

PAPER – 4: COST AND MANAGEMENT ACCOUNTING

Part I - Multiple Choice Questions

Case Scenario - I

GNPL is a food processing company specializing in agricultural products. It purchases produce directly from farmers and makes packaged food products. GNPL is interested in understanding the profitability of its products based on customer type. Three main customer categories have been identified by the Marketing Department: Distributors, Supermarkets and Online Customers. The following information relates to the year just ended:

Table – I

Activity	Customer level operating cost (₹)	Cost Driver
Product handling	10,08,000	Quantity sold (kgs)
Processing of customer orders	20,80,000	Number of sales orders
Cost of Transportation to customer	59,20,000	Kilometres travelled
Customer Visits	19,20,000	Number of customer visits

Table – II

	Distributors	Supermarkets	Online
Quantity Sold (kg)	1,25,000	65,000	62,000
No. of sales orders	42	238	370
Kilometres travelled	8,975	8,800	5,350
No. of customer visits	35	179	86
Listed Selling price (per kg)	660	660	660

<i>Discount</i>	<i>10%</i>	<i>15%</i>	<i>20%</i>
<i>Cost of goods sold (excluding customer level operating cost)</i> <i>(₹ per kg)</i>	<i>460</i>	<i>460</i>	<i>460</i>

On the basis of the above Case Scenario, you are required to answer the following MCQs **1 to 5**:

- What is the cost of customer visits incurred on customer category 'Distributors'?
 (A) ₹ 2,61,400
 (B) ₹ 2,14,600
 (C) ₹ 2,24,000
 (D) ₹ 2,42,000 **(2 Marks)**
- What is the cost of transport for 'Online' customer category?
 (A) ₹ 13,69,600
 (B) ₹ 13,74,400
 (C) ₹ 13,55,600
 (D) ₹ 13,84,400 **(2 Marks)**
- What is the cost of activities (tabulated in Table I) as a percentage of the sales revenue net of discount for 'Supermarkets' category?
 (A) 12.12%
 (B) 10.30%
 (C) 9.19%
 (D) 8.65% **(2 Marks)**
- What is the total customer-level operating cost of all activities for 'Distributors' category?
 (A) ₹ 32,65,000
 (B) ₹ 31,56,000
 (C) ₹ 30,25,000

(D) ₹ 29,95,000

(2 Marks)

5. What is the customer level operating income for 'Online' Category?

(A) ₹ 8,64,000

(B) ₹ 9,12,000

(C) ₹ 12,25,000

(D) ₹ 12,65,000

(2 Marks)

Case Scenario - II

ABCD Ltd. manufactures two types of products WM for women and KD for children. These are sold in containers of one kg each. Raw materials W and M are used for product WM and raw materials K and D are used for product KD. There is no process loss or scrap unit. During the second quarter (July to September 2026), the company expects a market demand of 262 containers of WM and 190 containers of KD. The following additional information is given:

Raw Material	Product WM % of Raw Material	Product KD % of Raw Material	Cost per kg (₹)
W	75%	-	225
M	25%	-	440
K	-	40%	315
D	-	60%	380

Stock	Actual Quantity as on 01-07-2026	Budgeted Quantity as on 30-09-2026
W(kgs)	22	16
M(kgs)	07	13
K(kgs)	24	21
D (Kgs)	34	32
WM (containers)	20	18
KD (containers)	38	28

On the basis of the above Case Scenario, you are required to answer the following MCQs: (6 to 10)

6. *How many containers of KD will be produced in the quarter according to the production budget?*
- (A) 190
 - (B) 218
 - (C) 180
 - (D) 200
- (2 Marks)**
7. *How many kilograms of raw material M will be consumed as per raw material budget?*
- (A) 195 kgs
 - (B) 65 kgs
 - (C) 65.5 kgs
 - (D) 78 kgs
- (2 Marks)**
8. *How many kilograms of raw material K will be purchased as per raw material budget?*
- (A) 64 kgs
 - (B) 69 kgs
 - (C) 61 kgs
 - (D) 93 kgs
- (2 Marks)**
9. *What is the value of budgeted raw materials purchase (*) during the quarter for WM?*
- (A) 65,112.50
 - (B) 72,807.50
 - (C) 72,475
 - (D) 73,765
- (2 Marks)**
10. *How many kilograms of WM will be the budgeted production in the quarter?*
- (A) 262 kgs

(B) 260 kgs

(C) 280 kgs

(D) 244 kgs

(2 Marks)

11. J Ltd. uses process costing and has the following information for the month of August 2026:

Particulars	Units
Beginning work in progress, (WIP) August 1	8,000
Started fresh units in production during August (besides opening WIP)	50,000
Completed production during August	46,000
Ending work in progress, August 31	12,000

The beginning work in progress was 60% complete for materials and 20% complete for conversion costs. The ending inventory was 80% complete for material and 40% complete for conversion costs. Using the FIFO method, what will be the equivalent units of production for conversion costs?

(A) 46,000 units

(B) 49,200 units

(C) 50,800 units

(D) 51,400 units

(2 Marks)

12. In a factory, standard time for a job is 72 hours. The hourly-rate of wages is ₹ 60. Halsey Premium Plan is in operation at the factory. A worker completes the job at less than standard time and his effective hourly-rate wages was ₹ 75. How many hours did he actually take to complete the work?

(A) 60

(B) 72

(C) 48

(D) 64

(2 Marks)

13. The following information is available in respect of an item of inventory in a factory that uses FIFO (First In First Out) method of valuation of issues. The opening stock was 150 units @ ₹40 per unit. The following transactions have taken place:

Day	Received Units (in Numbers)	Rate (₹)	Issued Units (in Numbers)
1	25	50	-
2	300	52	-
3	-	-	340
4	200	50	-
5	-	-	300
6	100	40	-

The value of material issued on Day 5 is ₹:

- (A) 15,200
(B) 15,300
(C) 15,270
(D) 15,230

(2 Marks)

14. A company sells handcrafted labour-intensive gift items. A certain urgent order at a fixed selling price entailed 200 overtime hours. The overtime premium per hour was ₹ 300. Of these hours, 150 were due to extra work above capacity, whereas 50 hours were due to rework that arose due to faulty material purchased and not inspected by the "Raw Materials" Section, a cost centre. What will be the appropriate treatment of overtime premium?

- (A) The entire premium of ₹ 60,000 is charged to the urgent order.
(B) Premium of ₹ 45,000 is charged to the order and ₹ 15,000 is charged to the Materials Section.
(C) ₹ 60,000 is charged to the Costing P and L A/c.
(D) ₹ 60,000 is treated as material cost and added to cost of defective material.

(2 Marks)

15. A factory has installed a new machine which has a brochure claiming that it can produce 60,000 units of product X per annum. However, the company estimates that due to Sundays and holidays, stock taking and minor repairs, production can be achieved only to the extent of 50,000 units. Further, time lost on batch change will reduce this to 40,000 units. Which of the following is not correct?

- (A) Normal Capacity is 40,000 units.
- (B) Installed Capacity is 60,000 units.
- (C) Practical Capacity is not 60,000 units.
- (D) Normal Idle Capacity is 10,000 units.

(2 Marks)

Answer Key

MCQ No.	Correct Option
1.	(C)
2.	(A)
3.	(A)
4.	(B)
5.	(A)
6.	(C)
7.	(B)
8.	(B)
9.	(D)
10.	(B)
11.	(B)
12.	(C)
13.	(C)
14.	(B)
15.	(D)

Part II – Descriptive Questions

Question No. **1** is compulsory.

Attempt any **four** questions out of the remaining **five** questions.

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer.

Question 1

- (a) A company manufactures two products - DSP and EM. It has adopted marginal costing for managerial decision-making and has provided the following information for the coming year:

	DSP	EM	Remarks
Selling Price per unit (₹)	15,000	10,000	-
Variable costs per unit (₹)	9,000	4,600	-
Maximum Demand for the year (in units)	700	720	Any Quantity at or below this limit can be readily sold in the market
Maximum Production Capacity	-	-	770 units of DSP and EM put together (any one or both can be produced but the overall limit is 770 units).
Fixed Expenses (₹)	6,00,000	-	Incurred only if DSP is manufactured.
	-	2,16,000	Incurred only if EM is manufactured.
Other Fixed expenses (excluding the above)	-	-	₹ 18,00,000 incurred whether any product is made or not.

Assume no inventory is built up. Whatever is produced is sold. The company can choose to make any of the products or both the products without affecting its future prospects.

Requirement:

Calculate the optimum profit for the year in rupees giving the product mix (in units).

(Present only relevant figures. Detailed statements are not required.) **(7 Marks)**

- (b) Ultramagic Ltd. manufactures a product TM for tourist recreational purposes. As per the estimates provided by the tourism industry, there will be a market demand of 12,500 units of TM in the coming year. Ultramagic Ltd. is expected to have a market share of 16% of the total market demand of TM.

The company produces one unit of TM from one unit of raw material RW which is purchased at ₹ 2,500 per unit.

Other Information:

Order cost per order	₹ 4,000
Storage rate	9% per annum
Interest rate	5% per annum
Obsolescence rate	2% per annum

Required:

- (i) Compute the Economic Order Quantity (EOQ). **(2 Marks)**
- (ii) Compute the corresponding ordering cost per annum. **(2 Marks)**
- (c) Textiles Manufacturing Co. has two production departments: Fibers (FIB) and Fabrics (FAB) and two service departments which also render services to each other. FC and DD

The following information is given:

Service Departments' expenses before allocation:

	Amount (₹)
FC	3,00,000
DD	1,20,000

Usage of Services:

	Fibers (FIB)	Fabrics (FAB)	FC	DD
FC	40%	40%	-	20%
DD	40%	30%	30%	

Use simultaneous equation method and find out the total expenses of FC.

(3 Marks)

Answer

(a) Statement of Contribution and Ranking

Particulars	DSP	EM
Selling Price per unit (₹)	15,000	10,000
Less: Variable Cost per unit (₹)	9,000	4,600
Contribution per unit (₹)	6,000	5,400
Maximum Demand (units)	700	720
Ranking (Contribution per unit of common capacity)	I	II

Statement Showing Optimum Product Mix and Profit

Particulars	DSP	EM	Total
Units to be produced and sold	700	70	770
Contribution per unit (₹)	6,000	5,400	—
Total Contribution (₹)	42,00,000	3,78,000	45,78,000
Less: Specific Fixed Expenses (₹)	6,00,000	2,16,000	8,16,000
Less: Other Fixed Expenses (₹)	—	—	18,00,000
Optimum Profit (₹)			19,62,000

Working Note:

1. 770 units of capacity available .DSP produced up to its full demand of 700 units, Balance capacity of 70 units (770 – 700) used for EM. Optimum product mix: DSP = 700 units, EM = 70 units.

Optimum Profit for the year = ₹ 19,62,000.

(b) Calculation of Annual Demand of Ultramagic Ltd.

Annual demand of TM = Total market demand × Market share = 12,500 units × 16% = 2,000 units

Since one unit of TM requires one unit of raw material RW, annual consumption of RW (A) = 2,000 units

Calculation of Carrying Cost per unit

Particulars	Rate
Storage rate	9%
Interest rate	5%
Obsolescence rate	2%
Total Carrying Cost rate / per unit (C)	16%

Cost per unit of RW = ₹2,500; Carrying cost per unit = 16% × ₹2,500 = ₹400

(i) Economic Order Quantity (EOQ)

$$\text{E.O.Q} = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 2,000 \times 4,000}{400}} = \sqrt{40,000} = 200 \text{ units}$$

EOQ = 200 units

(ii) Ordering Cost per annum

$$\begin{aligned} \text{No. of orders per annum} &= \frac{\text{Annual Demand}}{\text{EOQ}} \\ &= \frac{2,000}{200} = 10 \text{ orders} \end{aligned}$$

Ordering Cost per annum = 10 orders × ₹ 4,000 per order = ₹ 40,000

(c) Let FC = Total expenses of department FC after inter-service allocation, and DD = Total expenses of department DD after inter-service allocation.

$$\text{FC} = 3,00,000 + 30\% \text{ of DD} \quad \dots\dots\dots (i)$$

$$\text{DD} = 1,20,000 + 20\% \text{ of FC} \quad \dots\dots\dots (ii)$$

Substituting equation (ii) in (i):

$$\text{FC} = 3,00,000 + 0.30 \times (1,20,000 + 0.20 \text{ FC})$$

$$FC = 3,00,000 + 36,000 + 0.06 FC$$

$$0.94 FC = 3,36,000$$

$$FC = 3,36,000 / 0.94 = ₹ 3,57,447 \text{ (approx.)}$$

$$\text{Total expenses of FC} = ₹ 3,57,447$$

Question 2

- (a) Vivida Ltd. manufactures two products Ace eyeglasses & Sharp 1 eyeglasses using various types of materials and one grade of labour general optical technicians who cut lenses, drill frames and align hinges. Shown below is an extract from the company's working papers for the next month's budget:

	Ace eye - glasses	Sharp eye - glasses
Budgeted sales (in units)	1,100	2,200
Standard labour hours allowed per unit of product at full productivity	3	4.5

Labour is paid at ₹ 30 per hour. Overtime premium is 60% and is payable only if a worker works for more than 45 hours a week. There are 110 direct workers. Assume that they can work on either product equally efficiently. Efficiency during normal working hours may be taken to be the same as in overtime hours also.

The target productivity for the productive hours worked by the direct workers in actually manufacturing the products is 75%. In addition, the non-productive down-time is budgeted at 15% of the productive hours worked.

There are four 5-day weeks in the budgeted period and it is anticipated that sales and production will occur evenly throughout the whole period.

The following information is given :

	Ace eye - glasses	Sharp eye - glasses
Opening Stock (units)	125	140
Closing Stock	5 day's sales	4 day's sales

Calculate the Wages Budget for the direct workers, showing the quantities and values for the next month. **(7 Marks)**

- (b) Arrow Precision Components Ltd. is a manufacturer of high-quality aerospace and defence parts. The following are the details of expenses incurred for the year ended 31st March, 2026:

Particulars	Amount (₹)
(i) Opening Stock of Raw Materials	28,50,000
(ii) Closing Stock of Raw Materials	32,75,000
(iii) Purchase of Raw Materials	3,45,80,000
(iv) Direct Labour	1,68,40,000
(v) Factory Overhead	67,36,000
(vi) Administrative Overhead	42,10,000

During the financial year 2026-27, the company has received a special order from a leading aircraft manufacturer for the supply of one type of component manufactured by the company. The estimated cost of materials and direct labour for this order are 25% of last year's actual consumption and ₹ 72,50,000 respectively. Assume no work-in-process for both the years.

The company follows the policy of charging Factory Overhead as a percentage of Direct Labour and Administrative Overhead as a percentage of Factory Cost based on the previous year's actual costs. The cost of delivery and installation at the customer's site is estimated at ₹ 8,40,000. The company wants to safely consider an additional 10% on the calculated estimates for material and labour. Overheads are also to be taken after considering this factor. The company will decide on the profit margin based on total costs considered as per its policy and market conditions.

You are required to:

Prepare a Job Cost Sheet for the order received and determine the total cost to be considered as per the company's policy.

(Present figures in rupees.)

(Round off percentages to two decimal places and figures to the next rupee.)

(7 Marks)

Answer**(a) Working Notes:****1. Production Budget (in units)**

No. of working days = 4 weeks × 5 days = 20 days.

Daily sales:

Ace = $1,100/20 = 55$ units,

Sharp = $2,200/20 = 110$ units.

Closing stock:

Ace = 5 days × 55 = 275 units.

Sharp = 4 days × 110 = 440 units.

Particulars	Ace eyeglasses	Sharp eyeglasses
Budgeted Sales (units)	1,100	2,200
Add: Closing Stock (5 days'/4 days' sales)	275	440
Less: Opening Stock	(125)	(140)
Budgeted Production (units)	1,250	2,500

2. Standard Labour Hours for Budgeted Production

Particulars	Ace eyeglasses	Sharp eyeglasses	Total
Budgeted Production (units)	1,250	2,500	—
Standard hours per unit (at full productivity)	3	4.5	—
Standard Hours (100% productivity)	3,750	11,250	15,000
Productive Hours	$3750/75\%$ =5,000	$11,250/75\%$ =15,000	20,000
Non-Productive hours (15%)	750 hours	2,250 hours	3,000
Hours to be paid	5,750 hours	17,250 hours	23,000

3. Total Hours to be Paid

Particulars	Hours
Standard hours required at 100% productivity	15,000
Productive hours to be worked (Std. hours /75% productivity)	20,000
Add: Non-productive down-time (15% of productive hours)	3,000
Total Hours to be paid	23,000

4. Normal and Overtime Hours

Normal available hours = 110 workers × 4 weeks × 45 hours per week
= 19,800 hours. Since total hours to be paid (23,000) exceed normal available hours (19,800),

Overtime hours = 23,000 – 19,800 = 3,200 hours

Wages Budget for Direct Workers for the Next Month

Particulars	Hours	Rate (₹)	Amount (₹)
Normal hours wages	19,800	30.00	5,94,000
Overtime hours – Basic wages	3,200	30.00	96,000
Overtime hours – Premium (60% of basic)	3,200	18.00	57,600
Total Wages Budget	23,000		7,47,600

Total Wages Budget for Direct Workers for the next month = ₹7,47,600

(b) Working Notes:**1. Statement of Cost of the Previous Year (2025-26)**

Particulars	Amount (₹)
Opening Stock of Raw Materials	28,50,000
Add: Purchase of Raw Materials	3,45,80,000
Less: Closing Stock of Raw Materials	32,75,000
Raw Materials Consumed	3,41,55,000

Add: Direct Labour	1,68,40,000
Prime Cost	5,09,95,000
Add: Factory Overhead	67,36,000
Factory Cost	5,77,31,000
Add: Administrative Overhead	42,10,000
Cost of Production	6,19,41,000

2. Rates of Overhead Absorption (based on last year's actual costs)

- Factory Overhead as percentage of Direct Labour = $67,36,000 / 1,68,40,000 \times 100 = 40.00\%$
- Administrative Overhead as a percentage of Factory Cost = $42,10,000 / 5,77,31,000 \times 100 = 7.29\%$ (Rounded off)

Job Cost Sheet – Special Order (F.Y. 2026-27)

Particulars	Basis / Working	Amount (₹)
Direct Material (25% of last year's consumption ₹ 3,41,55,000, + 10%)	$85,38,750 \times 110\%$	93,92,625
Direct Labour (given ₹ 72,50,000, + 10%)	$72,50,000 \times 110\%$	79,75,000
Prime Cost	$93,92,625 + 79,75,000$	1,73,67,625
Factory Overhead (40% of Direct Labour above)	$40\% \times 79,75,000$	31,90,000
Factory Cost		2,05,57,625
Administrative Overhead (7.29% of Factory Cost)	$7.29\% \times 2,05,57,625$	14,98,651
Cost of Production		2,20,56,276
Add: Delivery and Installation Cost	—	8,40,000
Total Cost to be considered		2,28,96,276

Total Cost of the Order (rounded off to next rupee) = ₹ 2,28,96,276

Question 3

- (a) During the finalisation of accounts for the period ended 31st August, 2026, the Management of M/s. ZPT Ltd. observed that the profit disclosed by the Cost Accounts differed from that shown by the Financial Accounts.

The following information was extracted from the books:

Profit as per Cost Accounts amounted to ₹ 9,80,000.

On investigation, the following items were identified:

- (i) Factory overheads were under-absorbed in the Cost Accounts by ₹ 16,000.
- (ii) Administration overheads were over-absorbed in the Cost Accounts by ₹ 9,000.
- (iii) Depreciation charged in the Financial Accounts exceeded the depreciation recovered in the Cost Accounts by ₹ 18,000.
- (iv) Interest on bank deposits amounted to ₹ 28,000.
- (v) Provision for Income Tax was ₹ 1,60,000.
- (vi) Profit on sale of investments amounted to ₹ 15,000.
- (vii) Charges in lieu of rent for owned premises were ₹ 6,000.
- (viii) Donation amounted to ₹ 10,000.

Required:

Prepare a Reconciliation Statement starting from the profit as per Cost Accounts and arrive at the profit as per Financial Accounts while maintaining the serial order given above for adjustments. (Candidates may use shorter forms of the items instead of writing the whole lines as described in the question.)

(7 Marks)

- (b) BH Transit Services Ltd. has been awarded a contract to operate a 72-kilometre intercity route using 8 deluxe buses during the next year. Each bus has a seating capacity of 60 passengers. The buses are expected to make 4 round trips per day, carrying on an average, 80% of their seating capacity. The buses will run for 26 days in a month. Assume that the buses operate as a point to point service with no stops intervening during a single trip of 72 kilometres. The following information relates to the operating cost of the

service : Garage rent: ₹ 48,000 per month (Total for all buses) Annual repairs and maintenance: ₹1,92,000 per bus Total salaries of all drivers, conductors, cleaners and managers for the year (Total for all buses) ₹ 60,28,800 Road tax, permit fee, etc.: ₹ 48,000 for a quarter (Total for all buses) Total Office expenses: ₹ 20,000 per month Cost of diesel per litre: ₹ 108, Diesel Usage: 6 kilometres per litre Annual depreciation and Insurance: 24% of cost Engine oils and lubricants: ₹ 56,30,000 (Total for all buses for the whole year).

The cost of each bus is ₹ 60,00,000.

However, during the year, two buses are expected to be under major servicing for one month each and therefore those buses will run only for 11 months, while the remaining 6 buses will operate for the whole year.

The company targets a profit of one third of revenue.

Present the following figures:

- (i) Kilometres run by all vehicles for the whole year.
- (ii) Number of passengers in all the trips put together for the whole year for all the buses.
- (iii) Diesel Cost in total for the whole year.

Calculate the one-way bus fare to be charged from each passenger, rounding off to the next higher rupee value. **(7 Marks)**

Answer

**(a) Reconciliation Statement of M/s. ZPT Ltd.
for the period ended 31st August, 2026**

S. No.	Particulars	Amount (₹)	Amount (₹)
	Profit as per Cost Accounts		9,80,000
(i)	Less: Factory Overheads under-absorbed in Cost Accounts	(16,000)	
(ii)	Add: Administration Overheads over-absorbed in Cost Accounts	9,000	
(iii)	Less: Depreciation in Financial Accounts in excess of Cost Accounts	(18,000)	

(iv)	Add: Interest on Bank Deposits	28,000	
(v)	Less: Provision for Income Tax	(1,60,000)	
(vi)	Add: Profit on Sale of Investments (	15,000	
(vii)	Add: Charges in lieu of Rent on Owned Premises	6,000	
(viii)	Less: Donation	(10,000)	
	Profit as per Financial Accounts		8,34,000

(b) Working Note: Effective Bus-Days for the Year

6 buses run for the whole year: 6 buses × 12 months × 26 days = 1,872 bus-days

2 buses run for 11 months only (1 month under major servicing): 2 buses × 11 months × 26 days = 572 bus-days

Total effective bus-days for the year = 1,872 + 572 = 2,444 bus-days

(i) Kilometres Run by All Vehicles for the Whole Year

Distance per bus per day = 4 round trips × (2 × 72 km) = 4 × 144 = 576 km

Total km for the year = 2,444 bus-days × 576 km = 14,07,744 km

(ii) Number of Passengers in All Trips, All Buses, for the Whole Year

Passengers per leg = 60 seats × 80% = 48 passengers

Passengers per bus per day = 4 round trips × 2 legs × 48 = 384 passengers

Total passengers for the year = 2,444 bus-days × 384 = 9,38,496 passengers

(iii) Diesel Cost for the Whole Year

Diesel consumption = Total km ÷ 6 km per litre = 14,07,744 ÷ 6 = 2,34,624 litres

Diesel Cost = 2,34,624 litres × ₹ 108 per litre = ₹ 2,53,39,392

Alternative presentation of the above calculation**(i) Kilometres Run by All Vehicles for the Whole Year**

6 Buses = (72Km x 2 x 4 Round trip x 26 days = 10,78,272 Km
x 12 months x 6 buses)

2 Buses = (72Km x 2 x 4 Round trip x 26 days = 3,29,472 Km
x 11 months x 2 buses)

14,07,744 Km

(ii) Number of Passengers in All Trips, All Buses, for the Whole Year

6 Buses = (60 Passengers x 80% x 2 x 4 Round trip = 7,18,848
x 26 days x 12 months x 6 buses)

2 Buses = (60 Passengers x 80% x 2 x 4 Round trip = 2,19,648
x 26 days x 11 months x 2 buses)

9,38,496

(iii) Diesel cost for the Whole Year

14,07,744/6 x 108 = ₹ 2,53,39,392

Calculation of Passenger Km

6 Buses = (72Km x 48 Passenger x 2 x 4 Round trip = 5,17,57,056
x 26 days x 12 months x 6 buses)

2 Buses = (72Km x 48 Passenger x 2 x 4 Round trip = 1,58,14,656
x 26 days x 11 months x 2 buses)

Total Passenger Km 6,75,71,712

Alternative Presentation in Table

Particulars	Calculation	Result
Seating capacity per bus	-	60 passengers
Average occupancy	60 x 80%	48 passengers
Kilometers per bus per day	72 x 2 x 4	576 km
6 buses running for 12 months	576 x 26 x 12 x 6	10,78,272
2 buses running for 11 months	576 x 26 x 11 x 2	3,29,472

Total kilometers run p.a.		14,07,744
Total passenger – km p.a.	14,07,744 x 48	6,75,71,712

Statement of Total Operating Cost per Annum & One way Fare

Particulars	Amount (₹)
Fixed/Standing Cost	
Garage Rent (₹ 48,000 × 12 months)	5,76,000
Salaries (Drivers, Conductors, Cleaners, Managers)	60,28,800
Road Tax, Permit Fee, etc. (₹ 48,000 × 4 quarters)	1,92,000
Office Expenses (₹20,000 × 12 months)	2,40,000
Depreciation and Insurance (24% of ₹ 4,80,00,000)	<u>1,15,20,000</u>
	1,85,56,800
Variable/Running Cost	
Engine Oils and Lubricants	56,30,000
Diesel Cost	<u>2,53,39,392</u>
	3,09,69,392
Maintenance Cost	
Annual Repairs and Maintenance (₹ 1,92,000 × 8 buses)	<u>15,36,000</u>
Total Operating Cost	5,10,62,192
Profit 1/3 of Revenue or ½ of Cost	2,55,31,096
Revenue {(5,10,62,192 × 3/2)} or Cost + Profit	7,65,93,288
Passenger Km	6,75,71,712
Fare per Passenger Km	1.134
One way Fare (72 km × 1.134) = 81.65	82 (Rounded off)

Alternatively, Calculation of One-way Bus Fare

Desired Profit = 1/3rd of Revenue

Total Cost = 2/3rd of Revenue

Required Revenue = Total Cost × 3/2 = 5,10,62,192 × 3/2 = ₹ 7,65,93,288

One-way Fare per Passenger = Required Revenue ÷ Total Passengers
= 7,65,93,288 ÷ 9,38,496 = ₹ 81.61

One-way Bus Fare (rounded off) = ₹ 82

Question 4

- (a) XYZ Ltd. employs workforce classified into Skilled, Semi-Skilled and Unskilled categories for its manufacture of precision-engineered automobile components.

In the month of August 2026, the Production Department completed the manufacture of 5000 units of Product X.

The following information is available:

Budgeted Labour Requirement for manufacturing 2 units of Product X.

Labour Category	Standard Hours	Standard Rate (₹ per hour)
Skilled	2	6
Semi-skilled	3	5
Unskilled	5	2

Actual Labour Details:

Labour Category	Actual Hours paid (including abnormal idle hours)	Abnormal Idle time (hours)	Actual Rate (₹)	Amount (₹)
Skilled	6,000	200	7	42,000
Semi-skilled	8,000	300	4.5	36,000
Unskilled	11,000	400	2.5	27,500
Total	25,000	900		1,05,500

Required:

Compute category wise labour cost variances analysed into mix, efficiency, yield and rate variances, indicating whether they are Adverse (A) or Favourable (F). **(9 Marks)**

- (b) New Pharma Chemicals Ltd. manufactures pharmaceutical-grade solvents for the drug formulation industry. Production passes through a series of processes and the company operates a FIFO process costing system to value work-in-process and finished goods.

The following information is given:

- Opening work-in-process at the beginning of the month was 800 litres which was 70% complete for labour and 60% complete for overheads.

- Closing work-in-process at the end of the month was 160 litres which was 30% complete for labour and 20% complete for overheads.
- Normal loss is 10% of input; total losses during the month were 1,800 litres, partly attributable to flood damage. Abnormal losses occurred in the production shop floor just before despatch to the warehouse.
- Output transferred to the finished goods warehouse was 4,200 litres.
- All raw materials are introduced at the commencement of the process.

Required:

(i) Calculate the quantity (in litres) of raw material input during the month.

(2 Marks)

(ii) Calculate the quantity (in litres) of normal loss and abnormal loss.

(1 Mark)

(iii) Calculate the equivalent units of labour and overheads completed in the process.

(2 Marks)

Answer**(a) Working Notes:**

	Budget			Standard for actual			Actual		
	Hours	Rate (₹)	Amount (₹)	Hours	Rate (₹)	Amount (₹)	Hours	Rate (₹)	Amount (₹)
Skilled	2	6	12	5,000	6	30,000	6,000	7	42,000
Semi-skilled	3	5	15	7,500	5	37,500	8,000	4.5	36,000
Unskilled	5	2	10	12,500	2	25,000	11,000	2.5	27,500
	10		37	25,000		92,500	25,000		1,05,500

	Idle Hours	Hours worked
Skilled	200	5,800
Semi-skilled	300	7,700
Unskilled	400	10,600
	900	24,100

(i) Labour Cost Variance= (SH×SR – AH×AR)

Skilled $5,000 \times 6 - 6,000 \times 7 = ₹ 12,000 (A)$

Semi-Skilled $7,500 \times 5 - 8,000 \times 4.5 = ₹ 1,500 (F)$

Unskilled $12,500 \times 2 - 11,000 \times 2.5 = ₹ 2,500 (A)$

Total **₹ 13,000 (A)**

Or

Labour Cost Variance = (SH x SR) – (AH x AR) or Standard cost – Actual Cost

= 92,500 – 1,05,500

= 13,000(A)

(ii) Labour Rate Variance = (SR – AR) x AH paid

Skilled $(6-7) \times 6,000 = 6,000(A)$

Semi-Skilled $(5- 4.5) \times 8,000 = 4,000(F)$

Unskilled $(2-2.5) \times 11,000 = \underline{5,500(A)}$
7, 500(A)

(iii) Labour Efficiency Variance = [(SH – AH worked)] x SR

Skilled $(5,000 – 5,800) \times 6 = 4,800(A)$

Semi-Skilled $(7,500 – 7,700) \times 5 = 1,000(A)$

Unskilled $(12,500 – 10,600) \times 2 = \underline{3,800(F)}$
2,000(A)

(iv) Labour Idle time Variance = Idle Hours x Standard Rate

Skilled $200 \times 6 = 1,200(A)$

Semi-Skilled $300 \times 5 = 1,500(A)$

Unskilled $400 \times 2 = \underline{800(A)}$
3,500(A)

(v) Labour Mix Variance = (RSH – AH Worked) x SR

$$\text{Revised Std. hours (RSH)} = \frac{\text{Std.Hours}}{\text{Total Std.hours}} \times \text{Total Actual Hours}$$

$$\text{Skilled} \quad \left(\frac{5,000}{25,000} \times 24,100 \text{ i.e } 4,820 - 5,800\right) \times 6 = 5,880(\text{A})$$

$$\text{Semi Skilled} \quad \left(\frac{7,500}{25,000} \times 24,100 \text{ i.e } 7,230 - 7,700\right) \times 5 = 2,350(\text{A})$$

$$\text{Unskilled} \quad \left(\frac{12,500}{25,000} \times 24,100 \text{ i.e } 12,050 - 10,600\right) \times 2 = \underline{2,900(\text{F})}$$

$$\underline{5,330(\text{A})}$$

(vi) Labour Yield Variance = (SH – RSH) x SR

$$\text{Skilled} \quad (5,000 - 4,820) \times 6 = ₹ 1,080 (\text{A})$$

$$\text{Semi- Skilled} \quad (7,500 - 7,230) \times 5 = ₹ 1,350 (\text{A})$$

$$\text{Unskilled} \quad (12,500 - 12,050) \times 2 = ₹ 1,800 (\text{A})$$

$$\text{Total} \quad ₹ 3,300 (\text{A})$$

Or

$$\begin{aligned} \text{Labour Yield Variance} &= (\text{Total Standard Hours} - \text{Total Actual Hours worked}) \times \text{Standard Weighted Average Rate} \\ &= (25,000 - 24,100) \times 92,500/25,000 = 3330(\text{F}) \end{aligned}$$

Alternative Presentation**Working Notes:****1. Basic Data**

Labour Category	Std. Hrs. for Actual Output (SH)	Std. Rate (SR) ₹	Amount (₹)	Actual Hrs. Paid (AHP)	Abnormal Idle Hrs.	Actual Hrs. Worked (AH)	Actual Rate (AR) ₹
Skilled	5,000	6.00	30,000	6,000	200	5,800	7.00
Semi-skilled	7,500	5.00	37,500	8,000	300	7,700	4.50
Unskilled	12,500	2.00	25,000	11,000	400	10,600	2.50
Total	25,000		92,500	25,000	900	24,100	

2. Standard Hours for actual production (5,000 units) = (Budgeted hours for 2 units ÷ 2) × 5,000: Skilled = 5,000; Semi-skilled = 7,500; Unskilled = 12,500.
3. Revised Standard Hours (RSH) = Total Actual Hours Worked × (SH of category ÷ Total SH): Skilled = $24,100 \times (5,000/25,000) = 4,820$; Semi-skilled = $24,100 \times (7,500/25,000) = 7,230$; Unskilled = $24,100 \times (12,500/25,000) = 12,050$.

Statement Showing Category-wise Labour Cost Variances

Variance	Skilled (₹)	Semi-skilled (₹)	Unskilled (₹)	Total (₹)
Labour Rate Variance (LRV) = $AHP \times (SR - AR)$	6,000 (A)	4,000 (F)	5,500 (A)	7,500 (A)
Labour Idle Time Variance (LITV) = $SR \times Ab. Idle Hrs.$	1,200 (A)	1,500 (A)	800 (A)	3,500 (A)
Labour Mix Variance (LMV) = $SR \times (RSH - AH)$	5,880 (A)	2,350 (A)	2,900 (F)	5,330 (A)
Labour Yield Variance (LYV) = $SR \times (SH - RSH)$	1,080 (F)	1,350 (F)	900 (F)	3,330 (F)
Labour Efficiency Variance (LEV) = $LMV + LYV$	4,800 (A)	1,000 (A)	3,800 (F)	2,000 (A)
Labour Cost Variance (LCV) = $LRV + LITV + LEV$	12,000 (A)	1,500 (F)	2,500 (A)	13,000 (A)

(b) (i) Quantity of Raw Material Input during the Month

Opening WIP (800) + Input = Output transferred (4,200) + Closing WIP (160) + Total Losses (1,800)

Input = $4,200 + 160 + 1,800 - 800 = 5,360$ litres

(ii) Normal Loss and Abnormal Loss

Normal Loss = 10% of Input = $10\% \times 5,360 \text{ litres} = 536 \text{ litres}$

Abnormal Loss = Total Losses – Normal Loss = $1,800 - 536 = 1,264$ litres

(iii) Equivalent Units of Labour and Overheads Completed in the Process

Particulars	Total Units	Labour		Overheads	
		Equivalent %	Equivalent Units	Equivalent %	Equivalent Units
Opening WIP completed this month	800	30%	240	40%	320
Freshly introduced and completed (4,200 – 800)	3,400	100%	3,400	100%	3,400
Abnormal Loss (occurring just before despatch)	1,264	100%	1,264	100%	1,264
Closing WIP	160	30%	48	20%	32
Equivalent Units			4,952		5,016

Alternative Presentation

Particulars	Units	Labour		Overheads	
		Equivalent %	Equivalent Units	Equivalent %	Equivalent Units
Normal Loss	536	-	-	-	-
Abnormal Loss	1,264	100%	1,264	100%	1,264
Closing WIP	160	30%	48	20%	32
Equivalent Units			4,952		5,016

Question 5

(a) The following data is given in the books of Vikram Industries:

Particulars	Amount (₹)
Opening Inventories:	
- Raw materials	15,00,000

- Work-in-process	20,00,000
- Finished goods (12, 000 units)	10,80,000
<i>Closing Inventories:</i>	
- Raw materials	16,50,000
- Work-in process	18,00,000
Raw materials purchase	1,68,00,000
Wages paid to production workers	40,00,000
Expenses paid for utilities	2,50,000
Office and administrative expenses paid (General)	1,50,000
Travelling allowance paid to office staff	7,00,000
<i>Selling expenses:</i>	
Machine hours worked	24,000 hours
Machine hour rate	₹ 10 per hour
Units sold (on FIFO basis)	1,80,000 units
Units produced	2,10,000 units
Desired profit	20% on sales

Compute the values of the following figures in rupees as they will appear in the Cost Sheet:

- (i) Prime Cost
- (ii) Cost of Production
- (iii) Cost of Goods Sold
- (iv) Cost of Sales
- (v) Sales Revenue

(You are not required to present the entire cost sheet. Present relevant figures only.) **(5 Marks)**

- (b) A manufacturing company operates three production departments and it has established a policy to allocate factory overheads using a single blanket rate calculated as total budgeted overheads divided by budgeted direct labour hours. Below are the relevant data for one month:

Department	Budgeted			Actual			Job 1023	
	Factory Overheads (₹)	Direct Labour Hours	Machine Hours	Factory Overheads (₹)	Direct Labour Hours	Machine Hours	Direct Labour Hours	Machine Hours
Cutting	4,00,000	20,000	60,000	4,20,000	22,000	62,000	40	120
Assembly	3,00,000	2,000	25,000	2,80,000	2,000	24,000	4	40
Finishing	2,00,000	14,000	1,000	2,10,000	14,000	1,000	30	2

The company has a margin of 30% on sales price to cover other administrative and selling overheads and profit.

Required:

- Compute the value of factory overhead that will be used in the pricing of Job No. 1023 as per the company's existing policy. **(2 Marks)**
- Recommend the most appropriate method of absorbing factory overheads and calculate the value of overhead that will be used in the pricing of Job No. 1023. **(3 Marks)**
- Calculate the total under/over recovery of overheads in the Finishing Department based on your recommendation. **(2 Marks)**

(Round off rates up to two decimal points and the final value to the next higher rupee.)

Answer

(a) Computation of Cost Sheet Values of Vikram Industries

Raw Material consumed = ₹ 1,50,00,000 + ₹ 16,80,00,000 – ₹ 1,65,00,000
= ₹ 16,65,00,000.

- Prime Cost** = Raw Materials Consumed (₹ 1,66,50,000) + Direct Wages (₹40,00,000) + Utilities Expense treated as direct factory expense (₹ 2,50,000) = ₹ 2,09,00,000
- Cost of Production** = Prime Cost + Factory Overhead (₹2,40,000) + Opening WIP (₹ 20,00,000) – Closing WIP (₹ 18,00,000) = ₹ 2,13,40,000
- Cost of Goods Sold** = Cost of Production + Opening Finished Goods (₹10,80,000) – Closing Finished Goods (₹ 42,68,000, i.e., 42,000 units × ₹ 101.62) = ₹ 1,81,51,960

- (iv) **Cost of Sales** = Cost of Goods Sold + Office & Admin Expenses
 (₹ 30,00,000) + Travelling Allowance (₹ 1,50,000) + Selling Expenses
 (₹ 7,00,000) = ₹ 2,20,01,960
- (v) **Sales Revenue** = Cost of Sales ÷ (1 – 20%), since desired profit is 20%
 on Sales i.e 25% on Cost of Sales = ₹ 2,20,01,960 ÷ 0.80 = ₹ 2,75,02,500
 (or Cost of Sales + Profit = ₹ 2,20,01,960 + 55,00,490 = ₹ 2,75,02,450)

Alternative Presentation

Computation of Cost Sheet Values of Vikram Industries

Units Produced: 2,10,000

Units Sold: 1,80,000

Raw materials purchased	1,68,00,000	
Add: Opening value of raw materials	15,00,000	
Less: Closing value of raw materials	<u>(16,50,000)</u>	
Materials consumed	1,66,50,000	79.29
Wages paid to Production Workers (Direct Labour)	40,00,000	19.05
Expenses paid for Utilities	2,50,000	1.19
Prime Cost	2,09,00,000	99.53
Add: Factory Overhead (24,000 machine hrs. × ₹ 10 per hr.)	2,40,000	
Add: Opening Work-in-Process	20,00,000	
Less: Closing Work-in-Process	<u>(18,00,000)</u>	
Cost of Production (2,10,000 units produced)	2,13,40,000	101.62
Add: Opening Finished Goods (12,000 units)	10,80,000	
Less: Closing Finished Goods (42,000 units × ₹ 101.62)	<u>(42,68,040)</u>	
Cost of Goods Sold (1,80,000 units, FIFO basis)	1,81,51,960	100.84
Add: Office and Administrative Expenses	30,00,000	16.67
Add: Travelling Allowance paid to Office Staff	1,50,000	0.83

Add: Selling Expenses	7,00,000	3.89
Cost of Sales	2,20,01,960	122.23
Add: Desired Profit (20% on Sales i.e 25% on Cost of Sales)	55,00,490	30.56
Sales Revenue	2,75,02,450	152.79

Working Note:

1. Closing Finished Goods = Opening Finished Goods (12,000 units) + Units Produced (2,10,000) – Units Sold (1,80,000) = 42,000 units, valued at the current Cost of Production per unit of ₹ 101.62, i.e., ₹ 42,68,000.

Note: Due credit shall be given for approximation of Figures like Closing stock of finished Goods, Cost of Goods Sold, Cost of Sales, Profit and Revenue.

- (b) (i) Factory Overhead for Job No. 1023 – Existing Policy (Single Blanket Rate on Direct Labour Hours)

- Blanket Overhead Rate = Total Budgeted Factory Overhead ÷ Total Budgeted Direct Labour Hours

$$= (4,00,000 + 3,00,000 + 2,00,000) \div (20,000 + 2,000 + 14,000) \\ = 9,00,000 \div 36,000 = ₹ 25 \text{ per D.L. Hour}$$

- Direct Labour Hours on Job 1023 = 40 + 4 + 30 = 74 hours

$$\text{Factory Overhead for Job 1023 (Blanket Rate)} = 74 \text{ hours} \times ₹ 25 \\ = ₹ 1,850$$

- (ii) Recommended Method of Absorption of Factory Overhead

A single blanket rate ignores the differing nature of operations across departments and can distort job costs. A departmental overhead rate, based on the basis most representative of each department's cost behaviour, is recommended:

Department	Nature of Operation	Recommended Basis	Overhead Rate
Cutting	Machine hours (60,000) far exceed labour hours (20,000)	Machine Hour Rate	$4,00,000 \div 60,000$ = ₹ 6.67 per Machine Hour

Assembly	Machine hours (25,000) far exceed labour hours (2,000)	Machine Hour Rate	$3,00,000 \div 25,000$ = ₹ 12.00 per Machine hour.
Finishing	Labour hours (14,000) far exceed machine hours (1,000)	Direct Labour Hour Rate	$2,00,000 \div 14,000$ = ₹ 14.29 per Direct Labour Hours

Overhead on Job 1023 using recommended rates:

Department	Job 1023 – Hours	Rate (₹)	Overhead (₹)
Cutting (Machine Hours)	120	6.67	800.40
Assembly (Machine Hours)	40	12.00	480.00
Finishing (Labour Hours)	30	14.29	428.70
Total Factory Overhead for Job 1023			1,709.10

Factory Overhead for Job 1023 as per recommended departmental rates (rounded off to next higher rupee) = ₹ 1,710

- (iii) Under/Over Recovery of Overheads in the Finishing Department
 (iv) Under/Over-Recovery — Finishing Department

Using the recommended Direct Labour Hour Rate of ₹ 14.29 (from part ii):

Particulars	Amount
Predetermined DLH rate	₹ 14.29
Actual DLH worked	14,000
Overheads absorbed ($14.29 \times 14,000$)	₹ 2,00,060
Actual overheads incurred	₹ 2,10,000
Under-recovery (Actual – Absorbed)	₹ 9,940

Under-recovery of overheads in Finishing = ₹ 9,940

Question 6

(a) *NS Ltd. has listed some of the costs incurred during the current period.*

I	II	III
(i)	<i>Salary to office attendants</i>	
(ii)	<i>Product blueprint cost</i>	
(iii)	<i>Ire charges paid for factory machinery for a certain product</i>	
(iv)	<i>Salary paid to marketing manager</i>	
(v)	<i>One time licence fee paid for software used to make computerized graphics for a particular job</i>	
(vi)	<i>Wages paid to factory workers</i>	
(vii)	<i>Overtime wage paid to finish a certain job due urgency created by customer</i>	
(viii)	<i>Specialised packing at customer's request</i>	
(ix)	<i>Advertisement Expenses</i>	
(x)	<i>Royalty paid for production</i>	

Classify the above items under appropriate functions of cost.

(Present only columns I and III in your answer books.)

(5 Marks)

(b) (i) *How would you account for the amount realized on sale of molasses, a by-product in a sugar manufacturing process?*

(2 Marks)

(ii) *Products A and B are produced from the same raw material but Product A requires more refining before it can be sold. How would you apportion the joint costs between Products A and B using net realizable method?*

(1 Mark)

(iii) *Suppose that a by-product requires further processing before being sold. How would you determine and treat the net realizable value at the point of split-off?*

(2 Marks)

(c) *State how you would treat the following items in the Cost Sheet:*

(i) *Wages paid to idle workers during a sudden government-imposed lockdown.*

- (ii) A subsidy received from the State Government for using eco-friendly raw materials.
- (iii) Interest paid on a term loan taken for purchase of plant and machinery.
- (iv) GST paid on purchase of raw materials, for which input tax credit is eligible.

OR

- (c) What are the main distinctions between a Bill of Materials and a Material Requisition Note in terms of their contents and utility? **(4 Marks)**

Answer

(a)

I	II — Item	III — Classification
(i)	Salary to office attendants	Administration Overhead
(ii)	Product blueprint cost	Design Cost/Direct Expenses
(iii)	Hire charges paid for factory machinery for a certain product	Direct Expenses/Production Cost
(iv)	Salary paid to marketing manager	Selling & Distribution Overhead
(v)	One time licence fee paid for software used to make computerised graphics for a particular job	Direct Expenses/Production Cost
(vi)	Wages paid to factory workers	Direct Labour
(vii)	Overtime wages paid to finish a certain job due to urgency created by customer	Direct Labour / Direct Expenses
(viii)	Specialised packing at customer's request	Selling & Distribution Cost/ Expenses attributed to customer order
(ix)	Advertisement Expenses	Selling & Distribution Overhead
(x)	Royalty paid for production	Direct Expenses

- (b) (i) The amount realized on sale of molasses, a by-product, should be credited to the process account of the main product (sugar) from which it emerges, thereby reducing the cost of the main product.
- (ii) Based on net realizable value at the point of split off. Since A requires more refining, A's net realizable value at split off will be realizable value at point of sale less additional refining cost after split off.
- (iii) Its realized value after processing and sales less further processing cost will be its net realizable value at split off and this value will reduce the cost of the main product(s).

(c)

Item	Treatment in the Cost Sheet
(i) Wages paid to idle workers during a sudden government-imposed lockdown	This represents an abnormal idle time cost arising from an abnormal, non-recurring event. It should be excluded from the cost sheet / cost of production and charged directly to the Costing Profit and Loss Account.
(ii) Subsidy received from the State Government for using eco-friendly raw materials	Being directly related to the raw material used, the subsidy should be deducted from the cost of the raw material concerned in the cost sheet.
(iii) Interest paid on a term loan taken for purchase of plant and machinery	Interest is a financial (finance) charge and is excluded from cost accounts / cost sheet. Interest and Financing Charges shall be presented in the Cost Sheet as a separate item of cost of sales, distinct from production cost. (Any one point)
(iv) GST paid on purchase of raw materials, for which input tax credit is eligible	Since input tax credit is eligible, the GST paid is recoverable and is not a cost. It is excluded from the cost of raw materials in the cost sheet.

OR

(c) Difference between Bill of Materials and Material Requisition Note

Bill of Materials	Material Requisition Note
1. It is the document prepared by the engineering or planning dept.	1. It is prepared by the production or other consuming department.
2. It is a complete schedule of component parts and raw materials required for a particular job or work order.	2. It is a document asking Store-keeper to issue materials to the consuming department.
3. It often serves the purpose of a material requisition as it shows the complete schedule of materials required for a particular job i.e. it can replace material requisition.	3. It cannot replace a bill of materials.
4. It can be used for the purpose of quotations.	4. It is useful in arriving historical cost only.
5. It helps in keeping quantitative control on materials drawn through material requisition.	5. It shows the material actually drawn from stores.

(Any Four Points)