

2022

ZOOLOGY

[P.G.]

(M.Sc. Fourth Semester End Examination-2022)

PAPER-401

Full Marks: 40

Time: 02 Hrs

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

USE SEPARATE ANSWER SCRIPT FOR EACH GROUP

Group-A

[Environmental Pollution and Management]

[F.M. – 20]

1. Answer any two questions from the following: 2x2= 4
- What is pollution? State the difference between point and non point pollution.
 - What do you mean by biomonitoring?
 - Mention the characteristic features of Troposphere & stratosphere.
 - What do you mean by traditional environmental knowledge?

(2)

2. Answer any two questions from the following: 2x4 = 8

- a) What is Bioinvasion? Describe in short with two examples. 2+2 ..
- b) Write a note on cultural eutrophication. 4
- c) State the difference between soil silting and soil erosion. How could you control it? 2+2.
- d) Write a note on soil pollution. 4

3. Answer any one question of the following: 1x8 = 8

- a) What is photochemical smog? Describe with reactions on the process of formation of the same. 2+6
- b) Write a note on global warming and climate change. 8

Group - B
BIOSTATISTICS

[F.M.- 20]

4. Answer any two questions from the following: 2x2= 4

- a) Define population with examples.
- b) Differentiate between polygon graph and pie diagram.
- c) How much % of scores lied in Mean ± 1.96SD and Mean ± 2.58SE?
- d) Write the formula of Unpair t-test with examples

(3)

5. Answer any two questions from the following: 2x4 = 8

- a) Compute the mean and median of the following body weights [gm] scores:

Class intervals:

51-53	54-56	57-59	60-62	63-65	66-68	69-71
5	7	14	28	15	8	3

- b) How do you compute the chi-square test for goodness of fit with suitable example?
- c) To find whether or not there is a significant correlation between gill weight (mg) & body length (cm) of the following samples of Labiobata fishes with considering the critical 't'_{0.02(18)}=2.552 or t_{0.05(18)}=2.101.

Sl no of fishes	1	2	3	4	5	6	7
Body length (cm) (X)	15	21	27	28	22	27	27
Gill Weight (mg) (Y)	1.5	2.2	3.3	3.3	2.3	3.3	3.3

- d) What are Regression line and equation? Write the assumption and Computation formulae for simple linear regression.

6. Answer any one question of the following: 1x8 = 8

- a) Why ANOVA is more preferable than t-test?
To find whether or not there are significance difference between the mean wing length (mm) of the following three groups of

(4)

house flies treated with three different chosen levels of a pesticide

Group	Length (mm)
Group 1 (X1)	4.1,4.6,4.2,4.7,4.9
Group 2 (X2)	3.0,3.1,3.6,3.3,3.8
Group 3 (X3)	2.1,2.6,2.3,2.2,2.4

Critical $F_{0.05}(2,12)=3.88,$

Critical $F_{0.05}(2,13) = 3.80,$

Critical $F_{0.05}(2,15) = 3.68,$

b) Write the relationship between one-tail and two-tail t-test.

The Hb(g%) of 10 male college students and 9 female college students are given below. Find out whether or not the mean Hb(g%) of male is significantly higher than that of female.

Male	11.2	12.4	10.8	13.2	11.6	12.6	10.4	14.2	12.8	13.6
Hb(g%)										
Female	12.8	11.6	12.2	11.8	9.8	12.4	12.4	11.4	13.8	12.0
Hb(g%)										

$$t_{0.02(18)} = 2.552$$

$$t_{0.05(18)} = 2.101$$