

National Testing Agency

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Operations Management

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PART A

Section Id : 709597228
Section Number : 1
Section type : Online
Mandatory or Optional: Mandatory
Number of Questions: 35
Number of Questions to be attempted: 35
Section Marks: 70
Display Number Panel: Yes
Group All Questions: No

Sub-Section Number: 1
Sub-Section Id: 709597322
Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 70959720977 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

The tools and techniques used to analyse the operations of an organisation depend on which of the following factors

- Industry in which the organisation is operating
- Type of products the organisation is producing
- Both
- None of the above

Question Number : 2 Question Id : 70959720978 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0

Streamline Flow is not suggested for which of the following?

- a. Pharmaceutical Drug Manufacturing
- b. Cement Manufacturing
- c. Ship Building
- d. Food Processing

Question Number : 3 Question Id : 70959720979 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following is/are a characteristic(s) of streamlined flow?

- a. Maintenance of such a system is critical
- b. Uneven work times at each station can be handled easily
- c. A break at one station would halt the entire flow
- d. a and c

Question Number : 4 Question Id : 70959720980 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following are the characteristics of jumbled flow production process?

- a. Can handle highly complex work flow
- b. Suited when too many entities are not involved
- c. Huge economies of scale
- d. None of the above

Question Number : 5 Question Id : 70959720981 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which option describes the following operating systems in the increasing order of complexity; (A – Organising a football tournament, B – Manufacturing of half litre plastic bottles, C – Mobile phone assembling plant, D – Customised Wooden tables manufacturing)

- a. A,B,C,D
- b. D,C,A,B
- c. C,D,A,B
- d. B,C,D,A

Question Number : 6 Question Id : 70959720982 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a fast food joint, the owner has decided to replace the automated coffee dispenser with a person who makes coffee. This decision would result in

- a. Increase the flexibility of service provided to the customers
- b. Decrease the delivery time to the customers
- c. Both
- d. None

Question Number : 7 Question Id : 70959720983 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a service firm, the following decisions are taken. What would be the impact of such decisions on performance measures – Cost, Quality, Delivery and Flexibility

Decision 1 (D1): Training program for skill upgradation and Multiskilling of the workforce.

Decision 2 (D2): Standard Operating Procedures deployed at key steps in the process.

- a. D1 – No change in quality; D2- Increase in quality;
- b. D1 – Increase in Quality; D2- Increase in cost;
- c. D1 – Decrease in delivery; D2- Increase in delivery;
- d. D1 – Increase in quality; D2- Increase in Delivery;

Question Number : 8 Question Id : 70959720984 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a hospital, a nurse is hired exclusively to take care of handling the instruments and equipment during the surgery in the operations theatre. This action would result in

- a. Decrease in the overall skillset of the nurses in the hospital
- b. Decrease in the overall time for the surgery
- c. Both
- d. None of the above

Question Number : 9 Question Id : 70959720985 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

The time taken for a potter to make a pot, starting from bringing the mud, loading it onto the potter wheel, turning the wheel to shape the pot, drying and heat treating the pot is 6 hours. He starts working daily at 8 AM. Assume no stock at the beginning. Which of the following statements is True

- a. The time to deliver the first pot is the cycle time for the process
- b. Cycle time cannot be determined
- c. The cycle time will be greater than the throughput time when the batch size is 1.
- d. None of the above

Question Number : 10 Question Id : 70959720986 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

A manufacturing system has output rate of 10 units/hour. A process with capacity of 10 units/hr, is increased to 20 units/hr, then which of the following is true?

- a. Increase the output of the system to 20 units/hour
- b. Increase the output of the system to at most 20 units/hour
- c. There will definitely be an increase in the output of the system, but the quantity of increase cannot be determined with the given data
- d. There may or may not be an increase the output as it is depending on the capacity of the rest of the processes.

Question Number : 11 Question Id : 70959720987 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a worker paced assembly line, if the demand is 20/hr and the sum of processes time is 15 min, what is the minimum number of stations required to ensure a cycle time of 5 min?

- a. 3
- b. 4
- c. 5
- d. 1

Question Number : 12 Question Id : 70959720988 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In a two-stage serial system, the orders arrive at a rate of 12/hr at the first stage and gets processed at 8/hr at the first stage. What is the arrival rate at the second stage?

- a. 6/hr
- b. 8/hr
- c. 12/hr
- d. 4/hr

Question Number : 13 Question Id : 70959720989 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following contributes to the bullwhip effect?

- a. Many customers at the end of the supply chain
- b. Many suppliers at the beginning of the supply chain
- c. Many layers in the supply chain
- d. All the above

Question Number : 14 Question Id : 70959720990 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

To reduce the bullwhip effect which of the following measures can be used?

- a. Centralization of demand analysis
- b. Consistent low pricing of products
- c. Decreasing the number of layers in the supply chain
- d. All the above

Question Number : 15 Question Id : 70959720991 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In order to design a supply chain, which of the following will impact the decision?

- a. Life cycle of the product
- b. Variations in the product
- c. Demand cycles
- d. All of the above

Question Number : 16 Question Id : 70959720992 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following are the characteristics of a responsive supply chain?

- a. Low margin
- b. High margin
- c. High propensity to stock out
- d. Both b and c

Question Number : 17 Question Id : 70959720993 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following products would need an efficient supply chain?

- a. A paper product manufacturer
- b. A high-end sports shoe company
- c. A wrist-watch manufacturer
- d. All the above

Question Number : 18 Question Id : 70959720994 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

If an organisation has taken over a firm that supplies raw material, which of the following costs would reduce?

- a. Carrying cost
- b. Ordering cost
- c. Both
- d. None

Question Number : 19 Question Id : 70959720995 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What can we infer if a firm holds less inventory?

- a. It deals with a smaller number of products
- b. The firm has better forecasting and planning methods
- c. The process design is not flexible
- d. There is no communication between departments, customers and suppliers.

Question Number : 20 Question Id : 70959720996 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following statements does not relate to Kanban

- a. Setting WIP limits
- b. Simplifying planning and control through visible signs
- c. Providing a standard container to every employee to store tools and documents
- d. Improving the flow of value to the customers

Question Number : 21 Question Id : 70959720997 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Improvements in production should be:

- a. Data driven and Employee Centred
- b. Driven by Marketing Requests
- c. (a) and (b)
- d. None of the above

Question Number : 22 Question Id : 70959720998 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following is not an example of a non-value added activity?

- a. Keeping inventory
- b. Ordering raw material
- c. Quality Control
- d. None of the above

Question Number : 23 Question Id : 70959720999 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following contributes to the productivity paradox?

- a. Change in customer's choice
- b. Not paying attention to supply chain
- c. Value migration
- d. All the above

Question Number : 24 Question Id : 70959721000 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Company XYZ undertakes several improvement activities in a piecemeal fashion. What could it lead to?

- a. A simplified value stream mapping
- b. Productivity paradox
- c. Both a & b
- d. None of these

Question Number : 25 Question Id : 70959721001 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

In six sigma methodology, the variables on which the data should be collected is defined in which stage?

- a. Define
- b. Measure
- c. Analyse
- d. Implement
- e. Control

Question Number : 26 Question Id : 70959721002 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Who among the following is responsible for day-to-day activities of a process in an organisation which strives for six sigma quality levels?

- a. Process owner
- b. Team leader
- c. Six sigma coach
- d. Six sigma sponsors

Question Number : 27 Question Id : 70959721003 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Control charts are used to

- a. Identify the improvement opportunities
- b. Highlight the problem
- c. Finding the root cause of problem
- d. None of the above

Question Number : 28 Question Id : 70959721004 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Pareto Diagram can be used to

- a. Identify the improvement opportunities
- b. Highlight the problem
- c. Finding the root cause of problem
- d. None of the above

Question Number : 29 Question Id : 70959721005 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

A call centre is analysing the customer satisfaction scores. A customer is satisfied if the call gets answered within 4 rings. Which of the following charts can be used for this situation?

- a. p chart
- b. X bar
- c. R chart
- d. c chart

Question Number : 30 Question Id : 70959721006 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of the following relate to a gap resulting in a service quality problem?

- a. Management is unable to invest in appropriate technology required for service delivery
- b. Service firms write an ambitious brochure about their service offerings
- c. The worker morale is low in the organisation
- d. All of the above

Question Number : 31 Question Id : 70959721007 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which is a viable strategy to manage an intermittent flow system better?

- a. Develop a planning methodology without estimating the available capacity
- b. Cut down the variety of offerings thereby gaining better control on operations
- c. Redesign the operating system by creating sub-systems
- d. Increase the volume of all offerings

Question Number : 32 Question Id : 70959721008 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the outcome when a bottleneck resource is augmented with more capacity?

- a. Throughput time increases
- b. Cycle time decreases
- c. The resource with the second most utilization becomes the bottleneck
- d. Both B and C

Question Number : 33 Question Id : 70959721009 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

What is the effect of delayed differentiation strategy?

- a. The number of variants offered will be reduced
- b. The inventory carrying costs will come down
- c. Production Planning and Control will become more difficult
- d. Bullwhip effect will be more pronounced

Question Number : 34 Question Id : 70959721010 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

Which of these will be addressed if we pursue a value stream mapping?

- a. The problems faced by the supplier in manufacturing the component that he supplies to the organization
- b. The lack of motivation faced by the employees in the organization
- c. The choice of an appropriate person as the CEO of the company
- d. Stepping up of the value engineering exercises in the organization

Question Number : 35 Question Id : 70959721011 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0

From a perspective of Statistical Process Control (SPC), a six-sigma process will have which of the following attributes?

- a. The USL and LSL will be separated by a distance of six sigma
- b. The process centre will be aligned with the LSL
- c. The number of defects produced by the process will be 0.0018 parts per million
- d. All of the above

PART B

Section Id :	709597229
Section Number :	2
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	2
Number of Questions to be attempted:	2
Section Marks:	30
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	709597323
Question Shuffling Allowed :	Yes

Question Id : 70959721012 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No

Question Numbers : (36 to 40)

Question Label : Comprehension

Use of SPC in the guest check-in process in a Five Star Hotel

A five-star hotel monitors its guest check in process using principles of Statistical Process Control (SPC). Based on the prevailing conditions in the market, customer preferences and its own understanding of the situation, the management felt that it is a very important metric for them.

Based on a market survey, they found that the expectations are that customers would be happy if the guest check-in time is 100 ± 20 seconds. The hotel has been monitoring the process as follows:

- As every guest arrives at the check-in desk, the elapsed time to complete the process is measured and recorded in a file.
- Periodically, a sample of 100 such recordings are taken and those that exceeded 2 minutes were considered as defects.
- This is used to set up a control chart.

A sample measurement is reproduced below:

Number of defects for the sample numbers 1 to 10 respectively are [13, 12, 10, 18, 16, 12, 20, 14, 09, 12].

Meanwhile, a consultant who studied the process concluded that they were using an inappropriate control chart. The consultant recommended that since the detailed measurements of actual check-in time were being recorded it should be used to setup a control chart.

The hotel management was in alignment with the consultant's thinking and changed the type of control chart to X-bar chart. The process was monitored using it and found to be statistically stable. The mean of the guest check-in process was found to be 105 seconds and the standard deviation 8.

Sub questions

Question Number : 36 Question Id : 70959721013 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 3 Wrong Marks : 0

Which of the following statements best describe the old process of measuring defects (prior to the change suggested by the consultant)?

- a. The process was under statistical control
- b. The process will on an average produce defects less than 10%
- c. The control chart used was variable based control chart
- d. The mean of the process was less than the standard deviation of the process

Question Number : 37 Question Id : 70959721014 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 3 Wrong Marks : 0

Which of the following statements are true with respect to the old control chart?

- a. A plot of the data in the control chart shows that there are no points in zone C
- b. It may not be required to stop the process and check for any deterioration
- c. The process is drifting towards zone A
- d. There is at least one point in zone A or beyond

Question Number : 38 Question Id : 70959721015 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 3 Wrong Marks : 0

How will you describe the transition that the hotel has made with respect to the use of control chart for the guest check-in process?

- a. It was a transition from the use of an attribute based control chart to a variable based control chart
- b. The transition will reduce the quantum of information obtained through data collection
- c. The transition will take away the opportunity to identify and correct defects in the guest check-in process
- d. None of the above

Question Number : 39 Question Id : 70959721016 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 3 Wrong Marks : 0

Which of the following statements are true with respect to the potential capability (C_p) of the process using the revised control chart?

- a. The potential capability (C_p) cannot be estimated with the available data
- b. The potential capability (C_p) is less than one
- c. The potential capability (C_p) is more than one
- d. The potential capability (C_p) is zero

Question Number : 40 Question Id : 70959721017 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 3 Wrong Marks : 0

Consider the revised methodology for monitoring the process. Which of the following describe the situation?

- a. Potential capability (C_p) will be more than the Actual capability (C_{pk}) for this process
- b. With the available information it will not be possible to predict the number of defects the process is likely to produce
- c. With some marginal efforts it should be possible to reach six-sigma level
- d. The spread of the process is 24

Question Id : 70959721018 Question Type : COMPREHENSION Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No

Question Numbers : (41 to 45)

Question Label : Comprehension

A large hospital buys a specialized, single use medical grade plastic container for its use in the Operation Theaters.

The plastic containers are available from a few suppliers and one unit of the box costs Rs. 2,000. The surgical sections (including the operating theaters) in the hospital work for 250 days a year and the daily consumption rate is four boxes. The suppliers take 7 working days to replenish an order. The ordering cost is Rs. 2,000 per order and the carrying cost is 20 percent.

The hospital has been utilizing an Economic Order Quantity (EOQ) model for inventory planning with respect to these boxes.

The supplier has of late introduced a Minimum Order Quantity (MOQ) restriction for all its buyers based on some internal exercise. The MOQ is 150 boxes.

In the meantime, the hospital plans to launch some improvement initiatives. This will bring down the ordering cost by 20 percent. The hospital may need to spend a sum of Rs. 10,000 towards these initiatives. A new supplier is willing to supply the plastic containers without any MOQ restrictions.

Sub questions

Question Number : 41 Question Id : 70959721019 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 3 Wrong Marks : 0

The amount of pipeline inventory that the hospital will carry will be

- a. 75 boxes
- b. 100 boxes
- c. 28 boxes
- d. None

Question Number : 42 Question Id : 70959721020 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 3 Wrong Marks : 0

Which of the statements will be true if the hospital uses an EOQ model for ordering the boxes?

- a. If the hospital places an order it will last for 25 days
- b. The maximum inventory of boxes in the hospital will be 50 boxes
- c. The total cost of ordering will be more than the total cost of carrying inventory
- d. All of the above

Question Number : 43 Question Id : 70959721021 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 3 Wrong Marks : 0

What will be the impact of the MOQ restriction imposed by the supplier on the hospital?

- a. The total ordering cost for the hospital will increase
- b. The total cost (of ordering + carrying) for the hospital will decrease
- c. The total carrying cost for the hospital will increase
- d. The Hospital will not be affected in anyway

Question Number : 44 Question Id : 70959721022 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 3 Wrong Marks : 0

If the hospital goes ahead with the improvement efforts, which of the following statements will be true with respect to the pay back of the investment?

- a. 4.74 years
- b. 2.37 years
- c. Less than 1 year
- d. 3.27 years

Question Number : 45 Question Id : 70959721023 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 3 Wrong Marks : 0

If the hospital spends on the improvement and chooses to work with the new supplier, what will be the impact?

- a. The overall cost of the inventory plan will increase and will make this new offer unattractive
- b. The total cost of ordering will increase in the new plan (compared to the old scenario)
- c. The total cost of carrying will decrease while the total cost of ordering will remain unchanged (compared to the old scenario)
- d. Both the total cost of ordering and total cost of carrying inventory will come down making it an attractive plan