

**Paper 10- Cost & Management Accountancy**

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Full Marks: 100

Time allowed: 3 Hours

**Section A**

1. Answer Question No.1 which is compulsory carrying 25 Marks

(a) Answer the following [5 x 2 = 10]

(i) Overhead volume variance is ₹1000 (Adverse). Budgeted Overheads ₹ 6000. Standard Overhead Rate Per hour ₹ 5. Find Standard Hours for actual Output?

(ii) Sales during the following months

2015-Oct ₹ 12,00,000

2015-Nov ₹ 14,00,000

2015-Dec ₹ 16,00,000

60% of sales are collected in the month after sales, 30% in the second month and 10% in the third month. What is the Budgeted collection from Debtors for the month of Jan'2016?

(iii) Fixed Cost ₹ 2,00,000, P/V Ratio 25%, Margin of Safety sales is ₹ 12,00,000. What is the amount of Total Sales?

(iv) Cash Received from Contracted is ₹ 12,80,000 which is 80% of work certification, So What is the amount of work Certified?

(v) Company has invested ₹ 5,00,000 in machinery for manufacturing a Product in Division X. Cost of Capital is 20%. The Profit from division X is ₹ 1,20,000 for the year, Compute the Residual Income from Division X?

(b) Match the following [5 x 1 = 5]

	Column 'A'		Column 'B'
1.	Cost Driver	A	Contract Costing
2.	Bottleneck Hours	B	Financial Soundness of Business
3.	Budgetary Control	C	Throughput Accounting
4.	Retention Money	D	Management by Exception
5.	Margin of Safety	E	ABC Costing

(c) List out the any five objectives of Cost Audit. [5]

(d) The Revenue function of a firm given by  $R = (2200 - 3x)\frac{x}{2}$ , find the firm's marginal revenue function. [5]

**Answer:**

(a)

(i) Standard Hours =  $(6,000 + 1,000) / 5 = 1400$

(ii) Collection from Debtors: - Jan -2016

= 10% of 12,00,000 + 30% of 14,00,000 + 60% of 16,00,000

= ₹15,00,000

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(iii)  $BEP = \text{Fixed Cost} / P_v \text{ Ratio}$   
 $= 2,00,000 / 80\%$   
 $= 8,00,000$

Total sales = BEP sales + Margin of Safety  
 $= 8,00,000 + 12,00,000$   
 $= ₹20,00,000$

(iv) Work Certified =  $12,80,000 / 80\% = 16,00,000$

(v) Residual Income =  $1,20,000 - (5,00,000 \times 20/100)$   
 $= 20,000$

**(b) Matching**

	Column 'A'		Column 'B'
1.	Cost Driver	E	ABC Costing
2.	Bottleneck Hours	C	Throughput Accounting
3.	Budgetary Control	D	Management by Exception
4.	Retention Money	A	Contract Costing
5.	Margin of Safety	B	Financial Soundness of Business

(c) Cost Audit has both general and social objectives. The general objectives can be described to include the following:

- ❖ 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.
- ❖ Ensuring that the prescribed procedures of cost accounting records rules are duly adhered to Detection of errors and fraud.
- ❖ Verification of the cost of each "cost unit" and "cost center" to ensure that these have been properly ascertained.
- ❖ Determination of inventory valuation.
- ❖ Facilitating the fixation of prices of goods and services.

(d)  $R = (2200 - 3X) \frac{X}{2} = \frac{2200X}{2} - \frac{3}{2}X^2$

$$MR = \frac{dc}{dx} = \frac{2200}{2} - 3X$$
$$= 1100 - 3X$$

### Section B

#### **(Cost & Management Accounting – Methods & Techniques and Cost Records and Cost Audit)**

Answer any three questions from the following each question carries 17 marks

2. (a)

Item	Budget	Actual
No. of working days	20	22

<b>Output per man hour</b>	<b>1.0 Units</b>	<b>0.9 Units</b>
<b>Overhead cost</b>	<b>₹1,60,000</b>	<b>1,68,000</b>
<b>Man-hours per day</b>	<b>8,000</b>	<b>8,400</b>

**Calculate Overhead Variances.** **[14]**

**(b) Write any three reasons for disagreement of Financial Profits with Cost Profits.** **[3]**

**Answer:**

**(a)**

SRSB (₹)	SRAH (₹)	SRRBH (₹)	SRBH (₹)	ARAH (₹)
1 x 166320 = ₹166320	1 x 184800 = ₹184800	1 x 176000 = ₹176000	₹160000	₹168000

SR = budgeted FOH/budgeted hours = 1,60,000/1,60,000 = 1

RBH = (22/20) x 1,60,000 = 1,76,000

AH = 22 x 8,400 = 1,84,800

AQ = 1,84,800 x 0.9 = 1,66,320

SH = 1,66,320/1 = 1,66,320

1. SRSB = Standard Cost of Standard Fixed Overheads = ₹ 1,66,320
2. SRAH = Standard Cost of Actual Fixed Overheads (or) Fixed Overheads Absorbed or Recovered = ₹ 1,84,800
3. SRRBH = Revised Budgeted Fixed Overheads = ₹ 1,76,000
4. SRBH = Budgeted Fixed Overheads = ₹ 1,60,000
5. ARAH = Actual Fixed Overheads = ₹ 1,68,000
- a. FOH Efficiency Variance = 1-2 = ₹ 18,480(A)
- b. FOH Capacity Variance = 2-3 = ₹ 8,800(F)
- c. FOH Calendar Variance = 3-4 = ₹ 16,000(F)
- d. FOH Volume Variance = 1-4 = ₹ 6,320(F)
- e. FOH Budget Variance = 4-5 = ₹ 8,000(A)
- f. FOH Cost Variance = 1-5 = ₹ 1,680(A)

**(b) Reasons for difference in profits of cost and financial accounts:**

- (i) Items shown in Financial Accounts: There are a number of items which are included in financial accounts but do not find place in cost accounts. They may be items of income or expenses, the former increases the profit and latter reduces the profit.
- A. Purely Financial Charges**
    - (a) Loss arising from the sale of fixed assets.
    - (b) Loss on sale of investments, discount on debentures, etc.
    - (c) Interest on bank loan, mortgage and debentures.
    - (d) Expenses of companies 'Share Transfer Office'.
  - B. Appropriation of Profits**
    - (a) Donations and Charities
    - (b) Income Tax
    - (c) Dividend Paid
    - (d) Transfer to Reserves
  - C. Writing off Intangible and Fictitious Assets**
    - (a) Goodwill
    - (b) Patents & Copyrights
    - (c) Advertisement
    - (d) Preliminary Expenses

**D. Pure Financial Incomes**

- (a) Rent received or Profit on Sale of Fixed Assets
  - (b) Share transfer fee received
  - (c) Interest received on Bank Deposits
  - (d) Dividend received etc.
- (ii) Items shown only in Cost Accounts: There are certain items which are included in cost accounts and not in financial accounts. Such items are very few. E.g. Interest on capital employed, rent for own premises etc.
- (iii) Over or Under Absorption of Overheads. Overheads are absorbed in Cost Accounts on a certain predetermined estimated basis and in Financial Accounts, actual amounts incurred are recorded. If there is any over or under absorption it leads to difference in the profits of both sets of books.

**3.(a) S Ltd. furnishes you the following information relating to the half year ended 30th June, 2009.**

<b>Fixed expenses</b>	<b>₹ 45,000</b>
<b>Sales value</b>	<b>₹ 1,50,000</b>
<b>Profit</b>	<b>₹ 30,000</b>

During the second half the year the company has projected a loss of ₹ 10,000.

Calculate:

- (1) The B.E.P and M/S for six months ending 30th June, 2009.
- (2) Expected sales volume for the second half of the year assuming that the P/V Ratio and Fixed expenses remain constant in the second half year also.
- (3) The B.E.P and M/S for the whole year for 2009. [4+4+4=12]

**(b) Prepare a production Budget for three months ending March 31, 2013 for a factory producing four products, on the basis of the following information.**

Type of Product	Estimated Stock on Jan. 1, 2013	Estimated Sales during Jan. To Mar. 2013	Desired closing stock on 31.3.2013
<b>A</b>	<b>2000</b>	<b>10000</b>	<b>3000</b>
<b>B</b>	<b>3000</b>	<b>15000</b>	<b>5000</b>
<b>C</b>	<b>4000</b>	<b>13000</b>	<b>3000</b>
<b>D</b>	<b>3000</b>	<b>12000</b>	<b>2000</b>

[5]

**Answer:**

**(a)**

(1) P/V ratio : =  $[(45,000 + 30,000) / 1,50,000] \times 100$   
 = 50%

BE sales for I half year =  $45,000 / 50\% = ₹ 90,000$

Margin of safety for I half year =  $1,50,000 - 90,000 = ₹ 60,000$

For II half year:

(2) P/V ratio =  $(\text{Fixed cost} + \text{Profit}) / \text{Sales}$

$0.5 = [45,000 + (-) 10,000] / \text{Sales}$

$0.5 \text{ sales} = 35,000$

$\Rightarrow \text{Sales} = ₹ 70,000$

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- (3) BE sales for 2009 = (45,000 + 45,000) × 50%  
 = 1,80,000  
 Margin of safety for 2009 = (1,50,000 + 70,000) – 1,80,000  
 = ₹ 40,000

**(b) Production Budget for the 3 months ending 31<sup>st</sup> March, 2013**

Particulars	Product A	Product B	Product C	Product D
Sales	10,000	15,000	13,000	12,000
<b>Add:</b> Closing Stock	3,000	5,000	3,000	2,000
	13,000	20,000	16,000	14,000
<b>Less:</b> Opening Stock	2,000	3,000	4,000	3,000
Production (Units)	11,000	17,000	12,000	11,000

4. (a) M/s Mysore Petro Ltd. showed a net loss of ₹ 2,08,000 as per their financial accounts for the year ended 31<sup>st</sup> March, 2012. The Cost accounts, however, disclosed a net loss of ₹ 1,64,000 for the same period. The following information was revealed as a result of the scrutiny of the figures of both the sets of books.

1) Factory overhead under recovered	3,000
2) Administration overhead over recovered	2,000
3) Depreciation charged in financial books	60,000
4) Depreciation recovered in costs	65,000
5) Interest on investment not included in costs	10,000
6) Income-tax provided	60,000
7) Transfer fee (in financial Books)	1,000
8) Stores adjustment (Credit in financial books)	1,000

Prepare Reconciliation Statement.

[7]

- (b) A product passes through three processes— A, B and C. 10,000 units at a cost of ₹ 1.10 were issued to Process A. The other direct expenses were as follows:

	PROCESS-A	PROCESS-B	PROCESS-C
Sundry materials	1,500	1,500	1,500
Direct labour	4,500	8,000	6,500
Direct expenses	1,000	1,000	1,503

The wastage of process 'A' was 5% and in process 'B' 4%

The wastage of process 'A' was sold at Re. 0.25 per unit and that of 'B' at Re.0.50 per unit and that of C at Re. 1.00. The overhead charges were 160% of direct labour. The final product was sold at ₹ 10 per unit fetching a profit of 20% on sales. Find out the percentage of wastage in Process 'C'

[10]

**Answer:**

**(a) Statement Showing Reconciliation of Profit Shown by Cost and Financial Accounts**

Particulars	Amount (₹)	Amount (₹)
Profit as per Financial Accounts		(2,08,000)
Add: Under recovery of factory overheads	3,000	
Income tax	60,000	63,000
		<b>(1,45,000)</b>

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Less: Over recovery of Administration OH		
Over recovery of depreciation	2,000	
Interest on investments considered in Financial A/c	5,000	
Transfer fee	10,000	
Stores adjustment	1,000	19,000
Loss as per Cost Accounts		1,64,000

**(b) Dr. Process – A - Account Dr.**

Particulars	Unit	₹	Particulars	Units	₹
To, Material introduced A/c	10000	11,000	By Normal loss A/c (10000 x 5%) x 0.25	500	125
To, Additional material A/c		1,500	By Transfer to Process – B A/c @ ₹2.64 per unit	9500	25075
To, Direct labour A/c		4,500			
To, Direct expenses A/c		1,000			
To, Overhead A/c		7,200			
	10000	25,200		10000	25,200

**Dr. Process – B - Account Dr.**

Particulars	Unit	₹	Particulars	Units	₹
To, Transfer from Process – A A/c	9500	25,075	By Normal Loss a/c (9,500 x 4%) x 0.5	380	190
To, Direct Material A/c		1,500	By Transfer to Process – C A/c @ ₹ 5.283	9120	48,185
To, Direct Labour A/c		8,000			
To, Direct Expenses A/c		1,000			
To, Overhead A/c		12,800			
	9500	48,375		9500	48,375

**Dr. Process – C - Account Dr.**

Particulars	Unit	₹	Particulars	Units	₹
To, Transfer from Process – B A/c	9120	48,185	By Normal Loss a/c	696	696
To, Direct Material A/c		1,500	By Transfer to finished stock A/c @ ₹ 8 per unit	8424	67,392
To, Direct Labour A/c		6,500			
To, Direct Expenses A/c		1,503			
To, Overhead A/c		10,400			
		68,088		9120	68,088

Working Notes:

Let the No. of units of loss in Process 'C' be 'x'

Scrap value =  $x \times 1 = ₹ x$

$68,088 - x = 8(9,120 - x)$  units

$68,088 = 72,960 - 7x$

$7x = 4,872$

$X = 696$  units

Required % is

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9120 – 696  
 100 - ?  
 = 7.63%

5. (a) Relevant data relating to a company are:

	Products			
	P	Q	R	Total
Production and sales (units)	60,000	40,000	16,000	
Raw material usage in units	10	10	22	
Raw material costs             ₹	50	40	22	24,76,000
Direct labour hours	2.5	4	2	3,42,000
Machine hours	2.5	2	4	2,94,000
Direct labour costs             ₹	16	24	12	
No. of production runs	6	14	40	60
No. of deliveries	18	6	40	64
No. of receipts	60	140	880	1,080
No. of production orders	30	20	50	100

Over heads:	₹
Setup	60,000
Machines	15,20,000
Receiving	8,70,000
Packing	5,00,000
Engineering	7,46,000

The company operates a JIT inventory policy and receives each component once per production run. Required to Compute the Product cost using activity based costing. [12]

(b) A company fixes the inter-divisional transfer prices for its products on the basis of cost plus an estimated return on investment in its divisions. The relevant portion of the budget for the Division A for the year 2006-07 is given below.

Particulars	Amount in Rupees
Fixed Assets	5,00,000
Current Assets (other than debtors)	3,00,000
Debtors	2,00,000
Annual fixed cost for the division	8,00,000
Variable cost per unit of product	10
Budgeted volume of production per year (units)	4,00,000
Desired Return on Investment	28%

You are required to determine the transfer price for Division A.

[5]

**Answer:**

**(a) Under Activity Based Costing System**

Computation of Cost Drivers Rates.

Set up cost : Cost driver → No. of Production run

$60000/60 = ₹ 1000/\text{per run}$

Machines : Cost driver → Machine hour rate

$15,20,000/2,94,000 = ₹5.17 \text{ per Machine hour rate}$



Receiving cost: Cost driver → No. of Receipts

$8,70,000/1080 = ₹ 805.56$

Packing : Cost driver → No. of deliveries

$5,00,000/64 = ₹ 7812.5$  per delivery

Engineering: Cost driver → No. of Production order

$7,46,000/100 = ₹ 7,460$  per order

**Calculation of Factory Cost Per Unit of Production**

	₹		₹		₹	
Materials		50.00		40.00		22.00
Direct Labour		16.00		24.00		12.00
Overheads						
Set up cost	0.10		0.35		2.50	
Machines	12.93		10.34		20.68	
Receiving cost	.81		2.82		44.31	
Packing	2.34		1.17		19.53	
Engineering	3.73	19.91	3.73	18.41	23.31	110.33
Factory Cost (Total)		85.91		82.41		144.33

**(b) Computation of Transfer Price per unit**

Particulars	Amount (₹)
Variable cost	10.00
Fixed cost (8,00,000/ 4,00,000)	2.00
Total cost	12.00
Add: desired return (10,00,000 x 28%) / 4,00,000	0.70
Transfer Price	12.70

**6. (a) What are the Other Services that a Cost Auditor of a company can provide to the company in which he is appointed as Cost Auditor? [8]**

**(b) List out Annexure required to be attached along with Form CRA-3 by the Cost Auditors? [9]**

**Answer:**

**(a)** An auditor appointed under this Act shall provide to the company only such other services as are approved by the Board of Directors or the audit committee, as the case maybe, but which shall not include any of the following services (whether such services are rendered directly or indirectly to the company or its holding company or subsidiary company, namely:—

- (a) accounting and book keeping services;
- (b) internal audit;
- (c) design and implementation of any financial information system;
- (d) actuarial services;
- (e) investment advisory services;
- (f) investment banking services;
- (g) rendering of outsourced financial services;
- (h) management services; and
- (i) Any other kind of services as may be prescribed.

Provided that an auditor or audit firm who or which has been performing any non-audit services on or before the commencement of this Act shall comply with the provisions of this section before the closure of the first financial year after the date of such commencement.

**Explanation** — For the purposes of this sub-section, the term "directly or indirectly" shall include rendering of services by the auditor,—

(i) in case of auditor being an individual, either himself or through his relative or any other person connected or associated with such individual or through any other entity, whatsoever, in which such individual has significant influence or control, or whose name or trade mark or brand is used by such individual;

(ii) in case of auditor being a firm, either itself or through any of its partners or through its parent, subsidiary or associate entity or through any other entity, whatsoever, in which the firm or any partner of the firm has significant influence or control, or whose name or trade mark or brand is used by the firm or any of its partners.

**(b)** List of the annexure need to be furnished along with Form CRA - 3 :  
Annexure has been reclassified into four parts as under:

**Part-A**

General Information,  
General Details of Cost Auditors  
Cost Accounting Policy  
Product/Service Details -for the company as a whole

**Part-B For Manufacturing Sector**

Quantitative Information  
Abridged Cost Statement  
Details of Materials Consumed  
Details of Utilities Consumed  
Details of Industry Specific Operating Expenses

**Part-C For Service Sector**

Quantitative Information  
Abridged Cost Statement  
Details of Materials Consumed  
Details of Utilities Consumed  
Details of Industry Specific Operating Expenses

**Part-D**

Product and Service Profitability Statement  
Profit Reconciliation  
Value Addition and Distribution of Earnings  
Financial Position and Ratio Analysis  
Related Party Transactions

Reconciliation of Indirect taxes.

**Section C**

**(Economics for managerial decision making)**

**Answer any two from the following each question carries 12 marks**

7. (a) How price of a product is determined under Perfect Competition? [6]
- (b) The cost function of a firm is given by  $c = x^3 - 4x^2 + 7x$ , find at what level of output Average Cost is minimum and what is that Average Cost? [6]

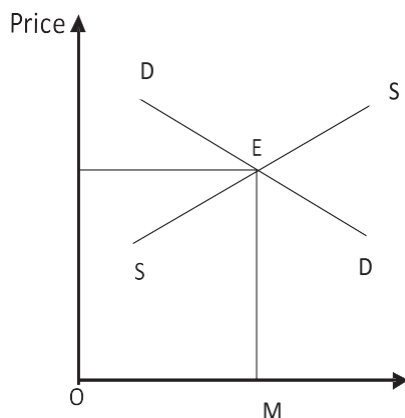
**Answer:**

**(a) Price determination:** Generally price is determined by demand and supply forces. The price is determined at that point where the demand and supply both are equal under perfect competition. The following table explains the price determination under perfect competition.

Price	Demand	Supply
5.00	200	600
4.00	300	500
3.00	400	400
2.00	500	300
1.00	600	200

In the above table if the price of the commodity is ₹ 5/- then there is a demand for 200 commodities and supply is 600 commodities. If the price is 1 rupee then there is a demand for 600 commodities and supply reduced to 200 commodities. In the table at ₹ 3/- price level, there is a demand for 400 commodities and the supply is also 400 commodities. Therefore the price is determined as ₹3/-

**Diagrammatic Explanation:** The price and output determination under perfect competition can be explained with the help of following diagram.



In the diagram on X-axis output and on Y axis the price are determined. DD is the demand curve as SS is the supply curve. Both demand and supply are equal at point E. So, the price is determined as OP and output as OM.

(b) Total Cost =  $x^3 - 4x^2 + 7x$   
 Average Cost =  $x^2 - 4x + 7$

In order that average cost is minimum  $\frac{dy}{dx} = 0$  and the value of  $\frac{dy^2}{dx^2}$

i. e.  $\frac{dy}{dx} = 2x - 4 = 0$   
 $= x - 2 = 0$   
 $\square x = 2$

$\frac{dy^2}{dx^2} = 2$  which is positive so the function will have minimum values.

Minimum:

Average Cost  $= x^2 - 4x + 7$   
 $= 4 - (4 \times 2) + 7$   
 $= 11 - 8 = 3$

8. (a)

<b>Year</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>Sales(₹ Lakhs)</b>	<b>100</b>	<b>150</b>	<b>100</b>	<b>160</b>	<b>200</b>

Using above information find the sales for 2005 by applying regression equation  $y = a + bx$ . [8]

(b) Write a note about Delphi method of forecasting. [4]

**Answer:**

(a) Using above information find the sales for 2005 by applying regression equation  $y = a + bx$ .

<b>Year</b>	<b>Sales</b>	<b>Time deviations (X)</b>	<b>Square of deviations</b>	<b>Product of time deviations &amp; Sales</b>
	<b>Y</b>	<b>X</b>	<b>X<sup>2</sup></b>	<b>XY</b>
2000	100	-2	4	-200
2001	150	-1	1	-150
2002	100	0	0	0
2003	160	1	1	160
2004	200	2	4	400
<b>N = 5</b>	<b>ΣY = 710</b>	<b>ΣX = 0</b>	<b>ΣX<sup>2</sup> = 10</b>	<b>ΣXY = 21</b>

$a = \frac{\sum Y}{N} = 710/5 = 142$

$b = \frac{\sum XY}{\sum X^2} = 210/10 = 21$

$Y = a + bx$

$Y = 142 + 21x$

2005 sales are:  $y = 142 + 21(3) = 142 + 63 = 205$  lakhs.

(b) Delphi method is a group process and aims at achieving 'consensuses' of the members. Herein experts in the field of marketing research and demand forecasting are engaged in

- analyzing economic conditions
- carrying out sample surveys of market
- conducting opinion polls

Based on the above, demand forecast is worked out in following steps:

- i) Co-coordinator sends out a set of questions in writing to all the experts co-opted on the panel who are requested to write back a brief prediction.
- ii) Written predictions of experts are collated, edited and summarized together by the Co-coordinator.
- iii) Based on the summary, Co-coordinator designs a new set of questions and gives them to the same experts who answer back again in writing.
- iv) Co-coordinator repeats the process of collating, editing and summarizing the responses.
- v) Steps 3 and 4 are repeated by the Co-coordinator to experts with diverse backgrounds until consensus is reached.

9. (a) A manufacturer can sell "x" items ( $x \geq 0$ ) at a price of  $(330 - x)$  each; the cost of producing 'x' items is  $\text{₹}x^2 + 10x + 12$ . How many items should he sell to make the maximum profit? Also determine the maximum profit. [7]

(b) Given Cost =  $x^3 - 10x^2 + 9x$ ; Revenue =  $12x^2 + 11x - 4$ . Find the total profit and hence marginal profits. [5]

**Answer:**

(a) Given price  $(P) = 330 - x$

$$\text{Cost (C)} = x^2 + 10x + 12$$

$$\text{Output} = x \geq 0$$

$$\text{Revenue (R)} = P_x = 330x - x^2$$

$$\text{Profit} = R - C = 330x - x^2 - x^2 - 10x - 12$$

$$= 320x - 2x^2 - 12 \text{ (say } y)$$

In order that maximum profit is attained

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

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

$$\frac{dy}{dx} = 320 - 4x = 0$$

$$\Rightarrow -4x = -320$$

$$x = 80$$

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

Therefore profit is maximum at  $x = 80$  units

$$\begin{aligned} \text{Maximum profit} &= 320(80) - 2(80)^2 - 12 \\ &= 12,788 \end{aligned}$$

(b)  $C = x^3 - 10x^2 + 9x$

$R = 12x^2 - 22x - 4$

Total profit =  $R - C = 12x^2 + 11x - 4 - x^3 - 10x^2 + 9x$

$= -x^3 + 22x^2 + 2x - 4$

$= - (x^3 - 22x^2 - 2x + 4)$  (Say P)

Marginal Profit  $\frac{dp}{dx} = (3x^2 - 44x - 2)$