Test Series: May,2020

MOCK TEST PAPER – 1

FINAL COURSE: GROUP – II

PAPER – 5: STRATEGIC COST MANAGEMENT AND PERFORMANCE EVALUATION

*Question No. **1** is compulsory*

*Answer any **four** questions from the remaining **five** questions*

Time Allowed – 3 Hours **Maximum Marks – 100**

1. **ABC** manufactures electronic components for washing machines in an assembly line. Recent market survey reports indicate erosion of its clientele. Feedback taken from customers suggest that the company's products were not of good quality. ABC is concerned because its competitors have been able to achieve zero defect performance in terms of nil sale returns on account of quality and nil subsequent warranty cost. Therefore, the competitors enjoy huge customer loyalty.

   To satisfy its customers, the company ABC wants to improve its product quality. Consequently, it has decided to undertake Six Sigma study of its operations.

   Below is the additional information given about ABC's operations:

   Yearly sales of electronic components are 25,000 units at Rs.20,000 each. Of these, 1% sales are returned due to quality issues. These are scrapped and a replacement is made by the company. In addition, each product is under warranty for one year after sale. If a claim is accepted under warranty, service and replacement of parts is done free of cost. Current yearly warranty claims (these are separate from sales returns), which is also representative of the average yearly warranty claims, amount to Rs.30,00,000 per annum.

   Quality control check and inspection is carried out directly at the assembly line. There is no quality check done at any other point in the entire work flow. Total time spent on inspection is 2,000 hours in a year which costs the company Rs.10,00,000 per annum. Inspection leads to 10% rejection i.e. 2,525 units. These units require only one cycle of rework, after which they are ready for sale. Rate of rework in the units rejected on inspection at the assembly line is 5 units in 1 hour. Cost of rework is Rs.6,250 per hour.

   The variable cost of electronic component is Rs.12,500.

   The Six Sigma team as part of its study found that rework on products was mainly due to the following reasons:

   (1) Assembly line workers, including new hires, learnt on the job as to how to assemble the input material to produce the final electronic component. This lead to many errors due to lack of proper standardized training. Therefore, on account of these errors, the entire electronic component has to assembled again.

(2) Sub-standard quality of raw material is detected on inspection only at the assembly line. By this time, the defective material is already fitted into the final electronic component. Therefore, entire component has to be reworked upon to replace the defective raw material input.

(3) Machines are outdated and are not entirely suitable for the current production methodology.

Proposed solutions to tackle these issues are as follows:

(1) Provide *training to assembly line workers* to train them on the production methodology. This training is expected to standardize work flow, thereby reducing errors. Such training programs will be held regularly to update the workers on new methodologies. These programs can also serve as employee feedback sessions about the actual working conditions at the assembly line. This two-way communication can improve and streamline the production process. Brainstorming can help detect or give heads up about potential problems in the production process. Total training hours in a year are expected to be 5,000 hours, costing Rs.1,000 each hour.

(2) Currently poor quality of raw material input is detected only on inspection at the assembly line. This results in wastage of resources in terms of material, time and capacity. In addition to the existing inspection at the assembly line, a *new functional area for quality planning and improvement* is proposed to be set up. At the time of procurement, the department will determine the appropriate quality of raw material input, ensure that suppliers supply material as per these requirements as well as suggest alternatives that can help improve product quality. By ensuring quality of raw materials at the beginning of the production process, wastage of resources is reduced, if not can be eliminated. Cost of setting up such a facility will be Rs.1,50,00,000. In addition to this facility, inspection will continue at the assembly line. This ensures complete quality check during the entire production cycle. At the same time, due to the introduction of this new functionality for quality control, the pressure on resources for inspection at the assembly line would reduce.

(3) Current machines should be replaced entirely with *new machines*. Old machines can be sold for negligible amount as scrap. New machines would cost Rs.3,60,00,000 having a life of three years.

Implementation of the above three solutions can have the following impact:

- Rework of products can be entirely eliminated.
- Sale returns will reduce from 1% to 0% due to better quality of products.
- Yearly warranty claims will reduce from Rs.30,00,000 to nil per annum.

- With the introduction of the new facility, time required for inspection at the assembly line would reduce from 2,000 hours to 1,200 hours. Cost of inspection to do quality check at the assembly line would reduce from Rs.10,00,000 per annum to Rs.600,000 per annum.
- Due to better quality, ABC can build better reputation with the customers which can further yield additional sales of 5,000 units per year.

Required

You are the management accountant at ABC. As part of the Six Sigma project implementation team, you are requested to EVALUATE proposals suggested by the Six Sigma team. The team has used the DMAIC technique to assess quality improvements.

(20 Marks)

2. Star Industries Ltd. manufactures standard heavy duty steel storage racks for industrial use. Each storage rack is sold for Rs.750 each. The company produces 10,000 racks per annum. Relevant cost data per annum are as follows:

Cost Component	Budget	Actual	Actual Cost p.a. (Rs.)
Direct Material	5,00,000 sq. ft.	5,20,000 sq. ft.	20,00,000
Direct Labour	90,000 hrs.	1,00,000 hrs.	10,00,000
Machine Setup	15,000 hrs.	15,000 hrs.	1,50,000
Mechanical Assembly	200,000 hrs.	200,000 hrs.	30,00,000

The actual and budgeted operating levels are the same. Actual and standard rates of material procurement and hourly labor rate are also the same. Any variance in cost is solely on account of difference in the material usage and hours required to complete production. Aggressive pricing from competitors has driven down sales. A comparable rack is available in the market for Rs.675 each. Vishal, the marketing manager has determined that in order to maintain the company's existing market share of 10,000 racks, Star Industries must reduce the price of each rack to Rs.675.

Required

(i) CALCULATE the current cost and profit per unit. IDENTIFY the non-value added activities in the production process. *(6 Marks)*

(ii) CALCULATE the new target cost per unit for a sales price of Rs.675 if the profit per unit is maintained. *(2 Marks)*

(iii) RECOMMEND what strategy Star Industries should adopt to attain target cost calculated in (ii) above. *(12 Marks)*

3. X Ltd. first opened its door in 1991 for business and now it is a major supplier of metals supporting over a dozen different industries and employs experts to support each industry. These include Wood & Panel Products Manufacturing, Hearth Products, Site Furnishings, Commercial and Residential Construction etc. It has grown through devotion to its customers, dedication to customer service and commitment to quality products. The company has two divisions: Division 'Z' and Division 'E'. Each division work as an investment centre separately. Salary of each divisional manager is Rs. 720,000 per annum with the addition of an annual performance related bonus based on divisional return on investment (ROI). A minimum ROI of 12% p.a. is expected to be achieved by each divisional manager. If a manager only achieves the 12% target, he will not be rewarded a bonus. However, for every whole 1% point above 12% which the division achieves for the year, a bonus equal to 3% of annual salary will be paid subject to a maximum bonus of 20% of annual salary. The figures belonging to the year ended 31 March 2019 are given below:

	Division 'Z' ('000)	**Division 'E' ('000)**
Revenue	29,000	17,400
Profit	5,290	3,940
Less: Head Office Cost	(2,530)	(1,368)
Net Profit	2,760	2,572
Non- Current Assets	19,520	29,960
Cash, Inventory, and Trade Receivable	4,960	6,520
Trade Payable	5,920	2,800
Manager Responsible	HAI	FAI

During the financial year 2018-19, FAI manager of Division 'E' invested Rs. 13.6 million in new equipment including an advanced cutting machine, which will increase productivity by 10% per annum. HAI, manager of Division 'Z', has made no investment during the year, even its computer system needs updation. Division 'Z''s manager has already delayed payments of its suppliers due to limited cash & bank balance although the cash balance at Division 'Z' is still better than that of Division 'E'.

Required

(i) For each division, COMPUTE, ROI for the year ending 31 March 2019. EXPLAIN the figures used in your calculation. *(6 Marks)*

(ii) COMPUTE bonus of each manager for the year ended 31 March 2019. *(4 Marks)*

(iii) DISCUSS whether ROI provides justifiable basis for computing the bonuses of managers and the problems arising from its use at X Ltd. for the year ended 31 March 2019. *(10 Marks)*

4. (a) 'F' manages the school canteen (approximately 1,600 students) at Delhi. The current cash payment system requires three clerks (paid Rs.90 per hour), employed for about 4 hours a day. The canteen operates approximately 240 days a year.

'F' is considering a Wireless Cash Management System (WCMS), where a student could just swipe an ID Card for payment. This system would cost Rs.1,25,000 to setup and Rs.36,000 per year to operate. 'F' believes that he could manage with one clerk if he were to implement the system.

Required

ADVISE 'F' on the choice of a plan, assuming working life of WCMS as 5 years. (Ignore the time vale of money) *(5 Marks)*

(b) The MD of P Limited, a 150 persons engineering company, decided it was time to fire the company's biggest client. Although the client provided close to 60% of the company's annual revenue, P Limited decided that dropping this client was necessary. The client was profitable.

The MD of P Limited stated "We cannot be a great place to work without employees, and this client was bullying my employees. Its demands for turnaround were impossible to meet even with people working seven days a week. No client is worth losing my valued employees".

The initial impact on revenues was significant. However, P Limited was able to cut costs and obtain new customers to fill the void. Moreover, the dropped client later gave P Limited two projects on more equitable terms.

Required

(i) Discuss the reasons behind dropping of a profitable client by P Limited.

(5 Marks)

OR

(ii) State five qualitative factors that management should consider in outsourcing and make or buy decisions. *(5 Marks)*

(c) 'Ax' and 'Bx' are two customers of N Electronics Ltd., a manufacturer of audio players. Selling price per unit is Rs.5,400. Its cost of production per unit is Rs.4,420.

Additional costs are:

Order Processing Cost……………………………..Rs.2,000 per order

Delivery Costs………………………………………Rs.3,500 per delivery

Details of customers 'Ax' and 'Bx' for the period are given below:

	Customer 'Ax'	Customer 'Bx'
Audio Players purchased (nos.)	350	500
No. of orders	5 (each of 70 units)	10 (each of 50 units)
No. of deliveries	5	0

The company's policy is to give a discount of 5% on the selling price on orders for 50 units or more, and to further give 8% discount on the undiscounted selling price if a customer uses his own transport of collect the order. Assume that production levels are not altered by these orders.

Required

(i) ANALYSE the profitability by comparing profit per unit for each customer.

(6 Marks)

(ii) COMMENT on the discount policy on delivery. *(4 Marks)*

5. (a) Golden paints is a manufacturer of industrial dyes. It has received an order for 200 kgs of powder dye that needs to be customized to certain specifications. The job would require the following materials:

Material	Total units required	Units already in inventory	Book value of the units in inventory (Rs.per unit)	Realizable value (Rs.per unit)	Replacement cost (Rs.per unit)
M	2,000	0	NA	NA	8
N	3,000	1,200	7	8	10
O	2,000	1,400	12	9	14
P	500	500	9	12	15

I) Material N is used regularly in production of all types of dyes that Golden plaints produces. Therefore, any stock used towards this job order would need to be replaced to meet other production demands.

II) Inventory of material O and P are from stock that was purchased in excess previously. Material O has no other use other than for this special order. Material P can be used as a substitute for 700 units of material Z which currently costs Rs.11 per unit. The company does not have any inventory of material Z currently.

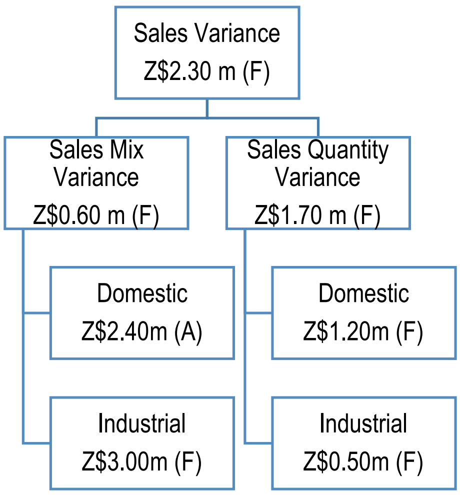
Required

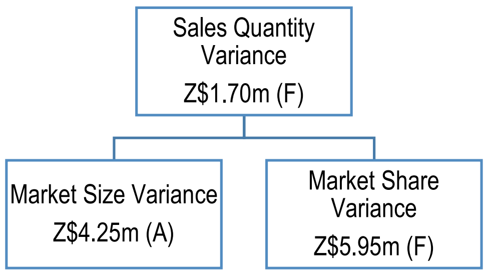
ANALYSE the relevant costs of material while deciding whether to accept the order or not? *(10 Marks)*

(b) ZM Inc. is a family run business based in Country Z. It is a manufacturer of two types of flooring rolls, one for industrial usage and the other for domestic residential use, throughout mainland of Country Z. The company started with the production of residential domestic flooring. It is now an established player in this market. In the recent years, the company pioneered into making flooring rolls for industrial usage. The management has the following information about the budgeted and actual data for 2019-

Particulars	**Static Budget**			**Actual Result**		
	Industrial	**Domestic**	**Total**	**Industrial**	**Domestic**	**Total**
Unit Sales in Rolls ('000)	200	600	800	270	570	840
Contribution Margin (Z$ in millions)	10.00	24.00	34.00	12.825	15.390	28.215

In late 2018, a marketing research estimated market volume for industrial and domestic flooring at 8m Rolls. Actual market volume for 2019 was 7m Rolls. Actual sales trend of ZM Inc. is indicative of the sales trends for individual products in the future years, it is likely that they might continue to sell a similar sales trajectory. A newly appointed accountant has computed following variances:





'm' refers to million

Required

Assuming yourself as a performance management expert of ZM, the CEO has asked you to ADVISE strategic inputs on 'two types of flooring rolls' to help out her in strategic decision making. *(10 Marks)*

6. (a) The CEO of P Limited is concerned with the amounts of resources currently spent on customers warranty claims. Each box of its product is printed with the logo: "satisfaction guaranteed or your money back". P is having difficulty competing with X Limited because it does not have the reputation for high quality that X Limited enjoys. Since the warranty claims are so high, the CEO of P Limited would like to assess what costs are being incurred to ensure the quality of the product. Following information is collected from various departments within the company relating to 2018-19:

	Rs.
Warranty claims	4,25,000
Employee training costs	1,20,000
Rework	3,00,000
Lost profits from lost customers due to impaired reputation	8,10,000
Cost of rejected units	50,000
Sales return processing	1,75,000
Testing	1,70,000

For the year 2019-20, the CEO is considering spending the following amounts on a new quality programme:

	Rs.
Inspect raw material	1,20,000
Reengineer the production process to improve product quality	7,50,000
Supplier screening and certification	30,000
Preventive maintenance on plant equipment	70,000

P expects the new quality programme to save costs by the following amounts:

	Rs.
Reduction in lost profits from lost sales due to impaired reputation	8,00,000
Reduction in rework costs	2,50,000
Reduction in warranty costs	3,25,000
Reduction in sales return processing	1,50,000

Required

(i) PREPARE a Cost of Quality Statement for the year 2018-19 showing the percentage of the total costs of quality incurred in each cost category.

(3 Marks)

(ii) PREPARE a cost benefit analysis of the new quality programme showing how the quality initiative will affect each cost category. *(3 Marks)*

(iii) STATE how the manager trade-offs among the four categories of quality costs. *(4 Marks)*

(b) BYZ, a leading school of management in the heart of India's financial centre of Mumbai, preparing its budget for 2019. In previous years, the director of the school has prepared the budget without the participation of senior staff and presented it to the school board for approval.

Last year the Board blasted the director over the lack of participation of his senior staff in the budget process for 2018 and requested that for the 2019 budget the senior staff were to be involved.

Required

LIST the potential advantages and disadvantages to the BYZ of involving the senior staff in the budget preparation process. *(10 Marks)*