

6/ZOO-350(Th) Syllabus-2023

2026

(May-June)

FYUP : 6th Semester Examination

ZOOLOGY

(Biotechniques, Bioinformatics and Biostatistics)

(ZOO-350)

(Theory)

Marks : 56

Time : 3 hours

*The figures in the margin indicate full marks
for the questions.*

Answer Question No. **1** which is compulsory
and *any* **four** from the rest.

Students are allowed to use calculator for Biostatistics.

1. Write notes on/Answer the following (any
four) : 3×4=12

- (a) Beer-Lambert law
- (b) Applications of statistics in biology
- (c) Relationship between mean, median
and mode

26D/1813

(Turn Over)

(2)

- (d) Principle of centrifugation
- (e) Pairwise and multiple sequence alignment
- (f) Give the importance of phylogenetic trees.
2. (a) Discuss the principles involved in light microscopy. 5
- (b) With the help of a labelled diagram, explain the different parts of a TEM. 2+4=6
3. Describe the Needleman-Wunsch and Smith-Waterman algorithms and highlight their differences. Explain FASTA algorithm and its importance. 7+4=11
4. (a) Calculate the arithmetic mean of the following frequency distribution : 6

Marks obtained in examination	No. of Students
10 - 20	1
20 - 30	2
30 - 40	3
40 - 50	5
50 - 60	7
60 - 70	12
70 - 80	16
80 - 90	10
90 - 100	4

(3)

- (b) Determine median for the following distribution : 5

Marks	: 50 - 55	55 - 60	60 - 65	65 - 70	70 - 75
No. of Students	: 6	10	22	30	16

5. Define biological databases. Describe in detail the different types of biological databases with appropriate examples. 2+9=11

6. (a) Write down the general principle involved in chromatography. 6

- (b) Describe the principle of SDS-PAGE. 5

7. (a) Calculate standard deviation from the following data : 6

Weight of *Labeo*

rohita (kg) : 8 55 70 25 17 65

No. of individuals : 4 10 13 8 5 15

- (b) Define sampling. Classify random sampling techniques. 1+4=5

8. Write short notes on/Answer the following (any two) : $5\frac{1}{2} \times 2 = 11$

- (a) Principles and applications of pH meter

- (b) Principles and applications of BLAST

(4)

(c) Differences between light and electron microscopy

(d) Construct a histogram and a bar graph to represent the following data :

<i>Species</i>	:	<i>Sp 1</i>	<i>Sp 2</i>	<i>Sp 3</i>	<i>Sp 4</i>	<i>Sp 5</i>	<i>Sp 6</i>
<i>No. of individuals</i>	:	6	3	10	15	21	2

★ ★ ★