



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA**  
**FACULTY OF SCIENCE**  
**Department of Biological Sciences**  
**2023\_1 POP EXAMINATION.**

**BIO 316 – BIOINFOMATICS**

**Time: 1½ Hours**

**Credit Unit: 1**

**Instruction: Answer THREE questions only. QUESTION 1 is compulsory.**

- 1a What is a database? (3mrks)  
1b How are databases classified? (3 mrks)  
1c What are the Pioneer databases ? (2 mrks)  
1d What led to the establishment of the database in 1c?( 4 marks)  
1e Discuss the terms Primary, Secondary and Composite databases ( 18 mrk)
- 2a Explain the term BLAST (8 mrks)  
2b Give six (6) versions of BLAST and their output (12 mrks)

3 State the steps involved in the comparison of the amino acid sequence for Hemoglobin in different mammals (20 marks)

**4a Fill the following table using three (3) and one (1) letter codes for the amino acids (17 marks)**

<b>Amino Acid</b>	<b>3 letter code</b>	<b>1 letter code</b>
Alanine		
Tyrosine		
Serine		
Valine		
Leucine		
Glutamic acid		
Lysine		
Glutamine		

4b Write down the full meaning of the following acronyms

- i. EMBL  
ii. EBI  
(3 marks)

- 5a Explain the term 'flatfile'( 4½ mrks)  
5b Describe the features of a Flatfiles (5½mrks)  
5c. List and explain two (2) methods in Phylogenetic Analysis (10 marks)