$$\text{For Skilled workers SH} = \frac{640}{1440} \times 1080 = 480$$

$$\text{For Semi-Skilled workers SH} = \frac{480}{1440} \times 1080 = 360$$

$$\text{For Un-killed workers SH} = \frac{320}{1440} \times 1080 = 240$$

**Computation of Required Values**

	SRSH (1) ₹	SRRSH (2) ₹	SRAH (3) ₹	ARAH (4) ₹
Skilled	480 × 60 = 28,800	38,400	480 × 60 = 28,800	33,600
Semi skilled	360 × 30 = 10,800	14,400	640 × 30 = 19,200	12,800
Un-skilled	240 × 10 = 2,400	3,200	320 × 10 = 3,200	6,400
	42,000	56,000	51,200	52,800

Where

1. SRSH = Standard Cost of Standard Labour = ₹ 42,000
2. SRRSH = Revised Standard Cost of Labour = ₹ 56,000
3. SRAH = Standard Cost of Actual Labour = ₹ 51,200
4. ARAH = Actual Cost of Labour = ₹ 52,800

**Computation of Labour Variances:**

- a. Labour Mix or Gang Variance = (2) – (3) = [₹(56,000 – 51,200)] = 4,800 (F)
- b. Labour Sub-Efficiency Variance = (1) – (2) = [₹(42,000 – 56,000)] = 14,000 (A)
- c. Labour Rate Variance = (3) – (4) = [₹(51,200 – 52,800)] = 1,600 (A)
- d. Labour Cost Variance = (1) – (4) = [₹(42,000 – 52,800)] = 10,800 (A)

**Chapter - 15 Cost Accounting Records and Cost Audit**

**2014 - Dec [1]** (f), (g)

**(f) Difference between Cost Accounting policy and Cost Accounting system:**

Cost Accounting policy	Cost Accounting system
Cost Accounting Policy of a company should state the policy adopted by the company for treatment of individual cost components in cost determination.	The Cost Accounting system of a company, on the other hand, would provide a flow of the cost accounting data/information across the activity flow culminating in arriving at the cost of final product/activity.

**(g) Yes;** Cost accountant of a company can certify compliance report. It is immaterial whether he is also a cost consultant or rendering service in any other capacity.

**2014 - Dec [3]** (a), (b), (c)

**(a) (i) The provisions of the Companies (Cost Accounting Records) Rules 2011, regarding preparation of Compliance Report:** The Compliance Report is to be prepared for the 'company as a whole' under different product groups.

- (a) If all the products/activities of a company, excluding the exempted categories, are covered under cost audit, then the company will not be required to separately file the compliance report.
- (b) If one or more product(s)/activity(s) of a company is covered under Cost Audit and there are other products covered under Companies (Cost Accounting Records) Rules 2011 but not covered under Cost Audit as per company-wise or industry specific Cost Audit, the Company will be required to file a Compliance Report (Company as a whole) covering products under cost audit and products not under cost audit.



(c) If one or more product(s)/activity(s) of a company is covered under Cost Audit and there are other products not covered under Companies (Cost Accounting Records) Rules 2011, then the company will not be required to file a Compliance Report since the product(s)/activity(s) other than product(s)/ activity(s) under Cost Audit are in the exempted category.

**(ii) Yes, it is mandatory to indicate previous year figures.**

A company coming under the purview of the Cost Audit for the first time, the cost auditor shall mention figures for the previous year (s) certifying by means of a note that the figures so stated are on the basis of information furnished by the management, for which he has obtained a certificate from them.

**(b) (i)** All companies covered under cost audit orders dated 2nd May 2011, 3rd May 2011 (amended on 30th June 2011) and companies wherein cost audit orders were issued earlier in respect of products/ activities covered by any or all of the Cost Accounting Records Rules as they existed before their supersession by the Companies (Cost Accounting Records) Rules 2011 published vide GSR 429(E) dated 3rd June 2011 are covered under cost audit. Companies not falling under any of the above categories are not covered under cost audit.

**(ii)** It is mandatory to submit Performance Appraisal Report to company management which cannot be a NIL report.

The Companies (Cost Audit Report) Rules, 2011, Vide sub-rule 5 of Rule 4, every cost auditor, who submits a cost audit report shall also furnish Performance Appraisal Report, duly authenticated by the cost auditor, to the Board/Audit Committee of the company in the prescribed format (Form III). There cannot be NIL report since list of the areas to be covered in the report as per Form III are relating to company's operations being audited by the cost auditor.

The contents of the Performance Appraisal Report as given in Form III are "indicative". Depending on the nature of business and activity of the company, the management and the cost auditor in consultation with each other can add or delete the indicative areas to be covered under the Performance Appraisal Report.

**(c) Objectives of Cost Audit:** Cost Audit has both general and social objectives.

**General Objectives:**

1. Verification of cost accounts with a view to ascertaining that these have been properly maintained and compiled according to the cost accounting system followed by the enterprise.

2. Ensuring that the prescribed procedures of cost accounting records rules are duly adhered to.
3. Detection of errors and fraud.
4. Verification of the cost of each “cost unit” and “cost centre” to ensure that these have been properly ascertained.
5. Determination of inventory valuation.
6. Facilitating the fixation of prices of goods and services.
7. Periodical reconciliation between cost accounts and financial accounts.
8. Ensuring optimum utilization of human, physical and financial resources of the enterprise.
9. Detection and correction of abnormal loss of material and time.
10. Inculcation of cost consciousness.
11. Advising management, on the basis of inter-firm comparison of cost records, as regards the areas where performance calls for improvement.
12. Promoting corporate governance through various operational disclosures to the directors.

**The social objectives of cost audit:**

1. Facilitation in fixation of reasonable prices of goods and services produced by the enterprise. Improvement in productivity of human, physical and financial resources of the enterprise.
2. Channelizing of the enterprise resources to most optimum, productive and profitable areas.
3. Availability of audited cost data as regards contracts containing escalation clauses.
4. Facilitation in settlement of bills in the case of cost-plus contracts entered into by the Government.
5. Pinpointing areas of inefficiency and mismanagement, if any for the benefit of shareholders, consumers, etc., such that necessary corrective action could be taken in time.

**Chapter - 16 Economics for Managerial Decision Making**

**2014 - Dec [1] (h), (i), (j)**

(h) Cost Function (C) =  $4x^3 + 8x^2 + 10x + 20$

Average cost =  $4x^2 + 8x + 10 + \frac{20}{x}$

Marginal Cost =  $\frac{dc}{dx} = 12x^2 + 16x + 10$

Average variable cost =  $4x^2 + 8x + 10$

Average Fixed cost =  $\frac{20}{x}$

- (i) **Law of variable proportion:** Law of variable proportion shows the input-output relationship or production function, in short run, output can be increased or decreased by changing variable factors only but fixed factors cannot be varied.
- (j) Distribution of tax burden between buyers and sellers is in ratio of elasticity of supply to elasticity of demand

$$\text{Thus tax burden borne by the buyer} = ₹ 10 \times \frac{4}{10} = ₹ 4$$

If the tax burden borne by buyer is ₹ 4, new equilibrium price will be  $120 + 4 = ₹ 124$

2014 - Dec [4] (a), (b), (c), (d)

(a)

(i) **PRICE DETERMINATION UNDER OLIGOPOLY:**

Price can be determined in three ways under oligopoly:

1. **Independent pricing:** If there is a product differentiation under oligopoly each firm can act as a monopoly and fixes the price independently. Therefore the firm may determine its price in that way where it gets maximum profits. If there is no product differentiation, it is difficult to know the price determination in accurate manner the firm may compete each other and finally they may fix the common reasonable price which cannot be changed. But this policy independent pricing cannot with stand in the market.
  2. **Pricing Under collusion:** Most of the firms have the opinion that independent price determination leads to uncertainty. To avoid this defect there is a tendency among the oligopoly firm to act collectively by collusion. In this method these firms may make 'cartel' arrangement. The centralized cartel determines the output produce by different firms and the price is also determined which is the most acceptable by all firms. The firms may agree to share the market even though they are producing homogeneous products.
  3. **Price leadership:** Price leadership is a type of tacit collusion. It is a set of industry practices or customs in which firms throughout the industry follow the prices changes made by a firm recognized as the "price leader." If the other firms follow the price which is determined by one firm in oligopoly then we can say that there is a dominant firm or the firm with low costs or well established old firm may take this leadership and fixes the price.
- (ii) Price =  $75 - 0.30 \times 15 - 0.05 (15^2)$   
 $= 75 - 4.5 - 0.05 \times 225$   
 $= 75 - 15.75 = 59.25$

Consumer's surplus

$$\begin{aligned}
 &= \int_0^{15} (75 - 0.3Q - 0.05Q^2) dQ - (59.75 \times 15) \\
 &= \int_0^{15} \left( 75Q - \frac{0.3Q^2}{2} - \frac{0.05Q^3}{3} \right) dQ - (896.25) \\
 &= [ (1125 - 33.75 - 56.25) - 0 ] - 896.25 \\
 &= 1035 - 896.25 \\
 &= 138.75
 \end{aligned}$$

(b)(i)

**Calculation of Trend values by Least Squares Method**

Year (t)	Sales Y	Time deviation (X)	XY	X <sup>2</sup>
2008-09	20	-2	-40	4
2009-10	25	-1	-25	1
2010-11	27	0	0	0
2011-12	35	1	35	1
2012-13	38	2	76	4
2013-14	41	3	123	9
	$\Sigma Y = 186$	$\Sigma X = 3$	$\Sigma XY = 169$	$\Sigma X^2 = 19$

Equation of Straight line =  $Y = a + bX$

Since,  $\Sigma x = 3$

$$\Sigma Y = na + b\Sigma X \quad (1)$$

$$186 = 6 \times a + b \times 3$$

$$186 = 6a + 3b \quad (2)$$

And

$$\Sigma XY = a\Sigma X + b\Sigma X^2$$

$$169 = a \times 3 + b \times 19$$

$$169 = 3a + 19b$$

After Solving equation (1) and (2)

$$b = 4.34$$

and  $a = 28.83$

Equation of straight line  $Y = a + b(X - 2010-11)$

$$Y = 28.83 + 4.34 X$$

Sales for 2015-2016 the value of X would be 5

$$Y = 28.83 + 4.34 \times 5$$

$$Y = 50.53$$

- (ii) Given Price (P) =  $650 - x$   
 Cost (C) =  $x^2 + 10x + 12$ .  
 Output =  $x > 0$   
 Revenue (R) =  $Px = 650x - x^2$   
 Profit =  $R - C = 650x - x^2 - x^2 - 10x - 12$   
 $= 640x - 2x^2 - 12$  (Say, y)

In order to attain maximum profit

$$\frac{dy}{dx} = 0, \text{ and}$$

$$\frac{d^2y}{dx^2} = \text{Negative}$$

$$\frac{dy}{dx} = 640 - 4x = 0$$

$$\Rightarrow -4x = -640$$

$$x = 160$$

$$\frac{d^2y}{dx^2} = -4, \text{ which is negative.}$$

Hence, 160 units should be sold to make maximum profit.

(c) The Factors to be considered while setting price of the Product:

1. **Target customers:** Price of product is depend on the capacity of buyers to buy at various prices, in other words, influence of price elasticity of demand will be examined.
2. **Consumer Demand:** Small businesses often focus on innovate products that meet the needs of specific niche markets within larger markets. Consumers may be willing to pay a premium for new products with special features that fulfill needs that are not met by other products.
3. **Cost of the product:** Companies should consider the cost of producing a product as well as other operating expenses when considering product prices. The price of products should exceed production costs and distribution cost.
4. **Competition:** The prices that competitors set for their products are an important consideration for small businesses that are introducing new products. If a company sets prices too far above competitors, consumers may shop elsewhere. Severe competition may indicate a lower price than when there is monopoly or little competition.
5. **The law:** Government authorities place numerous restrictions on pricing activities.

6. **Social responsibility:** Pricing affects many parties, including employees, shareholders and the public at large. These should be considered in pricing.
7. **Market position of the firm:** The prices a company sets influences the way consumers view the company and the quality of its products. It is only why the different producers of identical products sell their products at different prices.
8. **Distribution channel policy:** The prices of products will also depend up the policy regarding distribution channel The longer the channel, the higher would be the distribution costs and consequently higher the prices.
9. **Price elasticity of Demand:** Price elasticity refers to consequential change in demand due to change in price of the commodity. It is the relative responsiveness to the changes in price. As there an inverse relationship between price and demand for product, the demand will increase with fall in price.
10. **Economic environment:** In recession, prices are reduced to a sizeable extend to maintain the level of turnover. On the other hand, prices are charged higher in boom period to cover the increasing cost of production and distribution.

(d)

$$(i) \text{ Cost} = \frac{1}{10} q^3 - 3q^2 + 50q$$

$$\text{Average Cost} = \frac{1}{10} q^2 - 3q + 50 \text{ (Say, } p)$$

$$\frac{dp}{dq} = \frac{2}{10} q - 3 = 0$$

$$q = \frac{30}{2} = 15$$

$$\frac{d^2p}{dq^2} = \frac{1}{5}, \text{ which is positive.}$$

Hence, Average Cost is minimum at output  $q = 15$

Output at which Marginal Cost = Average Cost

Where

$$\text{Marginal cost} = \frac{dc}{dq} = \frac{3}{10}q^2 - 6q + 50$$

$$\frac{3}{10}q^2 - 6q + 50 = \frac{1}{10}q^2 - 3q + 50$$

$$\frac{3}{10}q^2 - \frac{1}{10}q^2 - 3q = 0$$

$$\frac{1}{5}q - 3 = 0$$

$$q = 15$$

(ii) **Types of income elasticity of demand:**

1. **Negative Income Elasticity of Demand:** Negative Income Elasticity of Demand is one in which demand for a commodity falls as the income rises. This holds good for inferior goods.
2. **Zero Income Elasticity of Demand:** Zero income elasticity of demand is one in which demand of a commodity does not change as the income changes. This holds good for essential goods. ( $E_y=0$ ).
3. **Greater than zero but less than one Income Elasticity of Demand:** Greater than zero but less than one income elasticity of demand is one in which demand for a commodity rises less than in proportion to a rise in income. ( $E_y < 1$ )
4. **Unitary Income Elasticity of Demand:** Unitary income elasticity of demand is one in which the demand for a commodity rises in the same proportion as the rise in income. ( $E_y=1$ )
5. **Greater than unitary Income Elasticity of Demand:** Greater than unitary income elasticity of Demand is one in which the demand for commodity rises more than in proportion to rise in income. ( $E_y > 1$ ).

**Shuchita Prakashan (P) Ltd.**

25/19, L.I.C. Colony, Tagore Town,  
Allahabad - 211002

Visit us: [www.shuchita.com](http://www.shuchita.com)



