INTERMEDIATE EXAMINATION
Syllabus 2016

Paper 8: COST ACCOUNTING (CAC)

Time Allowed: 3 Hours **Full Marks: 100**

There are Sections A, B, C and D to be answered subject to instructions given against each.

Section A **You are required to answer all the questions. Each question carries 1 mark.** **Instructions: Each question is followed by 4 Answer choices and only one is correct. You are required to select the choice which according to you represents the correct answer.**					**20 X 1 = 20 Marks**
1.	**a.**	VED Analysis Method is applicable when_____ are used.			
		(i)	Spare parts	A	
		(ii)	Materials		
		(iii)	Labourers		
		(iv)	All of these		
	b.	Selling and Distribution Overheads are absorbed on the basis of _____ .			
		(i)	Percentage on Selling Price		
		(ii)	Percentage on Works Costs	A	
		(iii)	Rate Per Unit		
		(iv)	None of the above		
	c.	In the absence of any clear information, Joint Factory Overheads will be allocated in the ratio of _____ .			
		(i)	Direct Wages	A	
		(ii)	Prime Cost		
		(iii)	Work Cost		
		(iv)	None of the above		
	d.	Integral Accounts eliminate the necessity of operating _____ .			
		(i)	Cost Ledger Control Account	A	
		(ii)	Stores Ledger Control Account		
		(iii)	Overhead Adjustment Account		
		(iv)	None of the above		
	e.	Which of the following best describes Fixed Cost?			
		(i)	It may change in total where such change is unrelated to changes in production.	A	
		(ii)	It may change in total where such change is related to changes in production.		
		(iii)	It is constant per unit of change in production.		
		(iv)	It may change in total where such change depends on production within the relevant range.		
	f.	The allocation base used should be most strongly associated with the _____.			
		(i)	Cost of Direct Materials		
		(ii)	Cost of Direct Labour		
		(iii)	Overhead Cost	A	
		(iv)	Total Cost		

	g.	Variable Cost per unit _____.		
		(i)	Increases when the number of units produced increases.	
		(ii)	Does not change when the number of units produced increases/ decreases	A
		(iii)	Decreases when the number of units produced increases.	
		(iv)	Decreases when the number of units produced decreases.	
	h.	The Cost of Capital is the Weighted Average of :		
		(i)	Fixed and Variable Costs.	
		(ii)	Incremental Cash Inflows and Outflows.	
		(iii)	Debt and Equity financing.	A
		(iv)	Net Present Value and Internal Rate of Return	
	i.	A Job-order Costing System is likely to be used by _____.		
		(i)	Soft-drink Bottler	
		(ii)	Breakfast Cereal Manufacturer	
		(iii)	Paint Manufacturer	
		(iv)	Custom Home Builder	A
	j.	In a Process Costing System, when raw materials are put into process, the cost of the items is transferred from _____		
		(i)	Work in Process to Finished Goods	
		(ii)	Finished Goods to Cost of Goods Sold	
		(iii)	Raw Materials to Work in Process	A
		(iv)	Finished Goods to Cost of Goods Sold	
	k.	The type of costing system commonly used by companies that produce a large number of homogeneous units in a continuous production process is called a _____.		
		(i)	Unit Costing System	
		(ii)	Job-Order System	
		(iii)	Management Cost System	
		(iv)	Process Costing System	A
	l.	Composite Cost Unit for a hospital is:		
		(i)	Per day	
		(ii)	Per bed	
		(iii)	Per patient	
		(iv)	Per patient-day	A
	m.	The ending Work in Process inventory in the mixing department contains 300 units that are 30% complete with respect to labour costs. How many equivalent units are in the ending inventory?		
		(i)	300	
		(ii)	70	
		(iii)	210	
		(iv)	90	A
	n.	Activity based pricing seeks to:		
		(i)	Charge customers with the costs that they are creating.	A
		(ii)	Make greater profits by charging all customers more.	

		(iii)	Maintain all customers in the customer base		
		(iv)	All of the above		
	o.	If the contribution margin is less than zero:			
		(i)	The selling price is more than the variable cost per unit.		
		(ii)	The fixed costs should be increased.		
		(iii)	The company should sell more units.		
		(iv)	There is no positive break even point.	A	
	p.	Which of the following is a resource constraint:			
		(i)	Machine Hour Available	A	
		(ii)	Sales Commission		
		(iii)	Cost Per Unit		
		(iv)	Budgeted Overhead		
	q.	For the purpose of Proof, Material Cost Variance is equal to:			
		(i)	Material Usage Variance + Material Mix variance		
		(ii)	Material Price Variance + Material Usage Variance	A	
		(iii)	Material Price Variance + Material yield variance		
		(iv)	Material Mix Variance + Material Yield Variance		
	r.		Sales budget is a/an:		
		(i)	Expenditure budget		
		(ii)	Functional budget	A	
		(iii)	Master budget		
		(iv)	None of these		
	s.		Marginal Costing technique follows the following basic of classification:		
		(i)	Element wise		
		(ii)	Function Wise		
		(iii)	Behaviour wise	A	
		(iv)	Identifiability wise		
	t.		Difference between standard cost and actual cost is called as _____.		
		(i)	Wastage		
		(ii)	Loss		
		(iii)	Variance	A	
		(iv)	Profit		
Section B **You are required to answer all the questions. Each question carries 2 marks.** **Instructions: Each question is followed by a space where you are required to type your answer.**					**10 X 2 = 20 Marks**
2.	**a.**	Compute the Inventory turnover ratio from the following: Opening Stock - Rs.10,000, Closing Stock - Rs.16,000, Material Consumed - Rs.78,000			

		Type your answer here 6 times	
		ROUGH WORK Average Stock = (10000+16000)/2 = 13,000 Inventory Turnover Ratio = 78,000/13,000 = 6	
	b.	What is a Goods Received Note?	
		Type your answer here Goods Received Note is a document prepared by the Goods Receiving Department that unpacks the goods received and verify the quantities and other details.	
	c.	If Profit as per Cost Accounts is Rs. 12,000 and the amount of Factory Overhead over-recovered is Rs. 3,000, then profit as per Financial Accounts will be Rs._____ .	
		Type your answer here 15, 000	
		ROUGH WORK Profit as per Cost Accounts + Add: Factory Overheads over-recovered = Rs.12,000 + Rs.3,000	
	d.	If Profit is 50% of Sales, then what is percent of Profit on Cost?	
		Type your answer here 100%	
		ROUGH WORK If Sales = 100, Profit = 50. Cost = Sales - Profit = 50. Thus, (Profit/Cost) X 100 = 100%	
	e.	What are Running Costs?	
		Type your answer here These costs are variable in nature, includes fuel, lubricating oil, wages of drivers / cleaners (if paid on per trip / kilometer). These costs can be easily identifiable with each of the vehicle.	
	f.	What is Retention Money?	
		Type your answer here Retention money is the portion of the value of work certified, which is kept by a contractee as security money for any loss or damage caused by the contractor.	
	g.	In a process 6,000 units are introduced during a period. 5% of input is normal loss. Closing work-in-process 60% complete is 800 units. 4,900 completed units are transferred to the next process. How much is the Equivalent Production (units) for the period?	
		Type your answer here 5,380	
		ROUGH WORK 4,900 + (60% of 800)	
	h.	If sales are Rs. 150,000 and variable cost are Rs.50,000. Compute P/V Ratio.	
		Type your answer here 66.67%	
		ROUGH WORK (1,00,000/1,50,000) X 100 = 66.67%	
	i.	State the main tasks of management achieved through budget and budgetary control that help in achieving the anticipated targets.	
		Type your answer here Planning, co-ordination and control	
	j.	If Sales are Rs. 90,000 and Variable Cost to Sales is 75%, how much is the Contribution?	
		Type your answer here 22,500	
		ROUGH WORK 90,000 x (100-75)%	
Section C **You are required to answer any 4 out of 6 questions in this section** **Instructions: Each question is followed by a space where you are required to type your answer.**			**12 X 4 = 48 Marks**
			48
3.			
	a.	The following relates to a particular item of materials of a manufacturing company.	4 x 2

Ordering quantities (tonne)	Price per ton (Rs.)
Less than 250	6.00
250 but less than 800	5.90
800 but less than 2,000	5.80
2,000 but less than 4,000	5.70
4,000 and above	5.60

The annual demand for the material is 4,000 tonnes. Stock holding costs are 25% of material cost p.a. The delivery cost per order is Rs. 6.00.
You are required to compute the following:
(i) Optimum Order Size (in units)
(ii) Annual Ordering Cost (in Rs.)
(iii) Annual Carrying Cost (in Rs.)
(iv) Annual Total Inventory Cost (in Rs.) annum if orders are made according to optimum order size.

Type your answer here:

(i) Optimum Order Size (in units) = 800
(ii) Annual Ordering Cost (in Rs.) = 30
(iii) Annual Carrying Cost (in Rs.) = 580
(iv) Annual Total Inventory Cost (in Rs.) =23,810

ROUGH WORK

Statement showing computation of total inventory cost at different order size

	Particulars	Ordering Quantities				
	Units	200	250	800	2,000	4,000
(i)	Purchasing Cost (Rs.)	24,000	23,600	23,200	22,800	22,400
(ii)	No. of orders	20	16	5	2	1
(iii)	Ordering Cost (Rs.)	120	96	30	12	6
(iv)	Average size of orders	100	125	400	1,000	2,000
(v)	Inventory Carrying Cost per unit (Rs.)	1.5 (6x25%)	1.475 (5.9x25%)	1.45 (5.8x25%)	1.425 (5.7x25%)	1.4 (5.6x25%)
(vi)	Inventory Carrying Cost (Rs.) (iv) x (v)	150	184.375	580	1,425	2,800
(vii)	Total Inventory Cost (Rs.) (i)+(iii)+ (vi)	24,270	23,880	23,810	24,237	25,206

For the above computations the best quantity to order is 800 units.
Note: Minimum ordering quantity assumed to be 200 tons; it may be any quantity below 250 tons, but the decision will remain same.

b. Explain the terms responsibility centre and cost centre? 4

Type your answer here

A responsibility centre in Cost Accounting denotes a segment of a business organisation for the activities of which responsibility is assigned to a specific person. Thus a factory may be split into a number of centres and a supervisor is assigned with the responsibility of each centre. All costs relating to the centre are collected and the Manager responsible for such a cost centres judged by reference to the activity levels achieved in relation to costs. Even an individual machine may be treated as a responsibility centre for cost control and cost reduction.
CIMA defines a cost centre as "a location, a person, or an item of equipment (or a group of them) in or connected with an undertaking, in relation to which costs ascertained and used for the purpose of cost control".

4. a. The following is the Trading & Profit and Loss Account of ABC & Co.:

Particulars	Rs.	Particulars	Rs.
To Materials Consumed	23,01,000	By Sales (30,000 units)	48,75,000
To Direct Wages	12,05,750	By Stock of Finished Goods (1,000 units)	1,30,000
To Production Overheads	6,92,250	By W.I.P: Rs. Material 55,250 Wages 26,000 Production O/H 16,250	97,500
To Administration Overheads	3,10,375	By Interest on Bank deposit	65,000
To Selling & Distribution Overheads	3,68,875	By Dividends	3,90,000
To Preliminary Expenses written off	22,790		
To Goodwill written off	45,000		
To Fines	3,250		
To Interest of Mortgage	13,000		
To Loss on Sale of Machine	16,250		
To Taxation	1,95,000		
To Net Profit	3,83,960		
	55,57,500		55,57,500

ABC & Co. manufactures a standard unit. The cost accounting records of the firm shows the following information:
Production overheads have been charged at 20% on prime cost.
Administration overheads have been recovered at Rs. 9.75 per finished unit.
Selling and distribution overheads have been recovered at Rs. 13 per unit sold.

(i) You are required to compute the following as it would appear in Cost Records: 4
(1) Cost of Production of 31,000 units
(2) Costing Profit/Loss on sale of 30,000 units

Type your answer here:
(1) Cost of Production of 31,000 units = Rs.44,12,850
(2) Costing Profit/Loss on sale of 30,000 units = 2,14,500

ROUGH WORK

Statement Showing Cost and Profit in Cost Records

Production 31,000 units

Particulars	Amount (Rs.)		
	Total	W.I.P.	Production
Material Consumed	23,01,000	55,250	22,45,750
Wages	12,05,750	26,000	11,79,750
Prime Cost	35,06,750	81,250	34,25,500
Add: Production Overhead (20% on Prime Cost)	7,01,350	16,250	6,85,100
Works Cost	42,08,100	97,500	41,10,600
Add : Administration Overhead @ Rs. 9.75 per unit			3,02,250
Cost of Production			44,12,850
Less: Closing Stock of Finished Goods [(44,12,850 / 31,000) × 1,000]			1,42,350
Production Cost of Goods Sold			42,70,500
Add: Selling and Distribution Overhead (30,000 × 13)			3,90,000
Cost of Sales			46,60,500
Profit			2,14,500
Sales			48,75,000

(ii) In case, there are disagreements in items and amounts appearing in Financial Accounts and Cost 4

Accounts, the Profit/Loss figures as per Financial Accounts may not agree with that of Cost Accounts and for which a Reconciliation Statement is usually prepared.
How much should be added to/deducted from Profit/Loss as per Cost Records to arrive at Profit/Loss as per Financial Accounts with respect to each of the following:
(1) Over recovery and Under-recovery of administration overhead
(2) Over recovery and Under-recovery of selling and distribution overhead
(3) Difference in Value of Closing Stock
(4) Incomes not included and Expenses not included in Cost Accounts

Type your answer here:

(1) Administration Overhead under-recovered in Cost Books = Rs.8,125
(2) Excess selling overhead in Cost =Rs.21,125
(3) Difference in Value of Closing Stock Closing Stock = Rs. 12,350 (to be deducted); Net effect: Add Rs. 9,750
(4) Incomes not included in Cost Accounts = Rs.4,55,000 (to be added) and Expenses not included in Cost Accounts = Rs.2,95,290 (to be deducted); Net effect: Add: Rs.1,59,710

ROUGH WORK

Reconciliation Statement

Particulars	Rs.	Rs.
Net Profit as per Cost Accounts		2,14,500
Add:		
(i) Excess Production Overhead in Cost Records [6,85,100 - (6,92,250 - 16,250 WIP)]	9,100	
(ii) Excess selling overhead in Cost Records [3,90,000-3,68,875]	21,125	
(iii) Interest on bank deposits not included in Cost Books	65,000	
(iv) Dividend not shown in Cost Books	3,90,000	
		4,85,225
		6,99,725
Less:		
(i) Administration Overhead under-recovered in Cost Books (3,10,375 - 3,02,250)	8,125	
(ii) Closing stock overvalued in Financial Books (1,42,350 -1,30,000)	12,350	
(iii) Preliminary expenses written off in Financial Books only	22,790	
(iv) Goodwill written off in Financial Books only	45,000	
(v) Fines shown in Financial Books only	3,250	
(vi) Interest charged in Financial Books only	13,000	
(vii) Loss on sale of machine shown in Financial Books only	16,250	
(viii) Income tax provided in financial books only	1,95,000	
		3,15,765
Profit as per Financial Books		3,83,960

b. Discuss the treatment of overtime premium in Cost Accounts. 4

Type your answer here

Overtime premium is a part of total wages of overtime period. In cost accounting the treatment of overtime premium will be as follows:

(i) If the overtime is resorted to at the desire of the customer, then the entire amount of overtime including overtime premium should be charged to the job directly.
(ii) If it is due to a general pressure of work to increase the output, the premium as well as overtime wages may be charged to general overheads.
(iii) If it is due to the negligence or delay of workers of a particular department, it may be charged to the concerned department.
(iv) If it is due to circumstances beyond control, it may be charged to Costing Profit & Loss Account.

5. a. Opening Stock 800 units @ Rs.6 per unit — 8
Degree of Completion:
Material - I: 100%
Material – II: 60%
Labour and Overheads: 40%
Transfer from previous process: 12,000 units costing Rs.16,350
Transfer to next process: 9,700 units
Normal Process Loss: 10%
Closing Stock: 1,800 units
For units scrapped:- Material 100% Labour and Overheads 50%.
For closing stock: Material 60%; Labour and overheads 50%
Scrap realized Re.1.00 per unit
Other information: Material Rs.10,500; Labour Rs.20,760; Overheads Rs.16,670.
From the above information, you are required to calculate:
(i) What are the equivalent production units of materials, labor and overhead?
(ii) What is the cost p.u.?
(iii) What is the value of abnormal loss?
(iv) What is the value of closing stock and transfer to the next process?

Type your answer here

(i) Equivalent production in units
- Material I - 10,900
- Material II - 10,500
- Labour - 10380
- Overheads 10380

(ii) Cost p.u.:
- Material - I - Rs. 1.5 p.u.
- Material - II - Rs. 1 p.u.
- Labour - Rs. 2 p.u.
- Overhead - Rs. 1.5 p.u.

(iii) Value of abnormal loss - Rs. 850

(iv) Value of closing stock - Rs. 6,930
Transfer to next process - Rs. 60,200

ROUGH WORK

Statement of Equivalent Production

Input	Output	Units	Material-I		Material - II		Labour		Overheads	
			%	Units	%	Units	%	Units	%	Units
800	Opening Stock	800	-	-	40	320	60	480	60	480
12000	Normal Loss									
	(800+12000-1800) x 10%	1100	-	-	-	-	-	-	-	-
	Finished Units (9700-800)	8900	100	8900	100	8900	100	8900	100	8900
	Closing Stock	1800	100	1800	60	1080	50	900	50	900
		12600		10700		10300		10280		10280
	Add: Abnormal Loss	200		200	100	200	50	100	50	100
12800		12800		10900		10500		10380		10380

Statement of Cost per unit Amount (₹)

Particulars	Cost	Equivalent Cost	Cost per unit
Material-I	16350	10900	1.5
Material-II	10500	10500	1.0
Labour	20760	10380	2.0
Overhead (16,670-1,100)	15570	10380	1.5

Value of Abnormal Loss Amount (₹)

Element	Units	Cost per unit	Total Cost
Material-I	200	1.5	300
Material-II	200	1.0	200
Labour	100	2.0	200
Overhead	100	1.5	150
			850

Value of Closing Stock Amount (₹)

Element	Units	Cost per unit	Total Cost
Material-I	1800	1.5	2,700
Material-II	1080	1.0	1,080
Labour	900	2.0	1,800
Overhead	900	1.5	1,350
			6,930

Dr. Process Account Cr.

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To, Opening Stock A/c	800	4,800	By, Normal Loss A/c	1100	1,100
To, Transfer from Process-I A/c	12000	16,350	By, Closing Stock A/c	1800	6,930
To, Material A/c		10,500	By, Abnormal Loss A/c	200	850
To, Labour A/c		20,760	By, Transfer to Next Process A/c @ ₹ 6.206 per unit	9700	60,200
To, Overheads A/c		16,670			
	12800	69,080		12800	69,080

b. Component 'XYZ' is made entirely in Cost Centre 200. Material cost is 6 paise per component and each component takes 10 minutes to produce. The machine operator is paid 72 paise per hour, and machine hour rate is Rs. 1.50. The setting up of the machine to produce the component 'XYZ' takes 2 hours 30 minutes.

On the basis of this information, prepare a cost sheet showing the production and setting up cost, both in total and per component, assuming that a batch of:

(i) 10 components,

(ii) 100 components

4

Type your answer here

(i) In a batch of 10 components:
Setting up Cost: Rs.5.55, 0.555 per component
Production Cost: Rs.4.30, 0.430 per component
Total Cost: Rs. 9.85, 0.98 per component
(ii) In a batch of 100 components:
Setting up Cost: Rs.5.55
Production Cost: Rs.43.00
Total Cost: Rs. 48.55

ROUGH WORK

Cost Sheet Component 'XYZ'

Particulars	Batch Size			
	10 components		100 components	
	Total (Rs.)	Per component (Rs.)	Total (Rs.)	Per component (Rs.)
A. Setting up Cost:				
Ma chine Operators wages (2.5 hours @ Re. 0.72 p.h)	1.80	0.180	1.80	0.0180
Overheads 2.5 hours @ Rs. 1.50 p.h)	3.75	0.375	3.75	0.0375
Total of (A)	5.55	0.555	5.55	0.0555
B. Production Cost:				
Material Cost @ Re. 0.06 per component	0.60	0.060	6.00	0.0600
Machine Operators Wages [(Refer to Working Note (1)]	1.20	0.120	12.00	0.1200
Overheads				
[(Refer to Working Note (2)]	2.50	0.250	25.00	0.2500
Total of (B)	4.30	0.430	43.00	0.4300
C. Total Cost: (A +B)	9.85	0.985	48.55	0.4855

Working Notes:

	10 Components	100 Components
(1) Operators Wages Time taken in minutes by machine operators @10 minutes per component Operators Wages @ Re. 0.72 per hour (Rs.)	1.20 [(100/60)x0.72]	12.00 [(1000/60)x0.72]
(2) Overhead expenses Total overhead expenses @ Rs.1.50 per Machine hour (Rs.)	2.50 [(100/60)xRs.1.50]	25.00 [(1000/60) xRs.1.50]

6. a. XYZ has started a transport business with a fleet of 10 taxis. The various expenses incurred by him are given below: (6)

Cost of each taxi Rs. 3,00,000.
Salary of Office Staff Rs. 5,000 p.m.
Salary of Garage's Supervisor Rs. 10,000 p.m.
Rent of Garage Rs. 5,000 p.m.
Drivers Salary (per taxi) Rs. 10,000 p.m.
Road Tax and Repairs per taxi Rs. 6,000 p.a.
Insurance premium @ 6% of cost p.a.

The life of a taxi is 3,00,000 Km and at the end of which it is estimated to be sold at Rs. 25,000. A taxi runs on an average 6,000 Km. per month of which 10% it runs empty, petrol consumption 11 Km. per litre of petrol costing Rs. 72 per litre. Oil and other sundry expenses amount to Rs. 50 per 100 Km.
(i) Calculate the fixed expenses per k.m.
(ii) Calculate the effective cost of running a taxi per kilometre.
(iii) If the hire charge is Rs. 13 per kilometre on average, find out the profit/loss that XYZ may expect to make in the first year of operation.

Type your answer here

(i) Fixed expenses per k.m= Rs.2.33
(ii) Effective cost of running a taxi per kilometre= Rs.10.33
(iii) Profit for the year = Rs.10,10,880

ROUGH WORK

Statement showing computation of effective cost and profit for the year

Particulars	Amount (Rs.)	Amount (Rs.)
Fixed expenses:		
Salary of staff	5,000	
Salary of garage supervisor	10,000	
Rent of garage	5,000	
Driver Salary (10 x 10,000)	1,00,000	
Road tax an d repairs (6,000 x 10/12)	5,000	
Insurance premium (3,00,000 x 6% x 10/12)	15,000	1,40,000
Fixed cost of 10 taxis per month Cost per taxi = Rs. 1,40,000/10 = Rs. 14,000 Cost per km = 14,000/6,000 = 2.33 (Alternatively, Fixed Cost per Taxi may be worked out directly)		2.33
Running Costs:		
Depreciation [(3,00,000 - 25,000)/ 3,00,000]		0.92
Petrol (72/11)		6.55
Oil & sundry expenses (50/100)		0.50
Cost		10.30
Effective cost per Km = 10.30 x (100 /90)		11.44

Profit for year = (13.00 - 1 1.44) x 10 x 5,400 x 12 = Rs.10,10,880

b. Describe Operation Cost and Operating Cost. 2

Type your answer here

Operation cost is the cost of a specific operation involved in a production process or business activity. The cost unit in this method is the operation instead of process .When the manufacturing method of a concern consists of a number of distinct operations , operating costing is suitable.

Operating cost is the cost incurred in conducting a business activity. It refers to the cost of concerns which do not manufacture any product but which provide services. Industries and establishments like power house, transport and travel agencies, hospitals, schools etc. which undertake services rather than the manufacture of products, ascertain operating costs.

c. XYZ Ltd is engaged in the manufacturing in the production of product A,B,C and D.What are the total units produced for three months ending March 31, 2022 for a factory producing four products, on the basis of the following information: — 4

Type of Product	Estimated Stock on Jan 1, 2022	Estimated sales on Jan to March 2022	Desired Closing stock on 31.3.2022
A	2,000	10,000	3,000
B	3,000	15,000	5,000
C	4,000	13,000	3,000
D	3,000	12,000	2,000

Type your answer here

Product A = 11,000 units
Product B = 17,000 units
Product C = 12,000 units
Product D = 11,000 units
Total = (11,000 + 17000 + 12000 + 11000) = 51,000 units

ROUGH WORK

Production Budget for the 3 Months ending 31st March 2022

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

7. a. AXY Co. Ltd., manufactures and sells four types of products under the brand names of A, B, C and D.
The Sales Mix in value comprises:
A = 33.33 %,
B = 41.67 %,
C = 16.67 %
D = 8.33 % of products A, B, C & D respectively.
The total budgeted sales (100% are Rs.60,000 p.m).
Operating costs are:
Variable Costs:
Product A 60% of selling price
Product B 68% of selling price
Product C 80% of selling price
Product D 40% of selling price
Fixed Costs: Rs. 14,700 p.m.

(i) Calculate the Break-even Sales. — 4

Type your answer here

Break even Sales = Rs. 42,000

ROUGH WORK

Break Even Sales = (14,700/35%)

	Particulars	A	B	C	D	Total
I	Sales	20,000	25,000	10,000	5,000	60,000
II	Variable Cost	12,000	17,000	8,000	2,000	39,000
III	Contribution	8,000	8,000	2,000	3,000	21,000
IV	Fixed Cost					14,700
V	Profit					6,300
	P/V Ratio= C/S x 100					35%

(ii) The Total Sales per month remaining the same, if the sales mix is changed to A - 25%; B - 40%; C - 30%; D - 5%, determine the impact on Break-even Sales. — 4

Type your answer here

Impact on BES = BES (New) – BES (Old) = Rs.46,226 – Rs. 42,000 = Increase of Rs. 4,226

ROUGH WORK

Break-even Sales (New) = 14,700/31.8% = Rs. 46,226

	Particulars	A	B	C	D	Total
I	Sales	15,000	24,000	18,000	3,000	60,000
II	Variable Cost	9,000	16,320	14,400	1,200	40,920
III	Contribution	6,000	7,680	3,600	1,800	19,080
IV	Fixed Cost					14,700
V	Profit					4,380
	P/V Ratio= C/S x 100					31.8%

b. The standard quantity and standard price of raw material required for one unit of product A are given as follows: — 4

Materials	Quantity (kgs)	S.P (Rs.)
X	2	3
Y	4	2

The actual production and relevant data are as follows:

Material X 1,100 kgs. @ Rs. 3,410

Material Y 1,800 kgs. @ Rs. 3,960

Actual production was 500 units

Calculate the Material Variances.

Type your answer here

(a) Material Sub-usage Variance = Rs. 233 (Favourable)
(b) Material Mix Variance = Rs. 133 (Adverse)
(c) Material Usage Variance = Rs.100 (Favourable)
(d) Material Price Variance = Rs. 470 (Adverse)
(e) Material Cost Variance = Rs. 370 (Adverse)

ROUGH WORK

Material	Standard Data			Actual Data		
	Quantity (kg)	Price (Rs./kg)	Value (Rs.)	Quantity (kg)	Price (Rs./kg)	Value (Rs.)
X	1,000 (500 x 2)	3	3,000	1,100	3.10	3,410
Y	2,000 (500 x 4)	2	4,000	1,800	2.20	3,960
	3,000		7,000	2,900		7,370

Material	SQSP (Rs.)	RSQSP (Rs.)	AQSP (Rs.)	AQAP (Rs.)
	(1)	(2)	(3)	(4)
X		966.67 X 3 = 2,900	1,100 X 3	
Y		1933.33 X 2 = 3,867	1,800 X 2	
Total	7,000	6,767	6,900	7,370

(a) Material Sub-usage Variance = (1) – (2) = 7,000 – 6,767 = Rs. 233 (F)
(b) Material Mix Variance = (2) – (3) = 6,767 – 6,900 = Rs. 133 (A)
(c) Material Usage Variance = (1) – (3) = 7,000 – 6,900 = Rs.100 (F)
(d) Material Price Variance = (3) – (4) = 6,900 – 7,370 = Rs. 470 (A)
(e) Material Cost Variance = (1) – (4) = 7,000 – 7,370 = Rs. 370 (A)

8. **You are required to write any Short Note on any 4 out of 5.** **4 X 3 = 12 Marks**

a. Conversion Cost 3

Type your answer here

This term is defined as the sum of direct wages, direct expenses and overhead costs of converting raw material to the finished products or converting a material from one stage of production to another stage. In other words, it means the total cost of producing an article less the cost of direct materials used. The cost of indirect materials and consumable stores are included in such cost. The compilation of conversion cost is useful in a number of cases. Where cost of direct materials is of fluctuating nature,conversion cost is used to cost control purpose or for any other decision making. In contracts/jobs where raw materials are on account of the buyers conversion cost takes the place of total cost in the books of the producer. Periodic comparison/review of the conversion cost may give

		sufficient insight as to the level of efficiency with which the production unit is operating.	
	b.	Replacement Cost	3
		Type your answer here Replacement cost is the cost of an asset in the current market for the purpose of replacement. Replacement cost is used for determining the optimum time of replacement of an equipment or machine in consideration of maintenance cost of the existing one and its productive capacity. This is the cost in the current market of replacing an asset. For example, when replacement cost of material or an asset is being considered, it means that the cost that would be incurred if the material or the asset was to be purchased at the current market price and not the cost, at which it was actually purchased earlier, should be take into account.	
	c.	Normal Process Loss	3
		Type your answer here: It is the loss which is unavoidable on account of inherent nature of production process. Such loss can be estimated in advance on the basis of past experience or available data. The normal process loss is recorded only in terms of quantity and the cost per unit of usable production is increased accordingly.Where scrap possesses some value as a waste product or as raw material for an earlier process, the value thereof is credited to the process account. This reduces the cost of normal output; process loss is shared by usable units.	
	d.	Purchase Budget	3
		Type your answer here: The purchase budget establishes the quantity and value of the various items of materials to be purchased for delivery at specified points of time during the budget period taking into account the production schedule of the concern and the inventory requirements. It takes into account the requirements for the entire budget plan as per the sales, materials, maintenance, research and development, and capital budgets. Purchases may be required to be made in respect of direct and indirect materials, finished goods for resale, components and parts, and purchased services. Before incorporation in the purchase budget, these purchase requirements should be suitably ascertained. Purchase budget also includes material procurement budget.	
	e.	Cash Break-Even Point	3
		Type your answer here When break-even point is calculated only with those fixed costs which are payable in cash, such a break-even point is known as cash break-even point. This means that depreciation and other non-cash fixed costs are excluded from the fixed costs in computing cash break-even point. Its formula is: Cash break even point = Cash fixed costs / Contribution per unit.	
Section D **You are required to answer all the questions in this section.** **Instructions: Each question is followed by a space where you are required to type your answer.**			**12 Marks**
9.		There is an agrarian economy, with over 50% of the population dependent on agriculture for their livelihood. As of 2022, agriculture and its allied sector accounted for 16% of the country's gross domestic product (GDP). The performance of this sector drives the prices and market demand for essential commodities. The accessibility and quality of agricultural machinery positively impact the productivity and output of the farming sector. The country's agricultural equipment industry has a diverse product portfolio which caters to requirements across the value chain. However, tractors, tractor-driven devices and tillers are the main	

products of the organized market. Based on products, the market can be segmented into tractors, rotavators, power tillers, threshers, and others. The tractor segment dominated the market with a revenue share of 81% in 2022. The Tractors also enjoy an export market. To improve the productivity of the limited resources of both land and potable water, the farmers are attempting to move towards the more powerful tractors.

There has been a sustained increase in the adoption of mechanization in an attempt to ensure greater return on investment (RoI) and sustainability of agriculture. Mechanisation primarily driven by increased use of tractors, which is replacing manual and animal labour. The growth in domestic volumes has been driven by the desire to enhance productivity. Tractors and related equipment have low penetration, which shows a high growth potential.

The tractors, while powerful are only as effective as the power they can harness. Since farms have access to limited power sources, it is imperative that the power sources be efficiently utilized. Further adding to the challenge, the tractors which consume power require a mobile power source that can keep up with them. The power-take off is one such way for the tractors to consume power while working on the fields. A power take-off or power takeoff (PTO) is any of several methods for taking power from a power source, such as a running engine, and transmitting it to an application such as an attached implement or separate machine. Further, the Semi-permanently mounted power take-offs can also be found on industrial and marine engines. However, quality power take-offs are fast gaining acceptance in India among tractors. Quality PTOs are also considered to be safer for the farmers. PTOs are a common source of injury among farmers and thus, the safety standards must be highly enforced in order to ensure that the chances of such accidents are reduced to a minimum.

The PTO Division of XYZ manufacturing company power takes off units for the farm equipment business. The PTO division has a newly renovated, automated plant M and an older, less- automated plant P. Both plants produce the same power take-off units for farm tractors that are sold to most domestic and foreign tractor manufacturers.

The PTO division expects to produce and sell 1,92,000 power take off units during the coming year. The division production manager has the following data available regarding the unit costs, unit prices and production capacity for the two plants:

- All fixed costs are based on normal year of 240 working days. Usually, the PTO division does not work on sundays and other national holidays. When the number of working days exceed 240 days, variable manufacturing costs increase by Rs. 3 per unit in M and Rs. 8 per unit in P. The cost of labor in P is higher as the machine itself is older and requires specialized technical skills to be operated in the best manner. Capacity for each plant is 300 working days. The remaining days are reserved for scheduled maintenance and safety checks.
- XYZ manufacturing charges each of its plant a per unit fee for administrative services such as payroll, general accounting and purchasing, because management considers these services to be a function of work performed at the plants. The consideration for the administrative fee also includes a visit monthly by the security supervisor and monthly safety training drills which are held at both plants to ensure the workers are kept up to date on the security protocols while also ensuring that the chances for accidents are minimised. For each of the plants at M and P the fee is Rs. 6.50 and represents the variable portion of general administrative expenses.
- Wishing to maximize the higher unit profit at Pun, the PTO's production manager has decided to manufacture 96000 units at each plant. This production plan results in P's operating at capacity and M's operating at its normal volume. XYZs corporate controller is not happy with this plan, because she does not believe it represents optimal usage of PTO's plants.

	M	P
Selling Price	Rs. 150	Rs. 150
Variable manufacturing cost	72	88
Fixed manufacturing cost	30	15
Commission 5%	7.50	7.50
General and administrative expenses	25.5	21
Total unit cost	135	131.50

Unit profit	15	18.50
Production rate per day	400 Units	320 Units

a. Compute the Total Fixed Cost p.a. on the basis of a normal year of 240 working days. 2

Type your answer here

Total Fixed Cost p.a.

Plant at M = Rs. 47,04,000

Plant at P = Rs. 22,65,00.

ROUGH WORK

Computation of Total Fixed Cost p.a. on the basis of a normal year of 240 working days

	M	P
Production per day – Units	400	320
No. of normal working days	240	240
Total production- units	96000	76800
Fixed manufacturing cost per unit	30	15
Total fixed manufacturing cost per annum	2880000	1152000
Fixed general and administrative expenses p.u.	19	14.50
Total fixed general and administrative expense	1824000	1113600
TOTAL FIXED COST	4704000	2265600

b. Determine the annual breakeven units for each of the PTO's plants. 2

Type your answer here

Annual Break Even Point (M):Rs.73,500

Annual Break Even Point (P): Rs.47,200

ROUGH WORK

Computation of Annual Break Even Point

	M	P
Selling price per unit	150	150
Variable manufacturing cost	72	88
Commission	7.50	7.50
General and administrative expenses	6.50	6.50
Total variable cost per unit	86	102
Contribution per unit	64	48
Annual breakeven units- Total fixed cost / Contribution	73500	47200

c. Determine the operating income that would result from the division production manager's plan to produce 96,000 units at each plant. 3

Type your Answer here:

Operating Income (M): Rs. 14,40,000

Operating Income(P): Rs. 15,74,400

ROUGH WORK

Computation of Operating Income

	M	P
Normal capacity M 400 units * 240 days	96000	

P 320 units * 240 Days		76800
Full capacity – Units		
M- 400 units * 300 days	120000	
P – 320 units * 300 Days		96000
Sales revenue (Rs.)	14400000	14400000
Variable costs:		
Manufacturing Costs (Rs.)		
M- 96000 Units * Rs. 72	6912000	
P – 96000 units * 88 + 8		9216000
Commission	720000	720000
General and Administrative cost	624000	624000
Total Variable cost	8256000	10560000
Contribution	6144000	3840000
Less: Fixed Cost	4704000	2265600
Operating income	1440000	1574400

d. Determine the optimal production plan to produce the 1,92,000 units at PTO's plants in M and P and determine the resulting operating income for the PTO division. 3

Type your Answer here:

Operating Income (M): Rs. 26,16,000

Operating Income (P): Rs. 11,90,400

ROUGH WORK

Computation of Operating Income

Particulars	M	P
Units to be produced as per optimal plan	1,20,000	72000
Sales revenue @ Rs. 150 per unit- Rs.	1,80,00,000	1,08,00,000
Variable cost:		
Manufacturing cost:		
M @ Rs. 72 +3	90,00,000	
P @ Rs. 88		63,36,000
Commission @ 7.50	9,00,000	5,40,000
General and administrative expense @Rs. 6.50	7,80,000	4,68,000
Total Variable Cost	1,06,80,000	73,44,000
Contribution	73,20,000	34,56,000
Less: Fixed Cost	47,04,000	22,65,600
Operating income	26,16,000	11,90,400

e. Which technique did you use for making the decision regarding optimal production? Define the same. 2

Type your answer here:

Marginal Costing is the technique used.

Marginal costing is defined as "the ascertainment of marginal costs and of the effect on profit of changes in volume or type of output by differentiating between fixed costs and variable costs."

END