**Bahria University, Islamabad Campus**

Department of Computer Sciences

Final Examination

Class/Section: BSCS-3A&3B

**(Fall 2020 Semester)**

**Paper Type: Descriptive**

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| --- | --- | --- | --- |
| Course: | **Probability and Statistics** | | Date:04-02-2021 |
| Course Code: | GCS-210 | | Time: Session-II |
| Faculty’s Name: | Fouzia Tauqeer | | Max Marks: 50 |
| Time Allowed: 2.5 Hr | |  | Total Pages: 2 |

**INSTRUCTIONS:**

1. All questions are compulsory.
2. The students are not allowed any helping material (books, tables, formulas, etc).
3. Calculators are allowed. Programmable Calculators are NOT allowed.
4. Use blue, black or blue-black ink only. Do NOT use lead pencil especially.

Student’s Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Enroll No:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(USE CAPITAL LETTERS)

Q1: (Marks=5+5)

a) Scores on certain nation-wide college entrance examination follow a normal distribution with mean 500 and standard deviation is 100. find the probability that student will score over 650, less than 250, between 325 and 675?

b) If Y=+ find mean and variance of y;

where mean 2 and 5 and variances are 4 and 25?

Q2: (Marks=5+5)

a) The Edison Electric Institute has published figures on the number of kilowatt hours used annually by various home appliances. It is claimed that a vacuum cleaner uses an average of 46 kilowatt hours per year. If a random sample of 12 homes included in a planned study indicates that vacuum cleaners use an average of 42 kilowatt hours per year with a standard deviation of 11.9 kilowatt hours, does this suggest at the 0.05 level of significance that vacuum cleaners use, on average, less than 46 kilowatt hours annually? Assume the population of kilowatt hours to be normal.

b) Find range and standard deviation for following data 3,4,5,6,6, and 7

Q3: (Marks=5+5)

a) Scholastic Aptitude Test (SAT) mathematics scores of a random sample of 500 high school seniors in the state of Texas are collected, and the sample mean and standard deviation are found to be 501 and 112, respectively. Find a 99% confidence interval on the mean SAT mathematics score for seniors in the state of Texas.

b) 4 If a certain machine makes electrical resistors having a mean resistance of 40 ohms and a standard deviation of 2 ohms, what is the probability that a random sample of 36 of these resistors will have a combined resistance of more than 1458 ohms?

Q4: (Marks=5+5)

For following set of data?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| X | 22 | 30 | 36 | 77 | 87 | 90 |
| Y | 50 | 43 | 38 | 24 | 16 | 4 |

1. Find correlation coefficient
2. regression line y on x

Q5: (Marks=5+5)

a) Find standard deviation of uniform density, ?

b) State the properties and real-life applications of exponential density?

**Good luck ☺**