



# CA Test Series.org (Since 2015)

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Question Paper	
SCMPE	Duration: 75
Details: Test – 1	Marks: 40

**Instructions:**

- All the questions are compulsory
- Properly mention test number and page number on your answer sheet, Try to upload sheets in arranged manner.
- In case of multiple choice questions, mention option number only Working notes are compulsory wherever required in support of your solution
- Do not copy any solution from any material. Attempt as much as you know to fairly judge your performance.

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**Q 1:-** Audio Tech is a company that designs, develops and sells audio equipments, Audio Tech is best known for its home audio systems and speakers, noise cancelling headphones, professional audio systems and automobile audio systems.

Audio Tech sells audio equipments to consumers through its large network of retail outlets in its home country and via the company's website.

Audio Tech purchases the materials and components that it needs to manufacture audio equipments from a number of different suppliers. All of the purchases are delivered to a company's godown at its factory and are held there until they are needed for production and to assembling.

Finished products are transported from the factory to Audio Tech's retail outlets by company's own trucks. The trucks follow the same schedule each week irrespective of the load they are carrying. Audio equipments that are required for sale via the company's website are transported to Audio Tech's distribution centre.

The company believes that it can attract more customers by offering quality products at reasonable prices. Each unit is tested for quality with a real time analyzeripad app and a calibrated microphone to measure how consistently each sound system reproduced various frequencies. A bass-test sweep tone allows checking how well the subwoofer managed low-end frequencies.

Finally, they drive each in cars briefly to see how sound quality changes while on the move. The company aims to build customer loyalty also through high level of customer services and value chain analysis. The customers can return the product if quality specifications are not met. There is a separate department to handle such complaints.

Audio Tech had implemented Balanced Scorecard as a performance measurement and management system. Company has been doing great on financial parameters and customer satisfaction parameters. Market capitalization of the company has been increased considerably over the years.

Of late, the company has witnessed high employee turnover ratio. Though the company has a formal exit interview process for the resigning employees, the input received from these interviews is rarely considered in improving HR practices. One of the common feedbacks from employees was that working hours are too long and they have to frequently work on weekends also and there is so much pressure to improve customer service without adequate support of system and processes. Also the truck drivers have been on strike thrice in the last one year demanding better pay, retirement benefits and good working conditions.

Audio Tech is keen to address the above issues and recently held a meeting to discuss the performance of the company. The Management Accountant suggested to the Managing Director to use an alternative performance measurement mechanism which considers all the stakeholders instead of just shareholders and customers. The Managing Director is skeptical of the Management Accountant's suggestions and is unclear as to whether they are suitable for the company or not. Therefore, the company seeks your assistance.

#### **Required**

- (i) IDENTIFY and EXPLAIN the various primary activities of Audio Tech in its value chain. Also SUGGEST, if there is any scope for cost reduction in these activities.
- (ii) RECOMMEND an alternative performance measurement mechanism which considers all stakeholders instead of Just shareholders and customers. Also INDICATE the performance measures as applicable to the situations of Audio Tech in the alternative mechanism suggested by you.

**(10 Marks)**

**Q 2:-** DFS India Ltd. 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 .DFS 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 subsequently warrant cost. Therefore, the competitors enjoy huge customer loyalty.

To satisfy its customers, the company DFS 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 DFS'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. Currently 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 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 assemble 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. 6,00,000 per annum.
- Due to better quality, DFS 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 DFS. 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.

**(10 Marks)**

**Q 3:-** Gold Coast Company Ltd. manufactures spare parts. It works in two shifts of 8 hours for 6 days in a week. Lunch break is 45 mins and other miscellaneous breaks add up to 25 minutes. The following details are collected for the last 4 weeks by the TPM team for one of their important equipment Hours for Planned Preventive Maintenance = 15 minutes per shift For Breakdown Maintenance = 6 hours Total Set up Changes = 15 hours Total Power Failure = 4 hours Total Standard Cycle Time per piece = 3 minutes No of Parts Produced per shift = 120 Parts Accepted per shift = 115

**Required**

CALCULATE 'OEE'.

**(5 Marks)**

**Q 4:-** Welcome Foodies (WF) was a small restaurant in and around the busy city of Newtown. The city was located in the banks of river Terresa and was known for its tourism value. The visitors often passed days visiting the prominent natural attractions and the scenic beauty brought them back again, They also treasured the culture of the town and adolescence of the local surroundings. It was simple down to earth. It was untouched by man-made interventions like infrastructures and celestial buildings. The people down there had the culture of visiting bars and restaurants at the evening time to undo the monotony of the day. They like sitting with their friends, close relatives and chit chatting their busy schedules and what special they did throughout the day, how things went fuzzy, which ought to have been straightforward. The not so civilized life' went calm until the development of a highway that connected Newton city to the "infrastructural sound" city called Angel. In no time, the Newtown found itself crowded and overburdened to accommodate the daily passengers from highway and near surroundings. This made the State government consider the development of infrastructure in the Newton and additional hotels to welcome the growing tourism business. This led to a drastic changeover in the restaurant business of Welcome Foodies.

It started getting busier and was brimming with food lovers all over the day. WF being a family owned and self-funded business took this ambience as a door of opportunities to recover the previous losses it had to book long back at its outset. It was thinking to expand its business and open new restaurants in the town, but the funding was yet a trouble since its credibility was questionable to lenders. WF could borrow just enough funds from its familiars to hire additional staffs to serve the growing crowd. Albeit the new staffs were recruited, they lacked proper skill and knowledge of the service industry that WF was into. Most of the staffs were the local people of the city who knew no fancies of alluring the customers with their smiles and warm heartedness. They had to work overtime for low pays since WE was in debt, paying the peaking expenses of production and processing of food items. Given the rising bills and heightening cost of raw materials, it had to escalate the prices of the items served in the menu card. Notwithstanding the rise, the WI chain was easy on their guests' pockets compared to other posh dine place out in the city and so the customers resisted subtly and then continued to walk in as before.

The operating efficiency of the restaurant began to decline with the increasing numbers, also somewhat perceived by the incoming customers.. The owner heard his customers' conversations:

**Customer Mike:** Hey there how are you doing? Well wonder why we have to wait so long when many tables are lying empty. Doesn.'t the restaurant feel like harassing their customers without any cause? My mood gets ruined for the wait and I plan to seek other nearby places to dine, What about you?

**Customer Davin:** Yes, you are right. I also feel like claustrophobic having to dine among the proliferating crowd. Hey, guess what, I heard the owner is short on finances and he could hardly do anything to get himself out of this hell, at least not in the near future.

**Customer John:** The waiting time is ridiculously long. I mean I had to wait 20 minutes on a peak Friday, which I do not mind but here I believe they hardly care to manage this,

The lines got bigger on the Fridays and weekends since the cleaning boy and his partner used old cleaning techniques and were reasonably slow. Several people went ahead and decided to leave rather than wait any further. The hospitality business demanded unwavering flawless customer service which started to shake. Because of dearth in finances, enough staff could not be placed at required locations which turned things chaotic. The kitchen environment was not sound either. They used outdated equipment to prepare the food stuff and the manual cleaning of dishes was a big trouble altogether. With the increasing demand for service, no adjustment was made to the number of kitchen equipment. The short number of kitchen staff tried their best to manage things in order, but they could not help to deliver with required speed since they had to clean the equipment manually before every use. The ingredients of the items were not well arranged adding to stress and the wait time of service. Some items like onion garlic paste, boiling of vegetables, chilies, sauces and pickles ought to have been prepared before the restaurant opened for guests. No such arrangement was in place. Some raw materials were in short supply while some were more than the demand, which perished. There were three chefs in the kitchen each specialized in a given cuisine. However, they were not groomed to switch



efforts in times of necessity, they but were asked to do this anyways and the results were atrocious.

Sometimes the guests found their tomato soup containing odd ingredients like mushrooms or potatoes and sometimes the guests so claimed 100 % vegetarian dish was found to comprise fish or chicken remnants. This situation called for significant quality issues on the processing of food in the most unexpected manner one could think of.

Moreover, the fax kitchen staff had the customer request on their table, which they did not accede in the order received. Some orders were served early while some customers kept seating for long time, waiting for their food to show up on the plates.

The billing machine was not modern and cashier had to manually enter price and other specifications of each item ordered and served.

Most of the times, the only supervisor was found snuggling in his chair. He did not care to advice the waiters and other assistant staffs to improve. As a result, staffs persistently made same mistakes and guests were forced to report the complaints to the restaurant manager, who was also the owner. No leadership role was identified among the staffs.

Some staff took leave on weekends and returned on Tuesdays. They lacked motivation to stay during the peak weekends. When any staff was missing from his respective rote, the manager replaced the position since he wanted to save on currency.

The hygiene of the place was also questionable. The floors were watery and smelt nasty, the tables seemed to have contained foods, oils and spilled over sauces. The guests carrying their kids were nervous about their small ones slipping over the floor. On a total. it raised concerns about cooking and cleaning habits of the staffs working there, thereby escalating the health risk of the guests.

The business saw its doom and the customers began looking for dining options in the surrounding area.

Consider yourself as the family advisor of Mr. Bean, the owner and successor of his father's business. He is aware that you have a cost management degree and are working in one of the multinational firm's accounting department. Luckily, he has had the chance to hear about your achievements of successfully implementing strategies to assist the firm in rejuvenating its struggling business and now he wants you to work on turning things around for his restaurant business. He had tears in his eyes while narrating the entire story.

**Required:**

- (1) DISCUSS which managerial technique could be used to "turn things around as Mr. Bean wants?
- (2) How could this be done? RECOMMEND improvement techniques in each area of disparity,

**(9 Marks)**

**Q 5:-** Dewar Bikes (DB) is large national bike manufacturing company established in the year 2003. The company has a strong position in the market and has' traditionally achieved a good market shot however facing tough competition. The Board of DB recognizes that it needs to make fundamental changes to its production approach in order to combat increased competition from foreign manufacturers. DB is now being seen as non-lucrative, pollutive and with less safety features in comparison to the foreign bikes. The Board plans to address this by improving the quality of its bikes as well as financial performance.

The components are sourced directly by DB. Suppliers are located worldwide. Suppliers are evaluated on an ongoing basis, including an assessment of whether to utilise new or alternative suppliers to improve capacity and performance. The company is having lot of components piled up in stock and few of them are becoming obsolete. There is lots of reworking as both internal and external failure are more, so the wastage of resources in reworking needs to be controlled. The Board is convinced that Lean Manufacturing is the best approach to be adopted.

In DB, production process is grouped by function and production teams comprised a number of permanent members, who had acquired their positions through seniority and a few newly selected specialist staff who had yet to discuss their position in any team.

The process of making a bike can be roughly divided into stamping, welding, painting, assembly and inspections, which takes about 11-12 hours in total. The standard time to manufacture a similar bike in industry is 8-9 hours. The nature of end product demand is unstable due to economic factors. However, DB forecasts demand based on its internal policies and historical trends. DB sells its bikes in retail stores located in over 10 metro cities, It focuses on building close relationships with retailers, working with them to sell its bikes in a compelling manner.

### Enclosed Annexure

#### Required:

You are newly appointed to Management Accounting Department of DB, Chief Management Accountant asked you to draft a report for CEO, containing-

- (i) ANALYSIS of quality costs and ADVISE on two measures to reduce the non-conformance cost,
- (ii) ADVISE on implementation of just-in-time purchasing and production.

#### Statement Showing 'Total Quality Costs'

Particulars of costs	Rs.
Prevention Cost	
Supplier Review	2,50,000
Appraisal Cost	
Equipment Testing (Rs. 36 * 1,600 hrs)	57,600

Internal Failure Costs	
Down Time	15,40,000
Manufacturing Rework (Rs. 456 * 3,200 bikes)	14,59,200
External Failure Costs	
Customer Complaints (Rs. 70 * 2,000 hrs.)	1,40,000
Warranty Repair (Rs. 3,120 * 2,600 bikes )	81,12,000
Total Quality Costs	1,15,58,800

(6 Marks)

