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SEAT No. _____

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SARDAR PATEL UNIVERSITY
External Examination
M. Sc. Applied Statistics, Semester – II
March 26th, 2019 (Tuesday)
PS02EAST21: Lean Six Sigma Methodology

Time: 10:00 A.M. – 01:00 P.M.

Marks: 70

Q. 1. Multiple Choice Questions [Single-Correct-Answer type] (Attempt all)

[8]

- i. What does WIP stand for?
 - a. Worker In Problem
 - b. Work In Progress
 - c. Wait in Progress
 - d. Working Inside Plant
- ii. CTQ-Flow-Down helps to
 - a. Quantify quality characteristics
 - b. Define problem statement
 - c. Reduce variability
 - d. Reduce Costs
- iii. Which of these points should NOT be contained in the Project Charter?
 - a. Purpose
 - b. Scope
 - c. Results
 - d. Risks
- iv. The process of time reduction accomplished by putting more resources into one or more activities on the critical path is known as
 - a. Takt Time
 - b. Critical Path Time
 - c. Slack Time
 - d. Cycle Time
- v. The amount of time for which the customer is willing to pay, is known as
 - a. Throughput
 - b. Value-Added Time
 - c. Touch Time
 - d. Waiting Time
- vi. Which of these graphical methods helps us to visualize a set of data over time?
 - a. Run Chart
 - b. CUSUM Chart
 - c. Box & Whisker Chart
 - d. Stem & Leaf Diagram
- vii. The product of Severity, Occurrence and Detection is
 - a. Takt Time
 - b. Risk Priority Number
 - c. Process Capability
 - d. Producer's Risk
- viii. Which of these steps towards system improvement are not listed in the Theory of Constraints?
 - a. Elevate
 - b. Exploit
 - c. Kaizen
 - d. Repeat

Q. 2. Short Answer-type Questions (Attempt any seven)

[14]

- i. What does SMART mean?
- ii. Discuss Pilot Run briefly.
- iii. As per SMED methodology, what are meant by internal activities and external activities?
- iv. In which situations is Kaizen advantageous for use?
- v. What do you mean by Feasibility study?
- vi. Differentiate between a process flowchart and a process map using a suitable example.
- vii. Describe Spaghetti Diagrams with the help of an example.
- viii. How is DMEDI different from DMAIC?

(P.T.O)

[Turn Over]

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Q. 3. a. Discuss Affinity Diagrams with the help of an example. How are they different from Interrelationship Diagrams? [6]

b. What do you mean by Customer Feedback? [6]

[OR]

b. What is QFD? Discuss all the parts of a QFD matrix in detail. [6]

Q. 4. a. Discuss the challenges associated with setting a Project Scope. [6]

b. A team uses a mailed survey to obtain information on customer preferences. The team identifies the following activities necessary for project completion: [6]

A. Construct survey questionnaire

B. Decide whether to buy or build software to analyze the data

C. Print and mail questionnaire

D. Buy or build software

E. Test software

F. Enter data into database

G. Use software to analyze results

H. Interpret results and write final report

Prepare a Project Network Diagram based on the above given information.

[OR]

b. Discuss the Kano model for customer satisfaction in detail. [6]

Q. 5. a. Discuss SIPOC with suitable example(s). [6]

b. Write down the steps of development and interpretation of a VSM. [6]

[OR]

b. Discuss the Poka-Yoke methodology in detail. Discuss its similarities and dissimilarities with the 5S system. [6]

Q. 6. a. Discuss all the tools required in Root Cause Analysis. [6]

b. Discuss all the tools associated with the DMAIC methodology. [6]

[OR]

b. Differentiate between Pull and Push systems with the help of suitable examples. Also discuss how they are different from the Kanban system. [6]

(2)