**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, April 2023**

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|  | **4BC2101** | Roll No. | Total Printed Pages: **2** |
| **4BC2101** |  |
| BCA II Year IV-Semester (Back) End Semester Examination, April 2023  **(AIPA)** | |
| **BAP04101:Six Sigma and Lean Methods** | | | |

# Max. Time: **3**Hours. Max. Marks: **60**

Min. Passing Marks: **21**

Attempt **five** questions selecting one question from each Unit. There is internal choice from Unit I to Unit V. Marks of each question or its parts are indicated against each question / parts. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Use of following supporting material is permitted during examination for this subject.

# **1.----------------------------------------------** **2.-----------------------------------------**

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
|  |  |  |  |  |
| **Q.1** | **(a)** | Define DMAIC in Six sigma. Illustrate a detailed summary of each phase with tools and techniques. | **(6)** | **Understanding** |
|  |  |  |  |  |
|  | **(b)** | Describe about the importance of six sigma in delivering the customer satisfaction. | **(6)** | **Understanding** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.2** | **(a)** | Identify the term 5-s in six sigma. What are its benefits? Enumerate the steps in implementing the 5-s in an organisation. | **(6)** | **Analyzing** |
|  |  |  |  |  |
|  | **(b)** | Discuss about the improvement of Six Sigma in delivering the customer satisfaction. | **(6)** | **Understanding** |
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|  |  | **UNIT-II (CO2)** |  |  |
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| **Q.3** | **(a)** | What kinds of activities are required to be done in measure phase of six sigma project? Describe it. | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  | **(b)** | How can a service organisation develop standard operating procedures? Discuss in relation with a software development company? | **(6)** | **Analyzing** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.4** | **(a)** | Define the term FMEA. Enumerate in exhaustive manner the procedure to conduct FMEA. | **(6)** | **Applying** |
|  |  |  |  |  |
|  | **(b)** | What are project charters? Describe the benefits of project charter. How to write a project charter? Explain with the example. | **(6)** | **Applying** |
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|  |  | **UNIT-III (CO3)** |  |  |
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| **Q.5** | **(a)** | Define project charter. Describe the benefits of project charter. How to write a project charter? Illustrate with the example. | **(6)** | **Analyzing** |
|  |  |  |  |  |
|  | **(b)** | The following results were obtained from the observation table of chart. a) subgroup size =4 b) number of subgroups =25  c) d)  Find the value of the following X bar and R, standard deviation, control limit of X bar chart and R chart.  A3=0.73 D3=0 D4=2.28 d2=2.059 | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.6** | **(a)** | Define the Pareto chart. How to construct a Pareto chart? How to make a Pareto chart in excel? Illustrate it. | **(6)** | **Applying** |
|  |  |  |  |  |
|  | **(b)** | The following is a quantitative process, calculate the subgroup means and standard deviations, the plot the means and calculate the upper and lower control limits for the X bar chart. A2=0.924  m1 m2 m3 m4  s1 2.3 2.2 2.4 2.3  s2 2.1 2.2 2.3 2.4  s3 2 2.1 2.2 2.1  s4 2 2.2 2.1 2.3  s5 2.5 2.1 2.4 2.3 | **(6)** | **Evaluating** |
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|  |  | **UNIT-IV (CO4)** |  |  |
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| **Q.7** | **(a)** | Discuss about various types of lean manufacturing tools. How can lean manufacturing help a company? Explain in detail. | **(6)** | **Analyzing** |
|  |  |  |  |  |
|  | **(b)** | Define the term value stream mapping. How to create value stream map? Describe it. | **(6)** | **Applying** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.8** | **(a)** | What is meant by Just-In-Time? Where is it implemented? Discuss in detail. | **(6)** | **Analyzing** |
|  |  |  |  |  |
|  | **(b)** | Classify the various types of waste? How does Lean production reduce waste? | **(6)** | **Applying** |
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|  |  | **UNITV (CO5)** |  |  |
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| **Q.9** | **(a)** | Discuss the types of lean manufacturing tools with proper explanation. | **(6)** | **Understanding** |
|  |  |  |  |  |
|  | **(b)** | Describe the case study of Kaizen Even–Based lean manufacturing in detail. | **(6)** | **Understanding** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.10** | **(a)** | As a manager of an insurance firm, how would you train employees to handle customer complaint? Illustrate with example. | **(6)** | **Analyzing** |
|  |  |  |  |  |
|  | **(b)** | Describe the pull system of production control in lean manufacturing. | **(6)** | **Understanding** |