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**M.Sc. (Semester-I)
Examination, Dec.-Jan. (2025-26)**

ZOOLOGY

**(Computational Biology Biostatistics
and Bioinformatics)**

Time Allowed : Three Hours

Maximum Marks : 70

Note : This question paper is divided into four sections. Attempt questions of all four sections as per direction. Distribution of marks is given in each section.

SECTION-A

(Objective Type Questions)

1. Attempt any ten questions. Each question carries 1 mark.

[10×1=10]

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(1)

[P.T.O.]

(A) Fill in the blanks :

- (i) _____ is known as father of computer.
- (ii) A portion of the population selected for study is referred as _____.
- (iii) The full form of EMBL is _____.
- (iv) Dependent and independent variable is used in _____ analysis.
- (v) The middle most value of data set is _____.
- (vi) Primer is used in the PCR for synthesis of _____.

(B) Choose the correct answer :

- (vii) The term Bioinformatics was coined by :
 - (a) J.D. Watson
 - (b) Paulien Hogeweg
 - (c) Margaret Dayhoff
 - (d) Frederic sanger

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(viii) MS-Excel is mainly used for :

- (a) Calculating data
- (b) Preparing graphs
- (c) Data representation
- (d) All of the above

(ix) Which of the following is not a sequence alignment tool?

- (a) BLAST
- (b) FASTA
- (c) SWISS PLOT
- (d) CLUSTALIN

(x) Primer is used in initiation of :

- (a) DNA synthesis
- (b) Polypeptide synthesis
- (c) Lipid Synthesis
- (d) Protein Synthesis

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[P.T.O.]



(xi) Which of the following is a nucleotide sequence database?

- (a) EMBL
- (b) SWISS PLOT
- (c) PROSITE
- (d) TREMBL

(xii) The action "Ctrl+P" performs the following function :

- (a) Paste
- (b) Print
- (c) Power on/off
- (d) Page up/down

SECTION-B

(Very Short Answer Type Questions)

Note: Attempt any five questions. Each question carries 2 marks. (word limit : 25-30 words) [5×2=10]

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(4)

(i) Bioinformatics applications.

(ii) ANOVA

(iii) Hypothesis

(iv) Basic components of computer

(v) Operating systems

(vi) Data mining

(vii) Application softwares

SECTION-C

(Short Answer Type Questions)

Note: Attempt any five questions. Each question carries 4 marks. (word limit : 250 words) [5×4=20]

3. (i) Write about gene bank.

(ii) Write short notes on Ligplot.

(iii) Explain Probability.

(iv) What is conserved sequence?

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(5)

[P.T.O.]



- (v) Define standard errors.
- (vi) Define Variables.
- (vii) MS word and its significance.

SECTION-D

(Long Answer Type Questions)

Note: Attempt any three questions. Each question carries 10 marks. (word limit : 500 words) [3×10=30]

- 4.
- (i) Describe Microsoft power point with its significance and application.
 - (ii) Describe the different prediction tools of protein structure with different types of molecular models.
 - (iii) Describe molecular docking with example? Discuss steps involved in generating a phylogenetic tree.
 - (iv) Explain the concepts of biostatistics related to population, sample and data.

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(6)