ALL INDIA OPEN MOCK
BY CA WALLAH

I04

Roll No. _____

Total No. of Questions – 15

Total No. of Printed Pages – 6 **Maximum Marks- 100**

General Instructions to Candidates

(1) The question paper comprises two parts, Part A and Part B.

(2) Part A comprises Multiple Choice Questions (MCQs).

(3) Part B comprises questions which require descriptive answers.

(4) Ensure that you receive the question paper relating to both the parts. If you have not received both, bring it to the notice of the invigilator.

(5) You will be allowed to leave the examination hall only after the conclusion of the exam. If you have completed the paper before time, remain in your seat till the conclusion of the exam.

(6) For MCQ Part OMR sheet will not be provided. So, write the solution in answer sheet only.

(7) Duration of the examination is 3 hours.

(8) Candidate found copying or receiving or giving any help or defying instructions of the invigilators or having/using mobile phone or smart watch will be expelled from the examination and will also be liable for further punitive action.

Part-B **70 Marks**

(1) Question paper comprises 6 questions. Answer Question No. 1 which is compulsory and any 4 out of the remaining 5 questions.

(2) Working notes should form part of the answer.

(3) Answers to the questions are to be given only in English except in the case of candidates who have opted for Hindi Medium. If a candidate has not opted for Hindi Medium, his/her answers in Hindi will not be evaluated.

I04(1)

Part – A **Maximum Marks - 30**

Case Scenario – I

A meeting of the heads of departments of the Arnav Ltd. has been called to review the operating performance of the company in the last financial year. The head of the production department appraised that during the last year the company could operate at 70% capacity level but in the coming financial year 95% capacity level can be achieved if an additional amount of ₹ 100 crore on capex and working capital is incurred.

The head of the finance department has presented that during the last financial year the company and a P/V ratio of 40%, margin of safety and the break-even were ₹ 50 crore and ₹ 200 crore respectively.

To the reply to the proposal of increasing the production capacity level to 95%, the head of the finance department has informed that this could be achieved if the selling price and variable cost are reduced by 8% and 5% of sales respectively. Fixed cost will also increase by ₹ 20 crore due to increased depreciation on additional assets. The additional capital will be arranged at a cost of 15% p.a. from a bank.

In the coming financial year, it has been aimed to achieve an additional profit of ₹10 crore over and above the last year's profit after adjusting the interest cost on the additional capital.

The following points is required to be calculated on urgent basis to put the same in the meeting. You being an assistant to the head of finance, has been asked the followings:

1. What will be the revised sales for the coming financial year? **(2 Marks)**

(1) ₹ 322.22 crore
(2) ₹ 311.11 crore
(3) ₹ 300.00 crore
(4) ₹ 324.24 crore

2. What will be the revised break-even point for the coming financial year? **(2 Marks)**

(1) ₹ 222.22 crore
(2) ₹ 252.22 crore
(3) ₹ 244.44 crore
(4) ₹ 255.56 crore

3. What will be the revised margin of safety for the coming financial year? **(2 Marks)**

(1) ₹ 100 crore
(2) ₹ 58.89 crore
(3) ₹ 55.56 crore
(4) ₹ 66.66 crore

4. The profit of the last year and for the coming year are: **(2 Marks)**

(1) ₹ 50 crore and ₹ 95 crore respectively
(2) ₹ 20 crore and ₹ 65 crore respectively
(3) ₹ 20 crore and ₹ 30 crore respectively
(4) ₹ 45 crore and ₹ 66.66 crore respectively

5. The total cost of the last year and for the coming year are: **(2 Marks)**

(1) ₹ 230 crore and ₹ 292.22 crore
(2) ₹ 230 crore and ₹ 275 crore
(3) ₹ 220 crore and ₹ 282.22 crore
(4) ₹ 220 crore and ₹ 292.22 crore

Case Scenario – II

Arnav Ltd. operates in beverages industry where it manufactures soft-drink in three sizes of Large (3 litres), Medium (1.5 litres) and Small (600 ml) bottles. The products are processed in batches. The 5,000 litres capacity processing plant consumes electricity of 90 kilowatts per hour and a batch takes 1 hours 45 minutes to complete. Only symmetric size of products can be processed at a time. The machine set-up takes 15 minutes to get ready for next batch processing. During the set-up power consumption is only 20%.

(i) The current price of Large, Medium and Small are ₹ 150, ₹ 90 and ₹ 50 respectively.
(ii) To product a litre of beverage, 14 litres of raw material–W and 25 ml of material–C are required which costs ₹ 0.50 and ₹ 1,000 per litre respectively.
(iii) 20 direct workers are required. The workers are paid ₹ 880 for 8 hours shift of work.
(iv) The average packing cost per bottle is ₹ 3.
(v) Power cost is ₹ 7 per kilowatt-hour (Kwh)
(vi) Other variable cost is ₹ 30,000 per batch
(vii) Fixed cost (administration and marketing) is ₹ 4,90,00,000.
(viii) The holding cost is ₹ 1 per bottle per annum.

The marketing team has surveyed the following demand (bottle) of the product:

Large	Medium	Small
3,00,000	7,50,000	20,00,000

The following information has been sought from you the purpose of performance review meeting:

6. Number of large size bottles that can be processed in a batch? **(2 Marks)**

(1) 5,000 bottles
(2) 1,666 bottles
(3) 3,333 bottles
(4) 8,333 bottles

7. Total number of batches to be run to process medium size bottles. **(2 Marks)**

(1) 180
(2) 225
(3) 240
(4) 645

8. Material-W required for small size bottles. **(2 Marks)**

(1) 1,26,000 litres
(2) 1,68,000 litres
(3) 1,57,500 litres
(4) 1,51,50,000 litres

9. Total Profit/loss: **(2 Marks)**

(1) 7,72,17,370
(2) 5,52,54,550
(3) 2,82,17,370
(4) 4,50,25,225

10. What is the Economic Batch Quantity (EBQ) small bottles? **(2 Marks)**

(1) 1,34,234 bottles
(2) 2,12,243 bottles
(3) 3,46,592 bottles
(4) 4,12,268 bottles

General MCQs

11. In case of joint products, the main objective of accounting of the cost is to apportion the joint cost incurred up to the split off point. For cost apportionment one company has chosen Physical Quantity Method. Three joint products A, B and C are produced in the same process. Up to the point of split off the total production of A, B and C is 60,000 kg, out of which A produces 30,000 kg and joint costs are ₹ 3,60,000. Joint cost allocated to the product A is: **(2 Marks)**

(1) ₹ 1,20,000
(2) ₹ 60,000
(3) ₹ 1,80,000
(4) ₹ 2,00,000

12.

Purchase price	₹ 10,00,000
Custom duty	₹ 2,00,000
GST (input credit available)	@12% on purchase price
Octroi	₹ 5,000
Carriage inward	₹ 12,000
Demurrage charges	₹ 16,100
Commission on purchase	₹ 10,000
Stock of raw material:	
Opening	₹ 1,00,000
Closing	₹ 2,00,000

Raw material consumed will be: **(2 Marks)**

(1) ₹ 11,27,000
(2) ₹ 11,43,000
(3) ₹ 12,63,100
(4) ₹ 12,58,100

13. The following is a schedule of expenses allocated to three machines A and B: **(2 Marks)**

	A	**B**
Rent and rates	₹ 75	₹ 59
Insurance	2	1
Power	128	146
Supervision	40	30
Organization (wages of clerks, time-keepers etc.)	10	7
Stores service	384	364
	639	607

In addition to this expense, there was the expense of ₹ 570 from operating an overhead crane which was necessary to bring heavy materials to the machine. The details were as follows:

Power consumed by the crane	₹ 227
Wages of crane driver	₹ 216
Repairs	₹ 28
Depreciation	₹ 49
Oil and sundries	₹ 5
Sundry charges allocated to the crane	₹45

The number of hours the machines were in use during the period represented by the above expenditure was as follows:

	A	**B**	**C**
With use of crane	160	130	480
Without use of crane	428	577	NIL
	588	707	480

Calculate the machine-hour rate for Machine A when the crane was used.

(1) ₹ 1.09
(2) ₹ 1.83
(3) ₹ 0.86
(4) ₹ 1.60

14. The wages budget for the last period was based on a standard repair time of 30 minutes per unit and a standard wage rate of ₹ 50 per hour. The actual data for the last period are as follows: **(2 Marks)**
Number of units = 30,000
Labour rate variance = 7,500 (A)
Labour efficiency variance = Nil
From the information find out the actual rate of wages per unit.
(1) ₹ 50
(2) ₹ 25.50
(3) ₹ 50.50
(4) ₹ 25.25

15. GHI Ltd. manufactures 'Stent' that is used by hospitals in heart surgery. As per the estimates provided by Pharmaceutical Industry Bureau, there will be a demand of 40 Million 'Stents' in the coming year. GHI Ltd. is expected to have a market share of 2.5% of the total market demand of the Stents in the coming year. It is estimated that is costs ₹ 1.50 as inventory holding cost per stent per month and that the set-up cost per run of stent manufacture is ₹ 225.
What would be optimum run size for Stent manufacture? **(2 Marks)**
(1) 1, 3, 4 and 5
(1) 4,000
(2) 5,000
(3) 6,000
(4) 7,000

Part-B

1. **(a)** A total of 108 labour hours have been put in a particular job card for repair work engaging a semi-skilled and skilled labour (Mr. Deep and Mr. Sam respectively).

The hours devoted by both the workers individually on daily basis for this particular job are given below:

Monday	Tuesday	Wednesday	Thursday	Friday
10.5	8.0	10.5	9.5	10.5

The skilled labour also worked on Saturday for 10 hours.

Sunday is a weekly holiday and each worker has to work for 8 hours on all week days and 5 hours on Saturdays; the workers are however paid full wages for Saturday (8 hours for 5 hours worked).

Semi-skilled and skilled worker is paid ordinary wage @ ₹ 400 and ₹ 600 respectively per day of 8 hours labour. Further, the workers are also paid dearness allowance @20%. Extra hours worked over and above 8 hours are also paid at ordinary wage rate however, overtime premium of 100% of ordinary wage rate is paid if a worker works for more than 9 hours in a day and 48 hours in a week.

You are required to compute the wages payable to Mr. Sam (skilled). **(5 Marks)**

(b) R Ltd. produces and sells 60,000 units of product 'AN', at its Noida Plant. The selling price of the product is ₹ 15 per unit. The variable cost is 80% of selling price per unit. Fixed cost during this period is ₹ 4,20,000. The company is continuously suffering losses, and management plans to shut down the Noida Plant.

The fixed cost is expected to be reduced by ₹ 2,50,000. Additional costs of plant shut down are expected at ₹ 25,000. You are required to comment on:

(i) Whether the Noida plant be shut down?

(ii) Find the shut-down point in units. **(4 Marks)**

(c) SNS Trading Company has three Main Departments and two Service Departments. The data for each department is given below:

Departments	Expenses (₹)	Area (in Sq. Mtr.)	Number of employees
Main Department:			
Purchase Department	5,00,000	12	800
Packing Department	8,00,000	15	1700
Distribution Department	3,50,000	7	700
Service Department:			
Maintenance Department	6,40,000	4	200
Personnel Department	3,20,000	6	250

The cost of Maintenance Department and Personnel Department is distributed on the basis of 'Area in Square Meters' and 'Number of Employees' respectively:

You are required to:

(i) Prepare a statement showing the distribution of expenses of service departments to the main departments using the "Step Ladder Method" of overhead distribution.

(ii) Compute the rate per hour of each Main Department, given that, the Purchase Department, Packing Department and Distribution Department works for 12 hours a day, 24 hours a day and 8 hours a day respectively. Assume that there are 365 days in a year and there are no holidays. **(5 Marks)**

2. (a) The following data relates to manufacturing of a standard product during the month of the March, 2021:

Particulars	Amount (in ₹)
Stock of Raw material as on 01-03-2021	80,000
Work in progress as on 01-03-2021	50,000
Purchase of raw material	2,00,000
Carriage inwards	20,000
Direct wages	1,20,000
Cost of special drawing	30,000
Hire charges paid for Plant	24,000
Return of Raw Material	40,000
Carriage on return	6,000
Expenses for participation in Industrial exhibition	8,000
Legal charges	2,500
Salary to office staff	25,000
Maintenance of office building	2,000
Depreciation on Delivery Van	6,000
Warehousing charges	1,500
Stock of Raw material as on 31-03-2021	30,000
Stock of Work in Progress as on 31-03-2021	24,000

- Store overheads on material are 10% of material consumed.
- Factory overheads are 20% of the prime cost
- 10% of the output was rejected and a sum of ₹ 5,000 was realized on sale of scrap.
- 10% of the finished product was found to be defective and the defective products were rectified at an additional expenditure which is equivalent to 20% of proportionate direct wages.
- The total output was 8,000 units during the month.

You are required to prepare a cost sheet for the above period showing the:

(i) Cost of raw material consumed

(ii) Prime cost

(iii) Work cost

(iv) Cost of production

(v) Cost of sales **(8 Marks)**

(b) A company produces two joint product X and Y, from the same basic materials. The processing is completed in three departments.

Materials are mixed in department I. At the end of this process X and Y get separated. After separation X is completed in the department II and Y is finished in department III. During a period 2,00,000 kgs of raw material were processed in department I, at a total cost of ₹ 8.75,000 and the resultant 60% becomes X and 30% becomes Y and 10% normally lost in processing.

In department II 1/6 of the quantity received from department I is lost in processing. X is further processed in department II at a cost of ₹ 1,80,000.

In department III further new material added to the material received from department I and weight mixture is doubled, there is no quantity loss in the department and further processing cost (with material cost) is ₹ 1,50,000.

The details of sales during the year:

	Product X	**Product Y**
Quantity sold (kgs)	90,000	1,15,000
Sales price per kg (₹)	10	4

There were no opening stocks. If these products sold at split-off-point, the selling price of X and Y would be ₹ 8 and ₹ 4 per kg respectively.

Required:

(a) Prepare a statement showing the apportionment of joint cost to X and Y in proportion of sales value at split off point.

(b) Prepare a statement showing the cost per kg of each product indicating joint cost, processing cost and total cost separately.

(c) Prepare a statement showing the product wise profit for the year.

(d) On the basis of profits before and after further processing of product X and Y, give your comment that products should be further processed or not. **(6 Marks)**

3. **(a)** ABC Ltd. manufactures three products X, Y and Z using the same plant and resources. It has given the following information for the year ended on 31st March, 2020:

	X	**Y**	**Z**
Production Quantity (units)	1200	1440	1968
Cost per unit:			
Direct Material (₹)	90	84	176
Direct Labour (₹)	18	20	30

Budgeted direct labour rate was ₹ 4 per hour and the production overheads, shown in table below, were absorbed to products using direct labour hour rate. Company followed Absorption Costing Method. However, the company is now considering adopting Activity Based Costing Method.

	Budgeted Overheads (₹)	**Cost Driver**	**Remarks**
Material Procurement	50,000	No. of orders	No. of orders was 25 units for each product
Set-up	40,000	No. of Production Runs	All the three products are produced in production runs of 48 units.
Quality Control	28,240	No. of Inspections	Done for each production run.
Maintenance	1,28,000	Maintenance Hours	Total maintenance hours were 6,400 and was allocated in the ratio of 1 : 1 : 2 between X, Y and Z.

Required:

(i) Calculate the total cost per unit of each product using the Absorption Costing Method.

(ii) Calculate the total cost per unit of each product using the Activity Based Costing. **(8 Marks)**

(b) A group of 'Health Care Services' has decided to establish a Critical Care Unit in a metro city with an investment of ₹85 lakhs in hospital equipments. The unit's capacity shall be of 50 beds and 10 more beds, if required, can be added.

Other information for a year are as under:

	₹
Building Rent	2,25,000 per month
Manager Salary (Number of Manager – 03)	50,000 per month to each one
Nurses Salary (Number of Nurses – 24)	18,000 per month to each Nurse
Ward Boy's Salary (Number of Ward Boys – 24)	9,000 per month per person
Doctor's payment (Paid on the basis of number of patients attended and time spent by them)	5,50,000 per month
Food and laundry services (variable)	39,53,000
Medicines to patients (variable)	22,75,000 per year
Administrative Overheads	28,00,000 per year
Depreciation on equipments	15% per annum on original cost

It was reported that for 200 days in a year 50 beds were occupied, for 105 days 30 beds were occupied and for 60 days 20 beds were occupied.

The hospital hired 250 beds at a charge of ₹ 950 per bed to accommodate the flow of patients. However, this never exceeded the normal capacity of 50 beds on any day. Find out:

(i) Profit per patient day, if hospital charges on an average ₹ 2,500 per day from each patient.

(ii) Break-even point per patient day (Make calculation on annual basis) **(6 Marks)**

4. **(a)** STG Limited is a manufacturer of chemical 'GK', which is required for industrial use. The complete production operation requires two processes. The raw material first passes through Process I, where chemical 'G' is produced. Following data is furnished for the month of April, 2022:

Particulars	**(in kgs)**
Opening work-in-progress quantity (Material 100% and conversion 50% complete)	9,500
Material input quantity	1,05,000
Work completed quantity	83,000
Closing work-in-progress quantity (Material 100% and conversion 60% complete)	16,500

You are further provided that:

Particulars	**(in ₹)**
Opening work-in-progress cost	
Material cost	29,500
Processing cost	14,750
Material input cost	3,34,500
Processing cost	2,53,100

Normal process loss may be estimated at be 10% of material input. It has no realizable value. Any loss over and above normal loss is considered to be 100% complete in material and processing.

The company transfers 60,000 kgs of output (Chemical G) from Process I to Process II for producing Chemical 'GK'. Further materials are added in Process II which yield 1.20 kg. of chemical 'GK' for every kg of chemical 'G' introduced. The chemicals transferred to Process II for further processing are then sold as chemical 'GK' for ₹ 10 per kg. Any quantity of output completed in Process I, are sold as chemical 'G' @ ₹ 9 per kg.

The monthly costs incurred in Process II (other than the cost of chemical 'G') are:

Input 60,000 kg of chemical 'G'

Material Cost ₹ 85,000

Processing costs ₹ 50,000

You are required:

(i) Prepare statement of Equivalent production and determine the cost per kg of chemical 'G' in Process I using the weighted average cost method.

(ii) Prepare a statement showing cost of Chemical 'G' transferred to Process II, cost of abnormal loss and cost of closing work-in-progress.

(iii) STG is considering the option to sell 60,000 kg of chemical 'G' of Process I without processing it further in Process-II. Will it be beneficial for the company over the current pattern of processing 60,000 kg in process-II?

(Note: You are not required to prepare Process Account) **(8 Marks)**

(b) A Limited has furnished the following information for the months from 1st January to 30th April, 2023:

	January	**February**	**March**	**April**
Number of working days	25	24	26	25
Production (in units) per working day	50	55	60	52
Raw material purchases (% by weights to total of 4 months)	21%	26%	30%	23%
Purchase price of raw material (per kg)	₹ 10	₹ 12	₹ 13	₹ 11

Quantity of raw material per unit of product: 4 kg
Opening stock of raw material on 1st January: 6,020 kg. (Cost ₹63,210)
Closing stock of raw material on 30th April: 5,100 kg.
All the purchases of material are made at the start of each month.
Required:

(i) Calculate the consumption of raw material (in kgs) month-by-month and in total.

(ii) Calculate the month-wise quantity and value of raw materials purchased. **(6 Marks)**

5. (a) NC Limited uses a standard costing system for the manufacturing of its product 'X'. the following information is available for the last week of the month:

- 25,000 kg of raw material were actually purchased for ₹ 3,12,500. The expected output is 8 units of product 'X' from each one kg of raw material. There is no opening and closing inventories. The material price variance and material cost variance, as per cost records, are ₹ 12,500 (F) and ₹ 1,800 (A) respectively.
- The standard time to produce a batch of 10 units of product 'X' is 15 minutes. The standard wage rate per labour hour is 50. The company employs 125 workers in two categories, skilled and semi-skilled, in a ratio of 60 : 40. The hourly wages actually paid were ₹ 50 per hour for skilled workers and ₹ 40 per hour for semi-skilled workers. The weekly working hours are 40 hours per worker. Standard wage rate is the same for skilled and semi-skilled workers.
- The monthly fixed overheads are budgeted at ₹ 76,480. Overheads are evenly distributed throughout the month and assume 4 weeks in a month. In the last week of the month, the actual fixed overhead expenses were ₹ 19,500.

Required:

(a) Calculate the standard price per kg and the standard quantity of raw material

(b) Calculate the material usage variance, labour cost variance and labour efficiency variance.

(c) Calculate the fixed overhead cost variance, the fixed overhead expenditure variance and the fixed overhead volume variance. **(8 Marks)**

(b) The following information has been obtained from financial accounting and cost accounting records.

	Financial Accounting (₹)	**Cost Accounting (₹)**
(i) Factory overhead	94,750	90,000
(ii) Selling overhead	55,000	61,000
(iii) Opening stock	17,500	22,500
(iv) Closing stock	12,500	15,000

Required:
Indicate under-recovery and over-recovery and their effects on cost accounting profit.
[Note: You are not required to prepare reconciliation statement] **(4 Marks)**

(c) State any four limitations of budgetary control system. **(2 Marks)**

6. **(a)** Give any five examples of the impact of use of information technology in cost accounting. **(5 Marks)**

(b) Distinguish between cost control and cost reduction. **(5 Marks)**

(c) Describe the various levels of activities under 'ABC' methodology. **(4 Marks)**

OR

Explain the concept of performance budgeting. **(4 Marks)**

ALL INDIA OPEN MOCK
BY CA WALLAH

I04

Part – A
Answer Key

1. **(1)**

2. **(4)**

3. **(4)**

4. **(3)**

5. **(1)**

6. **(2)**

7. **(2)**

8. **(2)**

9. **(3)**

10. **(3)**

11. **(3)**

12. **(1)**

13. **(2)**

14. **(4)**

15. **(2)**

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Hints and Solution

1. (1)

A Revised Sale $= \frac{\text{Revised Fixed Cost + Expected Profit}}{\text{P/V Ratio}}$

= {₹ 115 + (20 + 10)} ÷ 45% = ₹ 322.22 crores

2. (4)

Revised Break - even Point $= \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$

= ₹ 115 Crore ÷ 45% = ₹ 255.56 Crore (Refer working notes)

3. (4)

Revised Margin of Safety = Revised Sales – Revised Breakeven Sales

= ₹ 322.22 Crores – ₹255.56 Crores = ₹ 66.66 Crores.

4. (3)

₹ 20 Crore and ₹ 30 Crore respectively (Refer working note)

5. (1)

A Total cost in last year = ₹ 230 Crore

Total cost in coming year = Variable Cost + Fixed Cost

Revised sales × 55% + ₹ 115 Crore = ₹ 322.22 Crore × 55% + ₹ 115 Crore = ₹ 292.22 Crore

Working Note

Present Sales and Profit

Total Sales = Break-even Sales + Margin of Safety

= ₹ 200 Crores + ₹ 50 Crores

= ₹ 250 Crores

PN Ratio = 40%

Variable Cost = 60% of Sales

= ₹ 250 Crores × 60% = ₹ 150 Crores

Fixed Cost = Break - even Sales × P/N Ratio

= ₹ 200 Crores × 40%

= ₹ 80 Crores

6. (2)

Maximum number of bottles that can be processed in a batch = $\frac{5{,}000 \text{ litres}}{3}$ = 1,666 bottles.

7. (2)

	Large	**Medium**	**Small**	**Total**
Demand (A)	3,00,000	7,50,000	20,00,000	
Bottles per batch (B)	$\frac{5{,}000}{3}$ = 1,666	$\frac{5{,}000}{1.5}$ = 3,333	$\frac{5{,}000}{0.6}$ = 8,333	
No. of batches (A÷B)	180	225	240	645

For simplicity of calculation small fractions has been ignored.

8. (2)

Total output in litres of Small = 20,00,000 × 0.6 = 12,00,000

Total requirement of Material W for small = 12,00,000 × 14 = 1,68,00,000 litres

9. (3)

	Large	Medium	Small	Total
Sales Value	3,00,000 × 150 = 4,50,00,000	7,50,000 × 90 = 6,75,00,000	20,00,000 × 50 = 10,00,00,000	21,25,00,000
Less: Material W cost	300000 × 3 × 14 × 0.5 = 63,00,000	750000 × 1.5 × 14 × 0.5 = 78,75,000	2000000 × 0.6 × 14 × 0.5 = 84,00,000	2,25,75,000
Less: Material C Cost	300000 × 3 × 0.025 × 1,000 = 2,25,00,000	750000 × 1.5 × 0.025 × 1000 = 2,81,25,000	2000000 × 0.6 × 0.025 × 1000 = 3,00,00,000	8,06,25,000
Less: Direct wages	$\frac{180 \times 2 \times 20 \times 880}{8}$ = 7,92,000	$\frac{225 \times 2 \times 20 \times 880}{8}$ = 10,03,200	$\frac{240 \times 2 \times 20 \times 880}{8}$ = 10,56,000	28,51,200
Less: Packaging cost	3,00,000 × 3 = 9,00,000	7,50,000 × 3 = 22,50,000	20,00,000 × 3 = 60,00,000	91,50,000
Less: Power cost for processing	180×1.75×90×7 = 1,98,450	225 × 1.75 × 90 × 7 = 2,48,062.5	240 × 1.75 × 90 × 7 = 2,64,600	7,11,112.50
Less: Power for set-up	180×0.25×18×7 = 5,670	225 × 0.25 × 18 × 7 = 7,087.5	240 × 0.25 × 18 × 7 = 7,560	20,317.50
Less: Other variable cost	180 × 30,000 = 54,00,000	225 × 30,000 = 67,50,000	240 × 30,000 = 72,00,000	1,93,50,000
Profit/loss before fixed cost	89,03,880	2,12,41,650	4,70,71,840	7,72,17,370
Less: fixed cost	–	–	–	4,90,00,000
Total Profit	–	–	–	2,82,17,360

10. (3)

	Large	Medium	Small
Annual Demand (A)	3,00,000	7,50,000	20,00,000
Setup Cost:			
Power cost per batch	0.25×18×7 = 31.50	0.25×18×7 = 31.50	0.25×18×7 = 31.50
Other variable cost per batch	30,000	30,000	30,000
Total Setup cost (B)	30,031.50	30,031.50	30,031.50
Holding cost (C)	1.00	1.00	1.00
EBQ $\sqrt{\frac{2\times A\times B}{C}}$	1,34,234	2,12,243	3,46,592

11. (3)

Cost allocated to Product A = $\frac{30,000}{60,000} \times 3,60,000$ = ₹ 1,80,000.

12. (1)

	Rs.
Purchase price	10,00,000
Custom duty	2,00,000
Octroi	5,000
Carriage inward	12,000
Commission on Purchase	10,000
Total Purchase	12,27,000
Opening stock of Raw Material	1,00,000
Closing stock of Raw Material	(2,00,000)
Raw Material consumed	11,27,000

13. (2)

Statement of Machine Hour Rate

Particulars	Machine A
Machine expenses	639
Machine hours used	588
Machine hour rate without crane usage	**1.09**
Crane expenses per hour $\left[\frac{570}{160+130+480}\right]$	0.74
Machine hour rate with crane usage	**1.83**

14. (4)

Labour rate variance = Standard time for actual production × (SR – AR)

7,500 (A) = $\left(30{,}000 \times \frac{30 \text{ minutes}}{60 \text{ minutes}}\right)$ × (50 – AR)

–7,500 = 15,000 × (50 – AR)

–0.50 = 50 – AR

AR = ₹ 50.50

15. (2)

Annual demand = A = 2.5% × 4,00,00,000 = 10,00,000 stents

Set-up cost per run = S = ₹ 225

Carrying cost per unit per annum = C = ₹ 1.50 × 12 = ₹ 18

Economic Batch Quantity = $\sqrt{\frac{2\times A\times S}{C}} = \sqrt{\frac{2\times 10{,}00{,}000\times 225}{18}}$ = 5,000 stents

Part - B

1. (a) (H and S)

Calculation of total normal hours to be paid for Mr. Sam (Skilled)

Day	Actual hours	Normal hours	Extra Hours	Overtime hours	Equivalent normal hours for overtime worked	Total normal hours payable
	A	**B**	**C**	**D = A – B**	**E = D × 2**	**F = B + C + E**
Monday	10.5	8	1	1.5	3	12
Tuesday	8	8	-	-	-	8
Wednesday	10.5	8	1	1.5	3	12
Thursday	9.5	8	1	0.5	1	10
Friday	10.5	8	1	1.5	3	12
Saturday	10	5	3 + 1 = 4	1	2	11
Total	**59**	**45**	**8**	**6**	**12**	**65**

Note: Mr. Sam will be paid for equivalent 8 normal working hours at ordinary wage rate, though 5 hours of working is required on Saturday because in question it is mentioned that both condition of 9 hour per day and 48 hour a week has to be satisfied. Thus, only 1 hour of overtime over 9 hours will be paid at overtime rate.

Wages Payable

Particulars	Mr. Sam
Basic wage per hour	600 × 8 = 75
Dearness allowance per hour @ 20%	15
Hourly wage rate	90
Total normal hours payable	65
Total wages payable	5,850

(b) (H and S)

(i) Statement of Profit

Particulars	If plant is continued (₹)	If plant is shut down (₹)
Selling price	15 per unit	–
Less: Variable cost	12 per unit	–
Contribution	3 per unit	–
Capacity	60,000 units	–
Total contribution	60,000 × 3 = 1,80,000	–
Less: Fixed cost	4,20,000	1,70,000
Less: Additional fixed cost	–	25,000
Loss	(2,40,000)	(1,95,000)

Since the loss of Noida plant exceeds shut down cost, it is better to shut down the plant.

(ii) Shut down point = $\frac{Total\ fixed\ cost - Shut\ down\ cost}{Contribution\ per\ unit} = \frac{4,20,000 - 1,95,000}{3}$ = 75,000 units

(c) (H and S)

Overheads Distribution Sheet

Particulars	Basis	Main Department			Service Department	
		Purchase	**Packing**	**Distribution**	**Maintenance**	**Personnel**
Expenses	Allocation	5,00,000	8,00,000	3,50,000	6,40,000	3,20,000
Maintenance Department Expenses	Area (12:15:7:6)	1,92,000	2,40,000	1,12,000	(6,40,000)	96,000
Personnel Department Expenses	No. of Ees (8:17:7)	1,04,000	2,21,000	91,000	–	(4,16,000)
Total	–	7,96,000	12,61,000	5,53,000	–	–
Total Hours	–	12 × 365 = 4,380	24 × 365 = 8,760	8 × 365 = 2,920	–	–
Rate per hour	–	181.74	143.95	189.38	–	–

Working Note – 1

	Main Department			Service Department	
	Purchase	**Packing**	**Distribution**	**Maintenance**	**Personnel**
Area (in sq. mtr.)	12	15	7	–	6
% of service rendered by Maintenance Department	30%	37.50%	17.50%	–	15%
Number of Employees	800	1700	700	200	–
% of service rendered by Personnel department	23.53%	50%	20.59%	5.88%	

The usual method used for ranking the support departments for Step Down Allocation Method is % of Service rendered by one Service Department to another. Based on this, Maintenance Department provides 15% (highest %) of service to Personnel Department. Thus, first maintenance department expenses should be distributed first.

2. (a) (H and S)

Cost Sheet

Particulars			**Amount**
Opening stock of raw material			80,000
Add: Raw material purchases			2,00,000
Add: Carriage inward			20,000
Less: Return of raw material			(40,000)
Less: Closing stock of raw material			(30,000)
Raw Material consumed			2,30,000
Direct wages			1,20,000
Direct Expenses: Cost of special drawing	30,000		
Hire charges paid for plant		24,000	54,000
Prime Cost			4,04,000
Stores Overheads (10% × 2,30,000)			23,000
Carriage on return			6,000
Factory overheads (20% × 4,04,000)			80,800
Rectification cost of defectives (1,20,000 × 90% × 10% × 20%)			2,160
Gross Factory Cost			5,15,960
Add: Opening WIP			50,000
Less: Closing WIP			(24,000)
Net Factory Cost			5,41,960
Less: Scrap sale			(5,000)
Cost of Production/COGS			5,36,960
Administration Overheads:			
Legal charges	2,500		
Salary to office staff	25,000		
Maintenance of office building		2,000	29,500
Selling & Distribution Overheads:			
Expenses for participation in industrial exhibition	8,000		
Warehousing charges	1,500		
Depreciation on Delivery Van		6,000	15,500
Cost of Sales			5,81,960

(b) (H and S)

Calculation of quantity produced

	Dept I	**Dept II**	**Dept III**
Input (Kg)	2,00,000	1,20,000	60,000
Weight lost or added	(20,000)	(20,000)	60,000
Total weight	1,80,000	1,00,000	1,20,000
Production of X	1,20,000	1,00,000	–
Production of Y	60,000	–	1,20,000

(a) Statement of apportionment of Joint Cost (₹ 8,75,000)

	Product X	Product Y
Output (kg)	1,20,000	60,000
Selling price per kg (₹)	8	4
Sales value (₹)	9,60,000	2,40,000
Share in Joint Cost (4:1)	**7,00,000**	**1,75,000**

(b) Statement of cost per kg

	Product X	Product Y
Share in Joint cost (₹)	7,00,000	1,75,000
Output (Kg)	1,00,000	1,20,000
Cost per kg (Joint cost)	7.00	1.458
Further processing cost per kg	1.80	1.250
Total cost per kg (₹)	**8.80**	**2.708**

(c) Statement of profit

	Product X	Product Y
Output (kg)	1,00,000	1,20,000
Sales (kg)	90,000	1,15,000
Closing Stock (Kg)	10,000	5,000
	₹	₹
Sales @ ₹10/ ₹4	9,00,000	4,60,000
Add: Closing stock (at full cost)	88,000	13,540
Value of production	9,88,000	4,73,540
Less: share in joint cost	7,00,000	1,75,000
Less: Further processing	1,80,000	1,50,000
Profit	**1,08,000**	**1,48,540**

(d) Profitability statement, before and after processing

	Product X Before (₹)	Product X After (₹)	Product Y Before (₹)	Product Y After (₹)
Sales Value	9,60,000		2,40,000	
Share in Joint Cost	7,00,000		1,75,000	
Profit	**2,60,000**	**1,08,000**	**65,000**	**1,48,540**

Product X should be sold at split off point and product Y after processing because of higher profitability.

3. (a) (H and S)

Working Note:

(1) Total labour hours and recovery rate

Particulars	Product X	Product Y	Product Z	Total
Production units	1,200	1,440	1,968	1,27,500
Labour hours per unit	18 ÷ 4 = 4.50	20 ÷ 4 = 5	30 ÷ 4 = 7.50	
Total labour hours	5,400	7,200	14,760	27,360
Total Overheads	–	–	–	2,46,240
OHs recovery rate	–	–	–	₹9

(2) Cost per activity and driver

Activity (1)	Total cost ₹ (2)	Cost allocation base (3)	Cost driver rate (4) = [(2) ÷ (3)]
Material Procurement	50,000	25 × 3 = 75 orders	₹666.67 per order
Set-up	40,000	$\frac{1200}{48} + \frac{1440}{48} + \frac{1968}{48}$ = 96 run	₹416.67 per run
Quality Control	28,240	$\frac{1200}{48} + \frac{1440}{48} + \frac{1968}{48}$ = 96 run	₹294.17 per run
Maintenance	1,28,000	6,400 hours	₹20 per hour

(i) Statement of Cost per unit

Particulars	X	Y	Z
Direct material	90	84	176
Direct labour	18	20	30
Overheads	9×4.50 = 40.50	9×5 = 45	9×7.50 = 67.50
	148.50	149	273.50

(ii) Statement of Cost per unit

Particulars	X	Y	Z
Direct material	90	84	176
Direct labour	18	20	30
Material procurement	$\frac{25\times666.67}{1,200}$ = 13.89	$\frac{25\times666.67}{1,440}$ = 11.57	$\frac{25\times666.67}{1,968}$ = 8.47
Set-up cost	$\frac{1,200\times416.67}{48\times1,200}$ = 8.68	$\frac{1,440\times416.67}{48\times1,440}$ = 8.68	$\frac{1,968\times416.67}{48\times1,968}$ = 8.68
Quality control cost	$\frac{1,200\times294.17}{48\times1,200}$ = 6.13	$\frac{1,440\times294.17}{48\times1,440}$ = 6.13	$\frac{1,968\times294.17}{48\times1,968}$ = 6.13
Maintenance	$\frac{20\times6400\times\left(\frac{1}{4}\right)}{1,200}$ = 26.67	$\frac{20\times6400\times\left(\frac{1}{4}\right)}{1,440}$ = 22.22	$\frac{20\times6400\times\left(\frac{2}{4}\right)}{1,968}$ = 32.52
Total Cost per unit	163.37	152.60	261.80

(b) (H and S)

Number of patient days = (200 × 50) + (105 × 30) + (60 × 20) + 250 = 14,600 patient days

Statement showing Profit

Particulars	Amount (₹)
Variable Cost:	
Food and Laundry Service	39,53,000
Medicines to Patients	22,75,000
Doctor's Payment	66,00,000
Hire charges of Bed (250 × ₹ 950)	2,37,500
Total Variable Cost (A)	1,30,65,500
Fixed Cost:	
Building Rent	27,00,000
Manager's Salary (₹ 5,000 × 3 × 12)	18,00,000
Nurse's Salary (₹ 18,000 × 12 × 24)	51,84,000
Ward boy's Salary (₹ 9,000 × 12 × 24)	25,92,000
Administrative Overheads	28,00,000
Depreciation on Equipment's	12,75,000
Total Fixed Cost (B)	1,63,51,000
Total Cost (A + B)	2,94,16,500
Revenue (14,600 × ₹ 2,500)	3,65,00,000
Profit (C)	70,83,000
Patient days (D)	14,600
Profit per patient day (C ÷ D)	485.17

Contribution per patient day = $\frac{3,65,00,000-1,30,65,500}{14,600}$ = ₹ 1,605.10

Break-even point = $\frac{1,63,51,000}{1,605.10}$ = 10,186.90 or say 10,187 patient day.

4. (a) (H and S)

(i) Statement of Equivalent Production

Input		Output		Material		Conversion Cost	
				%	Units	%	Units
Op. WIP	9,500	Op. WIP	9,500	100	9,500	100	9,500
Input	1,05,000	Introd. & Complete	73,500	100	73,500	100	73,500
		Transferred	83,000		83,000		83,000
		Normal Loss (1,05,000×10%)	10,500	–	–	–	–
		Abnormal Loss (Bal. fig)	4,500	100	4,500	100	4,500
		Closing WIP	16,500	100	16,500	60	9,900
	1,14,500		1,14,500		1,04,000		97,400

Statement of Cost per Equivalent Unit

Particulars	Material	Conversion Cost
Current Cost	3,34,500	2,53,100
Add: Cost of Opening WIP	29,500	14,750
Total	3,64,000	2,67,850
Equivalent Units	1,04,000	97,400
Cost per equivalent unit	3.50	2.75

Thus, cost per kg of Chemical G = 3.50 + 2.75 = ₹6.25

(ii) Statement of cost

Particulars	Element of Cost	Equivalent units	Cost per unit	Cost	Total Cost
Cost of Chemical G transferred	Material	83,000	3.50	2,90,500	
	Conversion cost	83,000	2.75	2,28,250	5,18,750
Abnormal Loss	Material	4,500	3.50	15,750	
	Conversion cost	4,500	2.75	12,375	28,125
Closing WIP	Material	16,500	3.50	57,750	
	Conversion cost	9,900	2.75	27,225	84,975

(iii) Statement of Evaluation of Offer

Particulars	Amount (₹)
Sale as chemical GK (60,000 × 1.20 × 10)	7,20,000
Less: Sale as chemical G (60,000 × 9)	5,40,000
Incremental sales revenue	1,80,000
Less: further processing cost (85,000 + 50,000)	1,35,000
Incremental Benefit	45,000

Since, there is incremental benefit in further processing, thus, it is recommended to continue Chemical 'G' in process II and sell as chemical 'GK'.

(b) (H and S)

The audit procedures required to be undertaken by CA X while auditing borrowings is as follows:

(i) **Calculation of consumption for Raw Material (in kgs) month by month and total**

Particulars	Jan	Feb	March	April	Total
No. of working cays	25	24	26	25	–
Production (per day)	50	55	60	52	–
Production	1,250	1,320	1,560	1,300	5,430
Raw material consumed (in kgs)	5,000	5,280	6,240	5,200	21,720

Calculation of Raw Material Purchased

Purchased	Kg
Closing stock on 30th April	5,100
Add: Raw material consumed	21,720
Less: Opening stock on 1st January	(6,020)
Raw material purchased	20,800

(ii) **Calculation of month wise quantity and value of raw materials purchased**

Month	Purchase quantity (Kgs)	Price (₹)	Value (₹)
January	20,800 × 21% = 4,368	10	43,680
February	20,800 × 26% = 5,408	12	64,896
March	20,800 × 30% = 6,240	13	81,120
April	20,800 × 23% = 4,784	11	52,624
Total	20,800		2,42,320

5. (a) (H and S)

(a) Material price variance = (SP – AP) × AQ

12,500 (F) = (SP × AQ) – (AP × AQ)

12,500 (F) = (SP × 25,000) – 3,12,500

SP = ₹13

Material cost variance = Standard cost – Actual cost

1,800 (A) = (SQ × 13) – 3,12,500

SQ = 23,900 kg

(b) Material usage variance = (SQ – AQ) × SP

= (23,900 – 25,000) × 13 = 14,300 (A)

Labour cost variance = Standard cost – Actual cost

= 2,39,000 – 2,30,000 = ₹9,000 (F)

Labour efficiency variance = (SH – AH) × SR

= (4,780 – 5,000) × 50 = ₹11,000 (A)

(c) Fixed overhead cost variance = Recovered overheads – Actual overheads

$= \left[\frac{19,120}{2,00,000} \times 1,91,200\right] - 19,500 = ₹1,221$ (A)

Fixed overhead expenditure variance = Budgeted overheads – Actual overheads

= 19,120 – 19,500 = ₹380 (A)

Fixed overhead volume variance = Recovered overheads – Budgeted overheads

$= \left[\frac{19,120}{2,00,000} \times 1,91,200\right] - 19,120 = ₹841$ (A)

Working notes:

(1) Budgeted time per unit = 15 minutes ÷ 10 units = 1.5 minutes

Budgeted units per hour = 60 ÷ 1.5 = 40 units

Budgeted output = 5,000 hours × 40 = 2,00,000 units

Actual output = 23,900 × 8 units = 1,91,200 units

(2) Calculation for labour variance

Particulars	Standard for 1,91,200 units			Actual for 1,91,200 units		
	Hours	Rate	Amount	Hours	Rate	Amount
Labour	$\frac{1,91,200}{40}$ = 4,780	50	2,39,000	5,000 × 60% = 3,000	50	1,50,000
				5,000 × 40% = 2,000	40	80,000
Total	4,780	50	2,39,000	5,000		2,30,000

(3) Budgeted fixed overheads per week = $\frac{76,480}{4}$ = ₹19,120

(b) (H and S)

	Financial Accounting (₹)	Cost Accounting (₹)	Difference (₹)	Under/Over recovery	Effect on cost accounting profit	Net effect on cost accounting profit*
Factory overheads	94,750	90,000	4,750	Under-recovery	Increased	To be reduced or deducted
Selling overheads	55,000	61,500	-6,500	Over-recovery	Decreased	To be added
Opening stock	17,500	22,500	-5,000	Over valuation	Decreased	To be added
Closing stock	12,500	15,000	-2,500	Over valuation	Increased	To be reduced or deducted

*Taking cost accounting profit as base

(c) (H and S)

- **The budget plan is based on estimates -** Budgets are based on forecasts and forecasting cannot be an exact science. Absolute accuracy, therefore, is not possible in forecasting and budgeting.
- **Danger of rigidity -** A budget programme must be dynamic and continuously deal with the changing business conditions. Budgets will lose much of their usefulness if they acquire rigidity and are not revised with the changing circumstances.
- **Expensive technique -** The installation and operation of a budgetary control system is a costly affair as it requires the employment of specialized staff and involves other expenditure which small concerns may find difficult to incur.
- **Budgeting is only a tool of management -** Budgeting cannot take the place of management but is only a tool of management.
- **Opposition from staff -** Employees may not like to be evaluated and thus oppose introduction of budgetary control system.

6. (a) (H and S)

- **Use of Internet –** With the use of internet (intranet and extranet), different departments are linked within the company as well as with supplier's network so that resource procurement and mobilization can be done in paperless form and that too in a lesser time.
- **Introduction to ERP –** With ERP, different functions of entity gets integrated and a single entry in the system serves every purpose for creation of various required reports. This leads to saving in preparing different set of documents.
- **Paperless Environment –** With the introduction of IT, various documents like bill of material, material requisition etc. are not required to be printed in multiple copies. E-copies of the document are sent to the related department from the system.
- **Accuracy of data –** With IT introduction, each cost center, cost object is codified and all costs related to it are assigned to it using the same code. This automates the process of calculation of total cost as per the requirement like job-wise, batch-wise etc.
- **Uniformity of reports –** With the ERP software, uniformity can be achieved in all reports in terms of location, currency, language etc.
- **Real time reports –** With ERP, all reports can be generated in real time which enables the management to implement control measures immediately.

(b) (H and S)

COST CONTROL	COST RECUCTION
1. Cost control represents efforts made towards achieving a target or goal.	1. Cost reduction represents achievements in reduction or cost.
2. The process of cost control is to set up a target, investments the variances/ variations and taking remedial measures to correct them.	2. Cost reduction is not contended merely with maintenance of performance according to the standards.
3. Cost control assumes existence of standard of norms which are not challenged.	3. It assumes the existence of concealed potential savings in the standards or norms which are therefore subject to constant challenge or improvement.
4. Cost control is a preventive function. Costs are optimized before they are incurred.	4. Cost reduction is a corrective function. It operates even when efficient cost control system exists. There is a room for reduction in the achieved costs.
5. Cost control sometime lacks dynamics approach.	5. It is continuous process of analysis by various methods of all the factors affecting costs, efforts and functions in an organization. The main aim is to have continuous economy in costs.

(c) (H and S)

Various levels of activities under ABC Methodology

Level of Activities	Meaning
1. Unit level activities	These are those activities for which the consumption of resources can be identified with the number of units produced
2. Batch level activities	The activities such as setting up of a machine or processing a purchase order are performed each time a batch of goods is produced. The cost of batch related activities varies with number of batches made, but is common (or fixed) for all units within the batch.
3. Product level activities	These are the activities which are preformed to support different products in product line.
4. Facilities level activities	These are the activities which cannot be directly attributed to individual products. These activities are necessary to sustain the manufacturing process and are common and joint to all produces manufactured.

OR

The sanctioned limit given in the question is ₹ 48,000 whereas drawing power as per the above working is ₹ 51,000. So, drawing power would be restricted to sanctioned limit i.e., ₹ 48,000/-.

Performance Budgeting

- It is a technique under which Responsibility centers are established and the targets in terms of physical performance are set for each Responsibility Centre and then expenditures (i.e. inputs in financial terms) are linked with physical performance (i.e. output in physical terms) and performance is evaluated through Periodic Performance Reports.
- The concept of performance budgeting is used extensively in the Government and Public Sector undertakings.
- In comparison to other budget forms the objectives of performance budgeting is to provide a closer linkage between planning and action and to provide a more common basis for review, control and reporting.
- The basic issues involved in the preparation of performance budgets are that of developing work programmes and performance expectations by assigning responsibilities necessary for the attainment of the goals and objectives of the enterprise.