

Roll No _____

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School of Engineering Sciences & Technology
ODD SEMESTER EXAMINATION 2024
M.Sc. (Computational & Systems Biology and Bioinformatics), Semester-I
Paper: Programing in PERL
Paper Code: MCSB 105

Time: 2.5 hour

Max Marks: 60

Section-A [4x5=20]Answer **ALL** questions.

S.No.	Question	CO	BL
1	Write the output of the following code explaining each line. <pre>my \$text = "hello123world456"; if (\$text =~ /(?!<=\\d)world/) { print "hello,Matched positive\\n"; } if (\$text =~ /(?!<\\d)Hello/) { print "Hello Matched negative!\\n"; }</pre>	4	5
2	Write the output of the following code explaining each line. <pre>\$string = " Jamia Hamdard is in Delhi."; \$string =~ s/ Jamia Hamdard /JH/; \$string =~ s/computer science/cs/; print "\$string\\n";</pre>	4	5
3	Write a python code to upload and read the whole file.	1,4	3
4	How do you sort and reverse the order of elements in an Array?	2,3	4

Section-B [4x10=40]Answer **any FOUR** questions.

S.No.	Question	CO	BL
1	i) What is a hash function in the context of bioinformatics? Why are hash functions important in bioinformatics? ii) Write PERL code for counting sequence-occurrences using a Hash function.	1,2	5
2	i) What is slicing in Perl? How do you extract a substring of a DNA sequence in Perl? ii) Write a PERL code for extracting a specific codon from a DNA sequence?	2,3	2
3	i) What are loops in Perl and why are they important in bioinformatics? What are the main types of loops in Perl? ii) How would you use a for loop to count the occurrences of a specific nucleotide in a DNA sequence	1,3	3
4	i) How can you store a list of DNA sequences in a Perl array? How can you store the lengths of all DNA sequences in a separate array? ii) Write a code for finding the Longest Common Substring of the following strings: "ACGTACGT" and "TACGTA".	3,4	5
5	i) What is Boolean indexing in Perl? How can you select DNA sequences from an array that start with "A"? Write a code in PERL. ii) How can you select protein sequences that contain the amino acid "Cysteine" (C)? Write a code in PERL.	2,4	5
6	i) Write a code in PERL to half the given DNA sequence: ACGTACGT ii) Discuss about the subroutine. Explain with suitable example.	1,4	4