

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)
3. 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 $\alpha = 0.05$, 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

(10) Who forwarded the Climax Pattern Theory?

- (a) Odum (b) Whittaker
(c) Transley (d) None of the above

(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 developed by –

- (a) Pearson (b) Quetelet
(c) Fisher (d) Gosset

(13) Arithmetic mean includes –

- (a) n^{th} square root of the product of observations (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 distribution?

- (a) Equal to Mean (b) Equal to Median
(c) Equal to Mode (d) All of the above

(16) What is the probability of obtaining 2 heads if you toss 2 coins simultaneously?

- (a) 1 (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) 0

(17) 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 of non-parametric test?

- (a) T test (b) Chi square test
(c) Mann Whitney U test (d) Both (b) and (c)

(19) The curve for a normal distribution is

- (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
