

**M. Sc. Bioinformatics Sem.-II (C.B.C.S.) (2013 Course) / Advanced
Diploma in Bioinformatics Sem.-II (C.B.C.S.) (2013 Course) :**

SUMMER - 2019

SUBJECT: PERL & BIOPERL PROGRAMMING

Day: Monday
Date: 15-04-2019

S-2019-1468

Time: 02.00 PM TO 05.00 PM
Max. Marks: 60

N.B.:

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Out of the remaining attempt **TWO** questions from each section.
- 2) Answers to two section should be written in *SAME* answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Draw neat labelled diagrams **WHEREVER** necessary.

SECTION-I

Q.1 Answer any **FIVE** of the following: **(10)**

- a) Which statement best describes PERL;
 - i) PERL is a small power full and tightly defined language with a min. of constructs to learn and use.
 - ii) PERL is a large, powerful, flexible language with lot of different ways of doing things.
- b) What are the three parts of a 'for' loop?
- c) How will you convert an array into string?
- d) In PERL, what does 'grep' and 'glob' function used for?
- e) BUG BUSTER:
What's wrong with this program;

```
While ( $i < $max ) {  
    $vals [ $i] = 0;  
}
```
- f) Explain Hashes.

Q.2 What are subroutines and its applications? **(10)**

OR

What does the following file test do:

- i) -e ii) -s iii) -z iv) -d

Q.3 Explain datatypes of PERL. **(10)**

OR

Write a script that prompts user for 2 numbers and then creates an array of numbers between lower and higher bound.

Q.4 Write a subroutine that takes a string as an arrangement and returns the string in reverse order of words. (10)

OR

When you assign to a list, the elements are copied over from right to left.

$$(\$a, \$b) = (10, 20).$$

\$a becomes 10 and \$b becomes 20. Investigate what happens when;

- There are more elements on right than on left.
- There are more elements on left than on right.
- There is a list on left but a single scalar on right.
- There is a single scalar on left but a list on right.

SECTION-II

Q.5 Answer any **FIVE** of the following: (10)

- a) Explain the differences between the Keys, values and each function.
- b) What is the difference between a single quoted and double quoted string? Explain it with example.
- c) What are word boundaries?
- d) Difference between array and hash?
- e) Explain the role of following functions:
 - i) Scalar
 - ii) join
- f) BUG BUSTER;

```
% hash = {      Key => [ 1. 10]
              Key 2 => [ 100. 110]
            };
$ ref = \% hash;
foreach ( keys % ref) {
    Print  “ $ $ref { $_ } \n”; }
```

Q.6 Explain the role of following regular expression and modifiers. (10)

- a) `=~s` b) `=~t` c) `/i` d) `/g` e) `/x`

OR

What is object oriented programming? Explain method, classes and objects in PERL.

Q.7 Write a script to replace the header of FASTA file. (10)

OR

Write a short note on DBI module.

Q.8 What do each of these variables refer to? (10)

- a) `$foo` b) `@foo`
- c) `%foo` d) `$foo{'Key'}`

OR

Write patterns to match the following:

- a) First word in a sentence
- b) Percentage symbol (%)
- c) Any number

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