M.Sc. WILDLIFE CONSERVATION First Semester POPULATION ECOLOGY & QUANTIFICATION (MWS - 103)

Duration: 3Hrs. Full Marks: 70

Part-A (Objective) =20 Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins. Marks: 50

Answer any four from Question no. 2 to 8 Question no. 1 is compulsory.

1. Write short notes – (5+5=10)

- (a) Carrying capacity
- (b) r and K-selection
- 2. What is student's t test? Describe the different types of t test. State the assumptions for t test. (2+4+4=10)
- Define population. Write the characteristic of a population. Also mention the structure of a population. (2+3+5=10)
- 4. What do you mean by community? Write the difference between community and population. Write a note on community characteristics. (2+3+5=10)
- 5. What do you mean by ecological succession? Mention causes and stages of ecological succession along with an example. (2+4+4=10)
- 6. A small population of butterflies has the age distribution given below. Calculate the mean age of the insect population. What is the median age of the population?

(5+5=10)

| Age class (in days) | No of Individuals (F) |
|---------------------|-----------------------|
| 0-11 | 8 |
| 12-23 | 12 |
| 24-35 | 15 |
| 36-47 | 17 |
| 48-59 | 12 |
| 60-71 | 25 |
| 72-83 | 18 |
| 84-95 | 19 |

7. Calculate the Mann Whitney U statistic for the following two treatments of Diclofenac affected vultures. Total number of vultures affected by Diclofenac = 18, Level of significance can be assumed to be= 0.05, Null Hypothesis can be rejected if Z value less than -1.96 and greater than + 1.96 (5+5=10)

| Treatment A | Treatment B |
|-------------|-------------|
| 28 | 11 |
| 29 | 14 |
| 30 | 16 |
| 31 | 14 |
| 32 | 15 |
| 38 | 12 |

8. Three varieties of wheat A, B, C are sown in four plots. The yield in quintal per acre is recorded in the table below. Test whether there is any significance difference between the yields at 5% level. (10)

| Plot | Variety A | Variety B | Variety C |
|------|-----------|-----------|-----------|
| I | 31 | 42 | 20 |
| II | 26 | 36 | 25 |
| III | 38 | 40 | 30 |
| IV | 35 | 45 | 29 |

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| Duration: 20 minutes (PAI | Marks – 20 RT A - Objective Type) | |
|--|---|----|
| I. Choose the correct answer: | 1×20=20 | |
| (1) All the individuals of a population(a) Morphologically similar(c) Both a & b | are – (b) Genetically similar (d) None of the above | |
| (2) The word "population" originated f(a) Populee(c) Populus | rom the word- (b) Populi (d) None of the above | |
| (3) During emigration, population show (a) Outward movement (c) Both a & b | vs – (b) Inward movement (d) None of the above | |
| (4) Life table provides vital statistics of(a) Mortality(c) Both a & b | findividuals of a population about – (b) Life expectancy (d) None of the above | |
| (5) How many types of communities ar(a) Two(d) Four | e there? (b) Three (d) None of the above | |
| (6) An intermediate zone lying between(a) Ecotone(c) Ecological niche | two adjacent communities is called – (b) Edge effect (d) None of the above | |
| (7)The inherent capacity of an organism(a) Vital number(c) Reproductive value | to increase in numbers under ideal conditions is calle (b) Biotic potential (d) None of the above | d- |
| 8) At early ages, RRV is typically – (a) Low (c) High | (b) Medium (d) None of the above | |
| 9) Ecological succession is – (a) Directional (c) Both a & b | (b) Predictable(d) None of the above | |

| (10) | Who forwarded the Climax Pattern Th | eory? |
|--------|---|--|
| | (a) Odum | (b) Whittaker |
| | (c) Transley | (d) None of the above |
| (4.4) | | |
| (11) | Mode is the – | |
| | (a) Maximum occurrence value | (b) Middle value |
| | (c) Average value | (d) Minimum occurrence value |
| (12) | Chi square goodness of fit test was dev | reloped by — |
| | (a) Pearson | (b) Quetelet |
| | (c) Fisher | (d) Gosset |
| 1 | | |
| (13) | Arithmetic mean includes – | |
| | (a) n th square root of the product of observa | ations (b) Summing up all the observations |
| | (c) Average of the observations | (d) Reciprocal of average |
| | | |
| (14) | Mann-Whiney test is basically – | |
| | (a) Parametric test | (b) Non-parametric test |
| | (c) Both a & b | (d) None of the above |
| (15) | What is the mean for a normal distribut | ion? |
| (13) | (a) Equal to Mean | (b) Equal to Median |
| | (c) Equal to Mode | |
| | (c) Equal to Wiode | (d) All of the above |
| (16) | What is the probability of obtaining 2 h | neads if you toss 2 coins simultaneously? |
| | (a) 1 (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ | (d) 0 |
| | | |
| (17) I | ANOVA was developed by - | |
| | (a) Ronald Fisher | (b) Carl Friedrich Gauss |
| | (c) Karl Pearson | (d) D'Arcy Thompson |
| (18) \ | Which one of the following is a form or | f non-parametric test? |
| (10) | (a) T test | (b) Chi square test |
| | (c) Mann Whitney U test | (d) Both (b) and (c) |
| | (c) Maini Winthey O test | (a) Doni (b) and (c) |

(a) Straight line (b) Bell-shaped curve.
(c) Exponential curve (d) Logarithmic

(20) Which of the following is a probability sampling method?
(a) Quota sampling (b) stratified sampling (c) Judgment sampling (d) snowball sampling