

# FINAL EXAMINATION

## GROUP IV

(SYLLABUS 2008)

### SUGGESTED ANSWERS TO QUESTIONS

JUNE 2013

#### Paper-15 : MANAGEMENT ACCOUNTING—ENTERPRISE PERFORMANCE MANAGEMENT

Time Allowed : 3 Hours

Full Marks : 100

The figures in the margin on the right side indicate full marks.  
Answer Question No. 1 (carrying 25 marks), which is compulsory and  
any five more from the rest.

Please: (i) Answer all part of a question at one place only.  
(ii) Open a new page for answer to a new Question.

1. (a) State whether the following statements given below are 'True' or 'False'. If True, simply rewrite the given statement (1 mark). If False, state it as False (½ mark) and rewrite the correct statement (½ mark): 1x5
- (i) Value Chain Concept and Value Added Concepts are fundamentally same.
  - (ii) Value Analysis Process is a less important tool than Function Analysis System Technique.
  - (iii) Effector is another name for Management Information System.
  - (iv) JIT manufacturing based on 'Push Through Philosophy', helps to provide the right parts at the right time and in right quantity.
  - (v) A company's approach to make or buy decision depends on whether the company is operating at or below normal volumes.
- (b) In each of the cases given below, only one is the most appropriate option. Indicate the correct answer (=1 mark) and show your workings/reasons briefly in support of your answer (=1 mark): 2x5
- (i) ASHLEEN Ltd., developing a new product, makes a model for testing and goes for regular production. From past experience of similar models, it is known that a 90% learning curve applies. If the time taken to make the model is 300 hours, what will be the total time taken to produce 3rd to 4th unit of the product?
    - A. 540 hours
    - B. 486 hours
    - C. 432 hours
    - D. None of the above.
  - (ii) A company has a capacity to make 4,00,000 units of a product. It has noted from market conditions that at a price of ₹ 50 per unit, it can sell 1,00,000 units but the demand would double for each ₹ 5 fall in the selling price. A minimum margin of 25% is required. The target cost for the company should be:
    - A. ₹50
    - B. ₹40
    - C. ₹30

D. ₹20

(iii) ABC Ltd., has current PBIT of ₹19.20 Lakhs on total assets of ₹96 Lakhs. The company proposes to increase assets by ₹ 24 Lakhs, which is estimated to increase operating profit before depreciation by ₹8.40 Lakhs-a net increase in Depreciation by ₹4.80 Lakhs. This will result in ROI.

A. To decrease by 1%

B. To increase by 1%

C. To remain same

D. None of the above.

(iv) Division A of a company manufactures a single product and the following data are provided:

Sales = 25,000 units

Fixed Cost = ₹ 4,00,000

Depreciation = ₹ 2,00,000

Residual Income = ₹ 30,000

Net Assets = ₹10,00,000

Head Office assesses divisional performance by the method of Residual Income and uses cost of capital of 12%.

The average contribution per unit for Division A is:

A ₹25

B. ₹30

C. ₹35

D. None of these.

(v) XYZ Ltd., is preparing its Sales Budget for the coming 3 months. The Sales Department has given an estimate that Sales will be 1,20,000 units, if the monsoon is good and 80,000 units if the monsoon is poor. The probability that the monsoon will be poor is 0.4. The expected Sales Volume for next quarter would be:

A. 72,000 units

B. 32,000 units

C. 1,04,000 units

D. None of these.

(c) Fill in the blanks with the most appropriate word(s) out of the options indicated in the bracket against each statement: 1x5

(i) The adoption of JIT normally requires to improve \_\_\_\_\_ (Production time/Quality Standard).

(ii) FAST or Function Analysis System Technique is an evolution of the \_\_\_\_\_ (Quality Function Deployment/Value Analysis) process.

(iii) One of the ten principles of Lean Supply Chain is to 'make your customers and suppliers your real \_\_\_\_\_' (Friends/Partners).

(iv) \_\_\_\_\_ (Internets/Intranets) can help users to locate and view information faster.

(v) \_\_\_\_\_ A \_\_\_\_\_ (Management Culture/Management Style/Organizational Structure) consist of shared values, beliefs and norms of organization.

(d) Explain the following terms, in not more than one-two sentences: 1x5

(i) Aggregate Planning

(ii) Chase Strategy

(iii) The Theory of Constraints

(iv) Vat analysis

(v) Materials Requirement Planning.

**Answer 1.**

- (a) (i) False. Value Chain concept is fundamentally different from the Value Added Concept.  
 (ii) True. Value Analysis (VA) Process is less important tool than Function Analysis System Technique (FAST)  
 (iii) False. 'Detector' is another name for Management Information System (MIS).  
 (iv) False. JIT manufacturing operates as a demand-pull system, producing on demand i.e., making to order.  
 (v) False. A company's approach to make or buy decision involves an analysis of avoidable costs.
- (b) (i) (C) 432 hours.

Cumulative output	Average time/unit (hrs.)	Total time (hrs.)	Incremental Time (hrs.)
1	300	300	
2	270 (0.9 x 300)	540	
4	243 (0.9 x 270)	972	432 (972 – 540)

- (ii) (C) 30 hrs.

Price (Rs.)	Demand (units)
50	1,00,000
45	2,00,000
40	4,00,000

Target Cost = ₹40 – 25% of ₹40 = ₹40 – ₹10 = ₹30

- (iii) (A) To decrease by 1%

ROI (₹Lakhs)

Without Investment

PBIT 19.20  
 Total Assets 96.00  
 ROI (%) 20.00

With Investment

(+8.40 – 4.80) 22.80  
 120.00  
 19.00

Hence ROI decreases by 1%.

- (iv) (B) ₹30.

Total contribution required:

12% of ₹10 Lakhs = ₹1,20,000 + 30,000 + 2,00,000 + 4,00,000

(RI) (Depr.) (FC)  
 = ₹7,50,000 ÷ 25,000 = ₹30.

- (v) (C) 1,04,000.

[80,000 x 0.40] + [1,20,000 x 0.60]  
 = 32,000 + 72,000 = 1,04,000

- (c) (i) The adoption of JIT normally requires to improve **Quality Standard**.  
 (ii) **FAST** or Function Analysis System Technique is an evolution of the **Quality Function Development** process.  
 (iii) One of the ten principles of Lean Supply Chain is to 'make your customers and suppliers your real **Partners**.  
 (iv) **Intranets** can help users to locate and view information faster.  
 (v) A **Management Culture** consist of shared values, beliefs and norms of organization.

- (d) (i) **Aggregate Planning:** is the process of developing, analyzing and maintaining a preliminary approximate schedule of the overall operations of an organization.
- (ii) **Chase Strategy:** A Chase Strategy implies matching demand and capacity period by period. This could result in a considerable amount of hiring, firing or laying off of employees; insecure and unhappy employees; increased inventory carrying cost; problems with labour unions and erratic utilization of plant and equipment.
- (iii) **The Theory of Constraints (TOC):** is a management philosophy developed by Goldratt. According to him, the strength of any chain, process or system is dependent upon its weakest link. TOC strives to identify constraints for system success and effects changes necessary to remove them.
- (iv) **Vat analysis:** determines the general flow of parts and products from raw materials to finished products. It conceptualizes an organization in terms of the interaction of its individual components parts, products and processes.
- (v) **Materials Requirement Planning:** is a method for the effective planning of a manufacturer's resources. It is a computer-based time-phased system for planning and controlling the production and inventory function of a firm.

2. (a) What is Intranet? What are its advantages?

1+4

- (b) B,D,P and Q are the four types of products that appear in the pricelist of DEPORTIVO Ltd., with a note that a particular item or items may not be available on demand. The demand for the products is more than what the company can supply and non-supply of any of them will have no effect on the demand for the rest.

For the year 2013-14, the company has made the following tentative budget that will use up all the available supplies of materials and labour in that year.

A linear programming was made by the company's accountant who stated that the opportunity costs or the shadow price came to ₹3.00 per labour hour and ₹19.50 per kg. of material. He also suggested the product-mix which has since been forgotten. The accountant has left the company. The company now asks you as their Management Consultant to give your opinion about the budgeted programme.

Data from the tentative budget for 2013-14 is:

Product	B	D	P	Q
Production/Sales (units)	2000	2400	3200	1600
Selling Price per units (₹)	120	156	144	180
Variable Cost per unit (₹)	72	96	60	84
Labour hours per unit	3	4	2	5
Material Usage per unit (Kg.)	2	3	4	5

Required:

- (i) Determine the optimal sales-mix for the company.
- (ii) What difference the sales-mix in (i) will make from that in the tentative Budget in respect of the contribution? 10

Answer 2.

- (a) An Intranet is a private computer network that uses internet protocols and network-connectivity to securely share part of an organization's information or operations with its employees. Briefly it can be understood as a "private version of an internet" or as a "version of the Internet confined to an organization". Through such devices and systems, off-site employees can access company information, computing resources and internal communications.

**Advantages of Intranets:** The following are some of the important advantages of Intranets:

- (i) **Work-force productivity:** Intranets can help users to locate and view information

faster and use applications relevant to their roles and responsibilities. Users can access data held in any data base the organization wants to make available, anytime and from anywhere within the company work-stations.

- (ii) **Time:** With Intranets, organizations can make more information available to employees on a “pull” basis (i.e., employees can link to relevant information at a time which suits them) rather than being deluged indiscriminately by e-mails.
- (iii) **Communication:** Intranets can serve as powerful tools for communication within an organization – both vertically as well as horizontally.
- (iv) **Enhance Collaboration:** With information easily accessible by all authorized users, team-work is enabled.
- (v) **Promote Corporate Culture:** Every user is viewing the same information within the Intranet.
- (vi) **Cost-effective:** The Intranet enables the system to become cost-effective.

(b) (i) Total Labour hours available =  $2000 \times 3 + 2400 \times 4 + 3200 \times 2 + 1600 \times 5$   
 $= 6000 + 9600 + 6400 + 8000 = 30,000$  hours.

Total available Material =  $2000 \times 2 + 2400 \times 3 + 3200 \times 4 + 1600 \times 5$   
 $= 4000 + 7200 + 12800 + 8000 = 32,000$  Kgs.

**Statement showing comparison of Opportunity Cost with Contribution:**

Product	Labour	Material	Opportunity Cost*			Contribution (SP – VC) 7	Difference 8 = (7-6)
			Labour 4	Material 5	Total 6 = (4+5)		
B	3	2	9.00	39.00	48.00	48.00	00.00
D	4	3	12.00	58.50	70.50	60.00	(10.50)
P	2	4	6.00	78.00	84.00	84.00	00.00
Q	5	5	15.00	97.50	112.50	96.00	(16.50)

\* The opportunity cost has been arrived at by multiplying the quantity of resources used and its shadow price.

Now, in case of Product D and Q, the opportunity cost is more than the contribution, so it can be omitted (or not produced) because the benefit foregone is more than the contribution.

For evaluation of B and P, the following LP equations can be formed:

$$3B + 2P \leq 30000 \quad \text{----- (i) (For Labour Constraint)}$$

$$2B + 4P \leq 32000 \quad \text{----- (ii) (For Material Constraint)}$$

From (i) and (ii) above, we get

$$B = 7000 \text{ units}$$

$$P = 4500 \text{ units}$$

It will give a contribution of  $7000 \times 48 + 4500 \times 84 = 336000 + 378000 = ₹714000$ .

(ii) The Tentative Budget will make all the four products and it will give a Contribution of:

$$B: 2000 \text{ units} \times ₹48 = ₹96000$$

$$D: 2400 \text{ units} \times ₹60 = ₹144000$$

$$P: 3200 \text{ units} \times ₹84 = ₹268800$$

$$Q: 1600 \text{ units} \times ₹96 = ₹153600$$

$$\text{Total Contribution : } \underline{\underline{₹662400}}$$

It is clear that the Budget based on Shadow Prices of constrained resources (Labour and Material) will give an extra contribution of ₹51600 i.e.,  $(₹714000 - ₹662400)$ .

**Note:** The shadow prices of constrained resources represent the Opportunity Cost i.e., benefits foregone if the production is undertaken. Therefore, the products where the Opportunity Cost is

more than the contribution will not be produced.

3. ROLTA Ltd., had nearly completed a job relating to construction of a specialized equipment, whence it discovered that the customer had gone into liquidation. At this stage, the position of the job was as under:

Particulars	₹
Original cost estimate	1,75,500
Costs incurred so far	1,48,500
Cost to be incurred	30,000
Progress payment received from the original customer:	1,00,000

After searches, a new customer for the equipment has been found. He is interested to take the equipment, if certain modifications are carried out. The customer wants the equipment in its original condition but without its control device and with certain other modifications.

The costs of these additions and modifications are estimated as under:

	₹
Direct material at cost	1,050
Direct wages:     Department-A 15 man-days Department-B 25 man-days	
Variable overheads 25% of direct wages in each department.	
Delivery costs:	1,350
Fixed overheads will be absorbed @50% of direct wages in each department.	

The following additional information are available:

- The direct materials required for the modification are in stock and if not used for modification of the order, they will be used in another job in place of material that will now cost ₹ 2,500.
- Department-A is working normally and hence any engagement of labour will have to be paid at the direct wages rate of ₹120 per man-day.
- Department-B is extremely busy. Its direct wage rate is ₹100 per man-day and it is currently yielding a contribution of ₹3.20 per rupee of Direct wages.
- Supervisory overtime payable for the modification is ₹ 1,050.
- The cost of control device that the new customer does not require is ₹13,500. If it is taken out, it can be used in another job in place of a different mechanism. This latter mechanism has otherwise to be bought for ₹ 10,500. The dismantling and removal of the control mechanism will take one man-day in Department-A.
- If the conversion is not carried out, some of the materials in the original equipment can be used in another contract in place of materials that would have cost ₹ 12,000. It would have taken two-man-days of work in Department-A to make them suitable for this purpose.

The remaining materials will realize ₹ 11,400 as scrap. The drawings which are included as a part of the job can be sold for ₹ 1,500.

You are required to calculate the minimum price that ROLTA Ltd., can afford to quote for the new customer, as stated supra. 15

Answer 3.

#### ROLTA Ltd.

- The original cost estimate of ₹175500 is no longer valid, as the customer for whom it was prepared has gone into liquidation.
- The cost of ₹148500, which has already been incurred to date is a sunk cost and is therefore not relevant.
- The progress payment received of ₹100000 is a transaction, that is past and as such is

- not relevant for the revised quote decision.
- Only the future costs to be incurred in completing the hob are relevant. They are given here-below:

Particulars	₹	₹
Cost to be incurred to complete the equipment		30000
Direct materials: Opportunity cost is relevant		2500
Direct Wages:		
Dept. A 15 man-days x ₹120	1800	
Dept. B 25 man-days x ₹100	2500	
Opportunity cost of contribution lost (2500 x 3.20)	8000	12300
Variable overheads: 25% of wages (₹1800 + 2500)		1075
Delivery costs		1350
Fixed overheads – not relevant		-----
Supervisor's overtime to be incurred		1050
Control Mechanism could have fetched:	10500	
Removal Cost: Dept A: 1 man-day x 120	(120)	
Overheads (25% of ₹120)	(30)	10350
Loss of cost savings of the equipment:		
Material saving	12000	
Conversion cost: Dept. A: 2 man-days x 120	(240)	
Overheads @ 25% of 240	(60)	11700
Materials which could have been sold as scrap		11400
Drawings which could have been sold		1500
Total Relevant Cost		83225

∴ The lowest price to be quoted for a new customer is: ₹83225.

4. (a) What is 'Kaizen Costing'? Write a short note on it.

1+4

(b) The following data are available:

Item	Budget	Actual
No. of working days	20	22
Output per man-hour	1.0 unit	0.9 unit
Fixed Overhead cost	₹ 1,60,000	₹ 1,68,000
Man-hours per day	8,000	8,400

You are required to calculate:

- Fixed Overhead efficiency Variance
- Fixed Overhead Capacity Variance
- Fixed Calendar Variance
- Fixed Overhead Volume Variance and
- Fixed Overhead Cost Variance.

2x5

Answer 4.

- (a) **Kaizen Costing:** Kaizen Costing is a modification of Standard Costing, which is essential to realize the planned cost reductions in continuous time. This is a Japanese contribution to cost accounting. Kaizen Costing is a continuous improvement applied to cost reduction in the manufacturing stage of a product's life. Like that of Standard Costing Programme, the aim of Kaizen Costing is to remove inefficiencies from the production processes.

Kaizen Costing tracks the cost reduction plans on a monthly basis. The Kaizen Costing Targets are expressed in the physical resources terms. If the head of a group fails to

achieve the Kaizen Costing target by 1%, review by the seniors will start. Resources consumption is very tightly controlled in many Japanese firms. Thus the planned cost reductions are planned and monitored through Kaizen Cost targets, in terms of physical resources.

While implementing the concept of Kaizen costing, the following few rules are to be remembered:

- List down your own problems.
- Grade your problems as to minor, difficult or major.
- Select the smallest minor problem to start with. After tackling it move on to the next graded problem and so on.
- Always remember that improvement is a part of daily routine.
- Never accept status quo.
- Never reject any idea before trying it.
- Share the experiments with colleagues.
- Eliminate already tried but failed experiments, while sharing the problems with your colleagues.
- Never hide problems, always highlight them.

(b)

(i)	(ii)	(iii)	(iv)	(v)
SRSH	SRAH	SRRBH	SRBH	ARAH
1 x 166320	1 x 184800	1 x 176000		
₹166320	₹184800	₹176000	₹160000	₹168000

- $SR = \text{Budgeted FOH/Budgeted hours} = 160000/160000 = 1$
- $RHH = (22/20) \times 160000 = 176000$
- $AH = 22 \times 8400 = 184800$
- $AQ = 184800 \times 0.9 = 166320$
- $SH = 166320/1 = 166320$ .

(1) SRSH = Standard Cost of Standard Fixed Overheads = ₹166320

(2) SRAH = Standard Cost of Actual Fixed Overheads (or)  
= Fixed Overheads absorbed or recovered = ₹184800

(3) SRRBH = Revised Budgeted Fixed Overheads = ₹176000

(4) SRBH = Budgeted Fixed Overheads = ₹160000

(5) ARAH = Actual Fixed Overheads = ₹168000.

(i) FOH Efficiency Variance = 1 – 2 = ₹166320 – ₹184800 = ₹18480 (A).

(ii) FOH Capacity Variance = 2 – 3 = ₹184800 – ₹176000 = ₹8800 (F).

(iii) FOH Calendar Variance = 3 – 4 = ₹176000 – ₹160000 = ₹16000 (F).

(iv) FOH Volume Variance = 1 – 4 = ₹166320 – ₹160000 = ₹6320 (F).

(v) FOH Cost Variance = 1 – 5 = ₹166320 – ₹168000 = ₹1680 (A).

5. (a) Explain the role of Cost and Management Accountant into a Target Costing Environment.

5

(b) Ruhika Automoblies Pvt. Ltd., manufactures around 150 scooters. The daily production varies from 146 to 154 depending on the availability of raw material and other working conditions.

The following data is available:

Production (units)	146	147	148	149	150	151	152	153	154
Probability	0.04	0.09	0.12	0.14	0.11	0.10	0.20	0.12	0.08

The completed units of scooters are transported in a specially arranged truck



accommodating 150 scooters.

The Despatch will be equal to the opening stock plus daily production or 150 scooters, whichever is less. Empty Space are applicable only when the despatch is less than 150 scooters.

Assume that the opening stock on day-1 is Nil.

Using the following random numbers:

80,81,76,75,02,43,03,26,10,12,65,68,69,61 and 57.

Simultate for 15 days to find out:

- (i) The average number of scooters waiting in the factory and  
(ii) The average number of empty space on the truck.

10

### Answer 5.

(a) A Cost and Management Account can play a significant role in Target Costing Environment, as detailed below:

- To track the gap between current cost and target cost
- To provide details of items where cost-savings can be achieved.
- To understand the capital budgeting request generated by the design team based on the types of equipment needed for the anticipated product design.
- Help in understanding the nature of various costs, as well as the cost benefits trade-off of using different design or cost operations in the new product.
- Helps in making coordination between different departments to achieve the desired goals and ultimately the organizational goals.

(b) **Random number table for production**

Production (units)	146	147	148	149	150	151	152	153	154
Probability	0.04	0.09	0.12	0.14	0.11	0.10	0.20	0.12	0.08
Cumulative Probability	0.04	0.13	0.25	0.39	0.50	0.60	0.80	0.92	1.00
Random No.	00-03	04-12	13-24	25-38	39-49	50-59	60-79	80-91	92-99

**Simulation Table**

Day	Random No.	Production (Units)	Op. Stock (Units)	Despatch (Units)	Cl. Stock (Units)	Empty spaces
(a)	(b)	(c)	(d)	(e)	(f) = c+d-e	(g)
1	80	153	Nil	150	3	Nil
2	81	153	3	150	6	Nil
3	76	152	6	150	8	Nil
4	75	152	8	150	10	Nil
5	02	146	10	150	6	Nil
6	43	150	6	150	6	Nil
7	03	146	6	150	2	Nil
8	26	149	2	150	1	Nil
9	10	147	1	148	Nil	2
10	12	147	Nil	147	Nil	3
11	65	152	Nil	150	2	Nil
12	68	152	2	150	4	Nil
13	69	152	4	150	6	Nil
14	61	152	6	150	8	Nil
15	57	151	8	150	9	Nil
Total for the period		2254		2245	71	

6. (a) Write a note on Total Quality Management.

5

(b) What are the various stages/steps to be taken in the implementation of Total Quality Management?

10

**Answer 6.**

- (a) The term **Total Quality Management** is an active approach encompassing a company-wide operating philosophy and system for continuous improvement of quality. It seeks to increase customer satisfaction by finding the factors that limit current performance. This approach highlights the need for a customer-oriented approach.

The emphasis of TQM is to design and build quality, rather than allow defects and then inspect and rectify them. The focus is thus on the causes rather than the symptoms of poor quality.

The three core concepts of TQM are:

- i. Quality control
- ii. Quality assurance and
- iii. Quality Management.

TQM demands cooperation from everyone in the company from the top management down to workers.

The current thinking of TQM is moving from the quality of Product and Service to embrace also the quality of environment. ISO 14000 standard supports this current thinking.

- (b) The following are the various stages/steps to be taken in the implementation of TQM process:

- (i) Stage 1: Identification of customers/customer groups: Through a team approach, the firm should identify major customer groups. This helps in generating priorities in the identification of customers and critical issues in the provision of decision-support information.
- (ii) Stage 2: Identifying customer expectations: Once the major customer groups are identified, their expectations are then listed.
- (iii) Stage 3: Identifying customer decision-making requirements and product utilities: BY identifying the need to stay close to the customers and follow their suggestions, a decision-support system can be developed, incorporating both financial as well as non-financial information.
- (iv) Stage 4: Identifying perceived problems in decision-making process and product utilities: Using participative processes such as brain-storming, the firm seeks to list out its perception of problem areas and the shortcomings in meeting customer requirements.
- (v) Stage 5: Comparison with other firms and benchmarking: Detailed and systematic internal deliberations allow the firm to develop a clear idea of their own strengths and weaknesses and of the areas of most significant deficiency.

- (vi) Stage 6: Customer feedback: Interaction with the customers and obtaining their views helps the firm in correcting its own perceptions and refining its process.
- (vii) Stage 7: Identification of improvement opportunities and implementation of Quality improvement Process: The outcomes of the customer survey, benchmarking and internal analysis.

7. (a) A company is considering the purchase of a new machine, which has a three year life and will lead to increase the profit in each of the next 3 years. However, due to uncertainty in demand, the annual additional cash flow resulting from the purchase of the new machine cannot be determined with certainty and have, therefore, been estimated probabilistically as under:

Year-I		Year-II		Year-III	
Annual Cash flow (₹ Lakh)	Probability	Annual Cash flow (₹ Lakh)	Probability	Annual Cash flow (₹ Lakh)	Probability
10	0.30	10	0.10	10	0.20
15	0.50	20	0.30	20	0.50
20	0.20	30	0.40	30	0.30
		40	0.20		

The cost of the new machine is ₹42 Lakhs and will have no salvage value at the end of the 3rd, year. Based on the average cash flow for each year, advise whether it would be advisable to purchase the machine. The company's cost of capital is 15%.

Present value of Re.1 at 15% discount rate is:

Year	I	II	III	
PV	0.8696	0.7561	0.6575	7

- (b) The standard cost card of a product X is as under:

Direct Material - Item A 10 kg@ ₹ 10	100	₹	₹
- Item B 5 kg @ ₹ 5	25.	125	
Direct Wages - 5hrs.@₹ 4		20	
Fixed Production Overheads		21	
Total Standard Cost		170	
Standard Gross Profit		<u>30</u>	
Standard Selling Price		<u>200</u>	

During the month just concluded, the following were the actual results for the production of 800 units.

Sales 800 units @ 200 per unit	<u>1,60,000</u>	₹
Direct Material Item A 7800Kg.	79,950	
Item B 4200 Kg.	20,160	
Direct Wages 4200 hrs.	12,075	
Fixed Overheads	<u>23,500</u>	
	<u>1,35,685</u>	
Gross Profit	<u>24,315</u>	

**Material Price Variance is calculated at the point of issue.**

**Material purchased were Item A 9000 Kg @ ₹ 10.25 per Kg and Item B @ ₹ 4.80 per Kg.**

**There was no Opening Stock.**

**You are required to calculate:**

- (i) Material Price Variance**
- (ii) Material Usage Variance**
- (iii) Labour Rate Variance and**
- (iv) Labour Efficiency Variance.**

2x4

**Answer 7.**

(a)

Year – I		
Annual Cash flow (₹Lakh)	Probability	₹In Lakhs
10	0.30	3.00
15	0.50	7.50
20	0.20	4.00
		14.50

Year – II		
Annual Cash flow (₹Lakh)	Probability	₹In Lakhs
10	0.10	1.00
20	0.30	6.00
30	0.40	12.00
40	0.20	8.00
		27.00

Year – III		
Annual Cash flow (₹Lakh)	Probability	₹In Lakhs
10	0.20	2.00
20	0.50	10.00
30	0.30	9.00
		21.00

**NPV**

$$\begin{aligned}
 14.50 \times 0.8696 &= 12.61 \\
 27.00 \times 0.7561 &= 20.41 \\
 21.00 \times 0.6575 &= \underline{13.81} \\
 \text{Total PV} &= 46.83 \\
 (-) \text{ Investment} &= \underline{42.00} \\
 \text{Surplus PV} &= \underline{4.83}
 \end{aligned}$$

As the NPV is positive, it would be advisable to purchase the new machine.

(b) **Computation of Variances:**

(i) **Material Price Variance:**

Material	Qty Consumed Kg.	Std. Price ₹	Act. Price ₹	Std. Cost ₹	Act. Cost ₹	Price Variance ₹
A	7800	10	10.25	78000	79950	1950 (A)
B	4200	5	4.80	21000	20160	840 (F)
						1110 (A)

(ii) **Material Usage Variance:**

Material	Std. Qty of actual output Kg.	Act. Qty Kg.	Std. Price ₹	Std. Cost of Std. Qty. ₹	Std. Cost of act. Qty. ₹	Usage Variance ₹
A	8000	7800	10.00	80000	78000	2000 (F)
B	4000	4200	5.00	20000	21000	1000 (A)
						1000 (F)

(iii) **Labour Rate Variance:**

Act. Hrs.	Std. Rate (₹)	Act. Rae (₹)	Std. Wages (₹)	Act. Wages (₹)	Rate Variance (₹)
4200	4	2.875 (12075/4200)	16800	12075	4725 (F)

(iv) **Labour Efficiency Variance:**

Std. Hrs. for act. Output	Act. Hrs.	Std. rate (₹)	Std. cost of Std. hrs. (₹)	Std. Cost of Act. Hrs.	Efficiency Variance (₹)
4000	4200	4	16000	16800	800 (A)

**8. Write Short Notes on any three out of the following:****3x5**

- (i) **McKinsey's 7-S Framework**
- (ii) **Succession Planning**
- (iii) **Basic Steps for implementing Lean/JIT Production**
- (iv) **Matrix Organization**
- (v) **Crowned Prince Syndrome.**

**Answer 8.**(i) **McKinsey's 7-S Framework:**

This model considers the criteria in success of a business organization and forms an interconnected framework of seven elements, viz,:

- Structure
- Strategy
- Skills
- Systems
- Staff
- Style and
- Shared Values or Super ordinate goals.

Of these, the first two i.e., Structure and Strategy form the hardware of the organization, the remaining components constitute the software. The hard components are easily recognized as important. The soft ones are often barely recognizable. But they are equally important and are critical for the success of a firm.

Shared Values, System and Style relate to behavioural patterns involving Staff and their Skill. The super-ordinate goals represent the culture of the organization.

The successful implementation of a strategy requires the right alignment of various activities and processes within the organization.

All the seven elements are equally important in creating a climate of commitment. The better the alignment between and among all the seven levers of the organization, the better are likely to be the results.

(ii) Succession Planning (SP) is a critical part of the human resources planning (HRP) process. HRP is the process of having the right number of employees in the right positions in the organization at the time that they are needed. HRP involves forecasting or predicting the organization's needs for labour and supply of labour and then taking steps to move people into positions in which they are needed.

Succession Planning is the systematic process of defining future management requirements and identifying candidates who best meet those requirements. SP involves using the supply of labour within the organization for future staffing needs. With SP, the skills and abilities of current employees are assessed to see which future positions they may take within the organization when other employees leave their positions. SP is typically used in higher-level organizational positions. For instance, if a company predicts that its CEO will retire in the near future, the organization may begin looking months or even years in advance to determine which current employee might be capable of taking over the position of the present retiring CEO. SP is thus aimed at promoting individuals within the organization and thus makes use of internal selection.

Basic Steps in effective SP involves:

- Human resources planning
- Assessing needs
- Developing managers
- Developing replacement charts and
- Identifying individual career growth plan.

(iii) **Basic Steps for implementing lean/JIT production:**

The following are the basic steps to implement Lean/JIT Production:

- i. Re-engineer the manufacturing system
- ii. Reduce set-ups
- iii. Integrate quality control
- iv. Integrate preventive maintenance
- v. Level and balance the system
- vi. Integrate a pull system
- vii. Control inventory
- viii. Implement a vendor program
- ix. Utilize computer integrated manufacturing benefits.

The Lean/JIT producer combines the advantages of craft and mass production, while avoiding the high cost of the former and the rigidity of mass production. The Lean/JIT producers set their sights explicitly on perfection, continually declining costs, zero defects, zero inventories and endless product variety. The Lean/JIT manufacturing is the new paradigm for manufacturing, replacing a mass-production system.

(iv) **matrix Organization:**

A Matrix Organization combines the coordination and control of the decentralized structure with the technical excellence of economics of scale of the functional structures to reap the benefits of both.

The Matrix Organization structure is suitable for projects which are not large enough to warrant a fully decentralized set-up, with all functional managers under each project.

Such type of structure is suitable for projects of short duration.

While managing complex programs as in large high-tech programs, complex products and services and multinational business, organization face several coordination problems. A Matrix Organization avoids such problems, as the total responsibility for achieving the goals and objective of the program lies with Program Manager but must share resources from the various functional heads. The functional managers assigned to the projects are administrating reporting to the Project Manager but functionally to the Function Head. The distinguishing feature of the Matrix Organization is thus, the dual dimensions of management embodied in it.

The advantages of Matrix Organization structure are:

- i. Ensures better coordination and control of the decentralized structure along with achieving technical excellence and economies of scale of the technical organizations.
- ii. Fosters creativity and multiple sources of diversity
- iii. Broader middle-management exposure to strategic issues of the business
- iv. Acts as a good ground for future managers.

There are a few disadvantages of a Matrix Organization structure like:

- i. Dual accountability creates confusion.
- ii. Necessities tremendous horizontal and vertical coordination.
- iii. Differences in orientation between programme and functional personnel.
- iv. It becomes difficult to administer system of accountability, leading to potential conflict.

(v) **Crowned Prince Syndrome:**

The first potential problem in Succession Planning is the 'Crowned Prince Syndrome', which occurs when the upper management only considers for advancement, those employees, who have become visible to them. In other words, rather than looking at a wide array of individual employees and their capabilities, upper management focuses only on one person – the would be "crowned Prince". This person is often one who has been involved in high-projects, has a powerful and prominent mentor or has networked well with the organizational leaders.

There are often employees throughout the organization who are capable of and interested in promotion who may be overlooked because of the more visible and obvious "crowned prince", who is likely to be promoted, even if these other employees are available. Not only are performance problems a potential outcome of this syndrome but also the motivation of current employees may suffer, if they feel that their high performance has been overlooked. This may result in turnover of high quality employees, who have been overlooked for promotion due to the "crown Prince" syndrome.

