M.Sc. Examination, 2018

Semester – II

Biotechnology

Core Course-IX

(Computer Applications and Biostatistics)

Time: 3 Hours **Full Marks: 40**

Questions are of value as indicated in the margin.

Answer *any two* questions from group 'A' and two questions from Group 'B'.

Group-A

Answer ***any two*** questions

1. Write a program to swap two numbers in C programming language. Explain the difference between while and do-while loop in C with suitable example. Write down the meaning of two string functions strcpy (S1, S2) and strcmp (S1, S2) 5+3+2=10

2. Give examples of DDL, DML, DCL commands in SQL. Write insert command with suitable example. What is the significance of '%s','_ _et'. Define RDBMS. Give the commands of two aggregate functions in SQL. 3+2+2+1+2=10

3. What is PERL? Draw the architecture of HTTP-CGI-PERL connection. Explain variable, scaiar list in PERL. What is the significance of @list=(3..6) and list=()?

   1+4+3+2=10

4. Differentiate Standard and CGI output with diagram. Write a code which illustrates CSS to make top level header in HTML document appear in color red. Give examples of two tags that do not have corresponding end tags. 3+5+2=10

Group-B

Answer ***any two*** questions

5. A genetic loci is segregating through Mendelian principle in an insect population. If one parent is heterozygous dominant and another is homozygous dominant what will be the probability of an offspring receiving one dominant and one recessive allelic form, two homozygous recessive alleles and two homozygous dominant alleles?

   In how many ways can twelve amino acids be arranged to form polypeptides chains? How many genetic map be produced from four genetic loci (A, B, C, D)?

   2+2+2+2+2=10

6. In a plant breeding experiment a cross was made between a tall red and a dwarf white plant to produce a crossed population of 500 tall-red, 467 tall-white, 487 dwarf red and 499 dwarf white plants. Comment on the inheritance pattern of the breeding experiment with proper statistical test (chi square value at 5% level for degree of freedom 3 is 7.82).

7. A sample of 500 wheat plants were taken from a field whose mean yield is 3 Q/hectare and variance is 2. If the sample mean is 2.5 Q/hectare, is the sample mean is really presenting the whole wheat field. Test statistically with proper statistical test using proper table. (Z value at 0.05 level is 1.96) 10

8. A fertilizer company has marketed three fertilizers (A, B and C). Each of these fertilizers were applied equal amount on 12 homogenous plant population. Following are the changes of plant height as below:

A	B	C
2	1.5	2.4
2.1	1.7	2.6
3	1.6	3.0
2	1.9	2.0

Test parametrically using proper statistical test whether the changes in plant height resulted from the application of three different fertilizers are significantly differ or not. The value of F (for df 2,9) at 5% level is 4.26. 10

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