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| **Description: col LOGO outlineST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27** |
| **B.Sc. Biotechnology - IV SEMESTER** |
| **SEMESTER EXAMINATION: APRIL-2022****(Examination conducted in July 2022)** |
| **BT 418 – Biostatistics**  |
|  |  |  |  |  |  |  |
| **Time- 1 1/2 hrs** |  |  **Max Marks-35** |  |
| **This paper contains ONE printed page and TWO parts** |

**I. Answer any SEVEN of the following 2x7=14**

1. What are the desirable properties of a good measure of central tendency?
2. Calculate the range and its coefficient from the following data: 3, 5, 7, 9,11,13,15
3. What is Stratified sampling? When is it followed?
4. What are the assumptions of Poisson distribution?
5. What is standard error?
6. What is regression? Where is it useful?
7. Depict the following using an appropriate diagram/ graph

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Days to maturity | 55-60 | 60-65 | 65-70 | 70-75 | 75-80 |
| No. of varieties | 7 | 15 | 20 | 18 | 12 |

1. What are the merits of using the arithmetic mean?
2. What are non-parametric tests? Give an example
3. What are mutually exclusive events? Give an example.

**II. Write short notes on any THREE of the following 7x3=21**

1. Calculate the mode from the following data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Interval | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| Frequency (f) | 12 | 25 | 45 | 30 | 8 |

Add a note on the advantages of using the mode.

1. A firm manufactured articles of which 2% are defective. These articles are packed in boxes each containing 5. Find out the probability of boxes that are free from defective articles.
2. The following data pertains to number of flowers per twig. Calculate the standard deviation and its coefficient.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No. of flowers/twig | 11-15 | 16-20 | 21-25 | 26-30 | 31-35 | 36-40 | 41-45 |
| No. of twigs | 3 | 4 | 11 | 12 | 9 | 7 | 4 |

1. The correlation coefficient of an association studies between heights and weights among 20 individuals is r= 0.9. Conduct the t test and give your inference about the correlation coefficient. (t tab  18df, α 0.05 = 2.101)
2. In a F2 population derived between red and white flower coloured anthuriums the following data was obtained: 20 red: 77 pink: 19 white plants. Test for incomplete dominance (1:2:1). (**χ2**tab 2df, α 0.05 =5.991)

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