**SRM Institute of Science and Technology**

Mode of Exam

**OFFLINE**

**College of Engineering and Technology**

**School of Computing**

**DEPARTMENT OF MECHANICAL ENGINEERING**

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

**Academic Year: 2022-2023 (EVEN)**

**Batch II**

**Test:** CLAT-1 **Date:** 23.02.2023

**Course Code & Title:** 18MEO113T Design of Experiment (DOE) **Duration:** 50 min

**Year & Sem:** III / VI **Max. Marks:** 25

**Part A: Attempt All**

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| --- | --- | --- | --- | --- | --- |
| **Q. No** | **Question** | **Marks** | **BL** | **CO** | **PO** |
| **1** | A set of specified factor levels for an experiment is called\_\_\_\_  A. Noise  B. Factor  C. Treatment  D. Response | 1 | 1 | 1 | 1 |
| **2** | Which of these does not appear in a typical process model?  A. Input factors  B. Controllable input factors  C. Uncontrollable inputs factors  D. Acceptance sampling | 1 | 1 | 1 | 1 |
| **3** | The fundamental strategy of robust design is to minimize the effect of factors by optimally controlling \_\_\_\_factors  A. Uncontrollable, controllable  B. Controllable, uncontrollable  C. Controllable, input  D. Input, controllable | 1 | 2 | 1 | 1 |
| **4** | The main goal of applying the principles of experimental design is \_\_\_  A. To observe the behaviour of the process  B. To reduce the experimental bias  C. To determine the outcome  D. To analyze the quality characteristics | 1 | 1 | 1 | 1 |
| 5 | Repeatability refers to  A. Variability due to operator  B. Variability due to noise  C. Variability due to gauge  D. Variability due to interaction | 1 | 2 | 1 | 1 |
| **Part B: Attempt any two** | | | | | |
| 6 | What do you mean by experiments? Explain with two examples. | 4 | 2 | 1 | 2 |
| 7 | What do you mean by statistical thinking? Correlate its role with DOE. | 4 | 2 | 1 | 2 |
| 8 | One industry wants to conduct some experiments, but they don't know about the requirement of skills. Suggest to him the various skills required for successful conduction of industrial experiments. | 4 | 3 | 1 | 2 |
| **Part C: Attempt any one** | | | | | |
| 9 | (a) What are the characteristics of the well-planned experiment?  (b) Suggest and explain the various strategies used for the successful conduction of the experiment. | 4  6 | 2  3 | 1 | 5 |
| 10 | (a) Suggest and explain the basic principle of experimentation in an industry.  (b) What do you mean by interaction? Define with an example. Further, differentiate between the two types of interaction. | 4  6 | 2  3 | 1 | 5 |

**Course Outcome (CO) and Bloom’s level (BL) Coverage in Questions**

M – Marks for each question CO – Course Outcome BL – Bloom’s Level