

CA-FINAL
GROUP II – PAPER 5
STRATEGIC COST MANAGEMENT AND PERFORMANCE EVALUATION
SERIES - 3 (May 2020)

Roll No.
Time Allowed: - 3 Hours

Date : 19.03.2020
Maximum Marks: 100

Question No. 1 is compulsory.
Attempt any Four questions from the rest.

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- 1** Fair Limited manufactures and sells motor vehicles in India and different parts of the world. The company has its head office in New Delhi and three regional offices. The manufacturing plants are situated in Pune and Bhubaneshwar. The company has over 10,000 employees who are paid a fixed salary and a performance related pay (PRP). The PRP is determined using the financial performance as a measure. The performance of departments which are profit centers is based upon the revenues and profits the departments generate. The performance of cost centers is based upon the cost savings against the budget. **20**
- Of late, the company has identified critical issues with the motor vehicles manufactured and sold in the market. In the last one year, itself, the company has recalled more than 2 lakh vehicles owing to quality issues like faulty gearbox, issues with axle, braking systems etc. The company was also penalized for selling vehicles which does not meet the emission norms.
- The board of directors carried out an internal review of these frequent recalls and issues with the vehicles. In most of the cases, it appeared that the recall of vehicles was on account of lower quality of material and parts used. A couple of critical quality and emission checks were ignored to dispatch more vehicles in the limited time, leading to higher sales and profits.
- The board is concerned with the reputational risk with the issue related with recalls. The company was consumer's most trusted brand for last three years in a row. It is unlikely to win the award this year due to negative feedback from customers. The board wants to win the trust of the customers back and be profitable as well.
- You are the advisor to the board. The board seeks your advice on the following aspects:**
- (i) STATE advantages and disadvantages of using financial measure as a performance measure.
 - (ii) ADVISE an alternative performance measure which includes non-financial measures as well.
 - (iii) IDENTIFY 2 critical success factors and 2 Key Performance Indicators for the performance measure chosen in (ii).
- 2(a)** NEC Ltd. manufactures two parts 'P' and 'Q' for Computer Industry. **16**
- P : Annual production and sales of 1,00,000 units at a selling price of ₹ 100.05 per unit.
- Q : Annual production and sales of 50,000 units at a selling price of ₹ 150 per unit.

Direct and Indirect costs incurred on these two parts are as follows:

Particulars of Costs	P	Q	Total
Direct Material Cost (Variable)	4,200	3,000	7,200
Labour Cost (Variable)	1,500	1,000	2,500
Direct Machining Cost (See Note)*	700	550	1,250
Indirect Costs			
Machine Setup Cost			462
Testing Cost			2,375
Engineering Cost			2,250

Note: Direct machining costs represents the cost of machine capacity dedicated to the production of each product. These costs are fixed and are not expected to vary over the long- run horizon.

Additional information is as follows:

	P	Q
Production Batch Size	1,000 units	500 units
Set-up Time per batch	30 hours	36 hours
Testing Time per unit	5 hours	9 hours
Engineering Cost incurred on each product	8.40 lakhs	14.10 lakhs

A foreign competitor has introduced product very similar to 'P'. To maintain the company's share and profit, NEC Ltd. has to reduce the price to ₹ 86.25. The company calls for a meeting and comes up with a proposal to change design of product 'P'. The expected effect of new design is as follows:

- Direct Material cost is expected to decrease by ₹ 5 per unit.
- Labour cost is expected to decrease by ₹ 2 per unit.
- Machine time is expected to decrease by 15 minutes, previously it took 3 hours to produce 1 unit of 'P'. The machine will be dedicated to the production of new design.
- Set up time will be 28 hours for each set up.
- Time required for testing each unit will be reduced by 1 hour.
- Engineering cost and batch size will be unchanged.

Required

- (i) Company management identifies that cost driver for Machine set-up costs is 'Set up hours used in batch setting' and for testing costs is 'testing time'. Engineering costs are assigned to products by special study. Calculate the full cost per unit for 'P' and 'Q' using Activity-Based Costing.
- (ii) What is the Mark-up on full cost per unit of P?
- (iii) What is the Target Cost per unit for new design to maintain the same markup percentage on full cost per unit as it had earlier? Assume cost per unit of cost drives for the new design remains unchanged.
- (iv) Will the new design achieve the cost reduction target?
- (v) List four possible management actions that the NEC Ltd. should take regarding new design.

2(b) State the most appropriate pricing policy to be adopted in the following independent situations: **4**

- (i) Modern patented drug entering the market.
- (ii) The latest version of a mobile phone is being launched by an established, financially strong company.
- (iii) An established company has recently entered the stationery market segment and launched good quality paper for printing at home and office.
- (iv) A car manufacturer is launching an innovative, technologically advanced car in the highly priced segment.

3(a) Trident Toys Ltd. manufactures a single product and the standard cost system is followed. **12**

Standard cost per unit is worked out as follows:

	₹
Materials (10 Kgs. @ ₹ 4 per Kg)	40
Labour (8 hours @ ₹ 8 per hour)	64
Variable overheads (8 hours @ ₹ 3 per hour)	24
Fixed overheads (8 hours @ ₹ 3 per hour)	24
Standard Profit	56

Overheads are allocated on the basis of direct labour hours. In the month of April 2019, there was no difference between the budgeted and actual selling price and there were no opening or closing stock during the period.

The other details for the month of April 2019 are as under

	Budgeted	Actual
Production and Sales	2,000 Units	1,800 Units
Direct Materials	20,000 Kgs. @ ₹ 4 per kg	20,000 Kgs. @ ₹ 4 per kg
Direct Labour	16,000 Hrs. @ ₹ 8 per Hr.	14,800 Hrs. @ ₹ 8 per Hr.
Variable Overheads	₹ 48,000	₹ 44,400
Fixed Overheads	₹ 48,000	₹ 48,000

Required

- (i) RECONCILE the budgeted and actual profit with the help of variances according to each of the following method:
 - (A) The conventional method
 - (B) The relevant cost method assuming that
 - (a) Materials are scarce and are restricted to supply of 20,000 Kgs. for the period.
 - (b) Labour hours are limited and available hours are only 16,000 hours for the period.
 - (c) There are no scarce inputs.
- (ii) COMMENT on efficiency and responsibility of the Sales Manager for not using scarce resources.

3(b) WDG is a family owned business. The family owns 80% of the shares. The remaining 20% is owned by six non-family shareholders. It manufactures Cardboard Boxes for customers which are mainly manufacturers of shoes, cloths, crackers etc. Now, the board is considering to join the Paper Tubes market as well. Paper Tubes, also known as Cardboard Tubes, are cylinder-shaped components that are made with Cardboard. Paper Tubes can be used for a wide range of functions. Paper Tubes are usually ordered in bulk by many industries that rely Paper Tubes include food processing, shipping and the postal service, automotive manufacturing, material handling, textile, pulp and paper, packaging, and art etc. The Paper Tubes cost approximately 1% - 3% of the total cost of the customer's finished goods. The information about Paper Tubes is as follows:

- (i) The Paper Tubes are made in machines of different size. The lowest cost machine is of ₹ 1,89,000 including GST @ 5% and only one operator is required to run this machine. Two days training program is required to enable untrained person to run such a machine efficiently and effectively. A special paper is used in making Paper Tubes and this paper remains in short supply.
- (ii) Presently, five major manufacturers of Paper Tubes have a total market share of 75%, offer product ranges which are similar in size and quality. The market leader currently has 24% share and the four remaining competitors hold on average 12.75% share. The annual market growth is 3% per annum during recent years.
- (iii) A current report "Insight on Global Activities of Foreign Based MNCs" released the news that now MNC's are planning to expand their packaging operations in overseas market by installing automated machines to produce Paper Tubes of any size.
- (iv) Another company, HEG manufactures a small, however increasing, range of Plastic Tubes which are capable of housing small products such as foils and paper-based products. Currently, these tubes are on an average 15% more costly than the equivalent sized Paper Tubes.

Required

ASSESS whether WDG should join the Paper Tubes market as a performance improvement strategy?

4(a) Aayla runs the Planetarium Station in New Delhi, India. The strength of the station lies in its live interactions and programs for visitors, students and amateur astronomers. The station is always active with programs for school and college students and for amateur astronomers. One of the station's key attractions is a big screen IMAX theatre. IMAX is a 70 mm motion picture film format which shows images of far greater size and resolution than traditional film systems. The IMAX cinema projection standards were developed in Canada in the late 1960s. Unlike traditional projectors, the film is run horizontally so that the image width is greater than the width of the film.

The average IMAX show at the station attracts 120 visitors (50 children and 70 adults) at a ticket price of ₹ 160 for children and ₹ 200 for adults. Aayla estimates that the running costs per IMAX show are ₹ 10,000. In addition, fixed costs of ₹ 7,500 are allocated to each show based on annual estimate of the number of IMAX shows.

The Hobart School has approached Aayla about scheduling an extra show for its class VIII students. One hundred students and five teachers are expected to join the special show on the 'Planets & Solar System', a feature that is currently showing. The school has asked Aayla for a price quote. The special show will take place at 08:30 AM when the IMAX is not usually open.

Required

RECOMMEND the minimum amount that Aayla should charge.

OR

- (a) An organisation manufactures a product, particulars of which are detailed below: 5

Annual Production (Units)	20,000
Cost per annum (₹)	
Material	50,000
Other variable cost	60,000
Fixed cost	40,000
Apportioned Investment (₹)	1,50,000

Required

Determine the unit selling price under two strategies mentioned below. Assume that the organisation's Tax rate is 40%—

- (a) 20% return on investment.
 (b) 6% profit on list sales, when trade discount is 40%.

- (b) Explain features of Power Sector. 5

- (c) EKS Ltd. manufactures a single product, which requires three components. 10
 The company purchases one of the components from three suppliers. DE Ltd., PE Ltd. and ZE Ltd. The following information are available:

	DE Ltd.	PE Ltd.	ZE Ltd.
Price quoted by supplier (per hundred units)	₹ 240	₹ 234	₹ 260
% of Defective of total receipts	3%	5%	2%

If the defectives are not detected they are utilized in production causing a damage of ₹ 200 per 100 units of the component. Total requirements are 12,000 units of the components.

The company intends to introduce a system of inspection for the components on receipt. The inspection cost is estimated at ₹ 26 per 100 units of the components. Such as inspection will be able to detect only 90% of the defective components received. No payment will be made for components found to be defective in inspection.

Required

- (i) Advice whether inspection at the point of receipt is justified.
 (ii) Which of the three suppliers should be asked to supply?

- 5(a)** Aditya Ltd. manufactures four products A-1, B-2, C-3 and D-4 in Gurgaon and one product F-1 in Faridabad. Aditya Ltd. operates under Just-in-time (JIT) principle and does not hold any inventory of either finished goods or raw materials. Company has entered into an agreement with M Ltd. to supply 10,000 units per month of each product produced from Gurgaon unit at a contracted price. Aditya Ltd. is bound to supply these contracted units to M Ltd. without any fail. Following are the details related with non contracted units of Gurgaon unit. **10**

(Amount in ₹)

	A-1	B-2	C-3	D-4
Selling Price per unit	360.00	285.00	290.00	210.00
Direct Labour @ ₹ 45 per hour	112.50	67.50	135.00	67.50
Direct Material M-1 @ ₹ 50 per kg.	50.00	100.00	---	75.00
Direct Material M-2 @ ₹ 30 per litre.	90.00	45.00	60.00	---
Variable Overhead (varies with labour hrs)	12.50	7.50	15.00	7.50
Variable Overhead (varies with machine hrs)	9.00	12.00	9.00	15.00
Total Variable Cost	274.00	232.00	219.00	165.00
Machine Hours per unit	3 hours	4 hours	3 hours	5 hours
Maximum Demand per month (units)	90,000	95,000	80,000	75,000

The products manufactured in Gurgaon unit use direct material M-1 and M-2 but product F-1 produced in Faridabad unit is made by a distinct raw material Z. Material Z is purchased from the outside market at ₹ 200.00 per unit. One unit of F-1 requires one unit of material Z.

Material Z can also be manufactured at Gurgaon unit but for this 2 hours of direct labour, 3 hours of machine time and 2.5 litres of material M-2 will be required.

The Purchase manager has reported to the production manager that material M-1 and M-2 are in short supply in the market and only 6,50,000 Kg. of M-1 and 6,00,000 litre of M-2 can be purchased in a month.

Required

- (i) Calculate whether Aditya Ltd. should manufacture material Z in Gurgaon unit or continue to purchase it from the market and manufacture it in Faridabad unit.
- (ii) Calculate the optimum monthly usage of Gurgaon unit's available resources and make decision accordingly.

- (b)** Innovation Ltd. has entered into a contract to supply a component to a company which manufactures electronic equipment's. Expected demand for the component will be 70,000 units totally for all the periods. Expected sales and production cost will be **10**

Period	1	2	3	4
Sales (units)	9,500	17,000	18,500	25,000
Variable cost per unit	30	30	32.50	35

Total fixed overheads are expected to be ₹ 14 lakhs for all the periods. The production manager has to decide about the production plan.

The choices are:

Plan 1: Produce at a constant rate of 17,500 units per period. Inventory holding costs will be ₹ 6.50 per unit of average inventory per period.

Plan 2: Use a just-in-Time (JIT) system

Maximum capacity per period normally 18,000 units

It can produce further up to 10,000 units per period in overtime.

Each unit produced in overtime would incur additional cost equal to 30% of the expected variable cost per unit of that period.

Assume zero opening inventory.

Required

- (i) Calculate the incremental production cost and the savings in inventory holding cost by JIT production system.
- (ii) Advise the company on the choice of a plan.

6(a) Great Vision manufactures a wide range of optical products including lenses and surveillance cameras. Division 'A' manufactures the lenses while Division 'B' manufactures surveillance cameras. The lenses that Division 'A' manufactures is of standard quality that has a number of applications. Due to huge demand in the market for its products Division 'A' is operating at full capacity. It sells its lenses in the open market for ₹ 140 per lens, the variable cost of production for each lens is ₹ 110, while the total cost of production is ₹ 125 per lens. **10**

The total production cost of a camera by Division 'B' is ₹400 each. Currently Division 'B' procures lens from foreign vendors, the cost per lens would be ₹ 170 each. The management of Great vision has proposed that to take advantage of in-house production capabilities and consequently the procurement cost of the lens would reduce. It is proposed that Division 'B' should buy an average of 5,000 lenses each month from Division 'A' at ₹ 120 per lens. The estimate cost of a surveillance camera is as below:

Other components purchased from external vendors	150
Cost of lens purchased from Division 'A'	120
Other variable costs	30
Fixed overheads	50
Total cost of a camera	350

Each surveillance camera is sold for ₹ 410. The margin for each camera is low since competition in the market is high. Any increase in the price of a camera would reduce the market share. Therefore, Division 'B' cannot pay Division 'A' beyond ₹ 120 per lens procured.

Great vision's management uses Return on investments (ROI) as a scale to measure the divisional performance and marginal costing approach for decision making.

Required

- (i) ANALYZE the behavioral consequences of each division when Division 'A' supplies lenses to Division 'B' at ₹ 120 per lens? Substantiate your answer based on the information given in the problem.
- (ii) ANALYZE if it would be beneficial to the company as a whole for Division 'A' to supply the lenses to Division 'B' at ₹ 120 per lens.
- (iii) Do you feel that the divisional managers should accept the inter-divisional transfers in principle? If yes, CALCULATE the range of transfer price?

- (iv) ADVISE alternate transfer pricing models that the chief executive of the company can consider in order to change the attitude of the divisional heads if they are against the transfer pricing policy.
- (v) CALCULATE the range of transfer price, if Division 'A' has excess capacity and can accommodate the internal requirement of 5,000 lens per month within the current operations.

(b) Cool Air Private Ltd. manufactures electronic components for cars. Car manufacturers are the primary customers of these products. Raw material components are bought, assembled and the electronic car components are sold to the customers. **10**

The market demand for these components is 500,000 units per annum. Cool Air has a market share of 100,000 units per annum (20% market share) for its products. Below are some of the details relating to the product:

Selling price	₹ 2,500 per unit
Raw material cost	₹ 900 per unit
Assembly & machine cost	₹ 500 per unit
Delivery cost	₹ 100 per unit
Contribution	₹ 1,000 per unit

The customers due to defects in the product return 5,000 units each year. They are replaced free of charge by Cool Air. The replaced components cannot be repaired and do not have any scrap value. If these defective components had not been supplied, that is had the sale returns due to defective units been nil, customers' perception about the quality of the product would improve. This could yield 10% increase in market share for Cool Air, that is demand for its products could increase to 150,000 units per annum.

Required

- (i) ANALYZE, the cost of poor quality per annum due to supply of defective items to the customers.
- (ii) The company management is considering a proposal to implement an inspection process immediately before delivery of products to the customers. This would ensure nil sales returns. The cost of having such a facility would be ₹ 2 crores per annum, this would include materials and equipment for quality check, overheads and utilities, salaries to quality control inspectors etc. ANALYZE the net benefit, if any, to the company if it implements this proposal.
- (iii) Quality control investigations reveal that defective production is entirely on account of inferior quality raw material components procured from a large base of 30 suppliers. Currently there is no inspection at the procurement stage to check the quality of these materials. The management has a proposal to have inspectors check

the quality control at the procurement stage itself. Any defective raw material component will be replaced free of cost by the supplier. This will ensure that no product produced by Cool Air is defective. The cost of inspection for quality control (materials, equipment, salaries of inspectors etc.) would be ₹ 4 crores per annum. ANALYZE the net benefit to the company if it implements this proposal? Please note that scenarios in questions (ii) and are independent and not related to each other.

- (iv) Between inspection at the end of the process and inspection at the raw material procurement stage, ADVISE a better proposal to implement (a) in terms of profitability and (b) in terms of long term business strategy?