V

(20516)

Roll No. 966020

B. Sc. (Micro.) II

3501

B. Sc. (Micro.) Examination, May 2016

Computer & Biostatistics

(B-208)

Time : Three Hours] *[Maximum Marks : 35*

Note : Attempt any *five* questions. All questions carry equal marks. Calculator is allowed.

1. Explain different computer generations with suitable examples. 7

2. What is interpreter and how does it differ from compiler? 7

3. Explain primary and secondary storage device with examples. 7

4. (a) Explain the conversion of decimal number to hexadecimal number. 3

(b) Convert the following :

(i) $(101101011)_2$ to $(\ldots\ldots\ldots)_8$ 2

(ii) $(12351)_8$ to $(\ldots\ldots\ldots)_2$ 2

5. Calculate mean deviation and standard deviation from the following data: 3+4

Class	Frequency
0 – 10	6
10 – 20	10
20 – 30	16
30 – 40	14
40 – 50	10
50 – 60	5
60 – 70	2

6. What do you mean by systematic sampling ? Give its advantages and disadvantages. 7

7. Calculate Karl Pearson's correlation coefficient from the following data : 7

X	9	8	7	6	5	4	3	2	1
Y	15	16	14	13	11	12	10	8	9

8. What do you understand by consistency of data ? Obtain the consistency of the following data : 7

$N = 1000$, $(A) = 600$, $(B) = 500$, $(AB) = 50$.

9. Define Binomial distribution. Ten coins are thrown simultaneously. Find the probability of at least 9 heads. 3+4

10. Write short notes on any two of the following : 3½+3½

(i) t-test

(ii) Completely Randomized Design

(iii) Simple Random Sampling

(iv) Median.

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(20517) Roll No. 1596601662

B.Sc.(Micro.)-II Yr.

3500

B.Sc.(Micro.) Examination, May 2017

Bio-Mathematics

(B-207)

Time : Three Hours] *[Maximum Marks : 40*

Note : Attempt any **five** questions. Each question carries equal marks. Calculators and type of tables are allowed.

1. (a) If $\begin{bmatrix} a+4 & 3b \\ 8 & -6 \end{bmatrix} = \begin{bmatrix} 2a+2 & b+2 \\ 8 & a-8b \end{bmatrix}$,

then find the value of (a-2b). 4

(b) If $A = \begin{bmatrix} 5 & 2 \\ 3 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 5 & 1 \\ 6 & 8 & 4 \end{bmatrix}$,

find AB and BA whichever exists. 4

P.T.O.

2. (a) Using properties of determinants, prove that 4

$$\begin{vmatrix} 0 & ab^2 & ac^2 \\ a^2b & 0 & bc^2 \\ a^2c & cb^2 & 0 \end{vmatrix} = 2a^3b^3c^3$$

(b) Use matrix method to show that the system of equations 4

$$2x+5y=7$$
$$6x+15y=13$$

is inconsistent.

3. Find the real root of the equation $x^3-9x+1=0$ by Regular Falsi method. 8

4. (a) Find the real root of the equation

$$x^2-5x+2=0$$

by Newton Raphson's method. 4

(b) By Guass Elimination method solve the following system of linear equations : 4

$$5x-y-2z=142$$
$$x-3y-z=-30$$
$$2x-y-3z=-50$$

5. (a) Prove that 4

$$\left(\frac{1+\sin\theta-\cos\theta}{1+\sin\theta+\cos\theta}\right)^2 = \frac{1-\cos\theta}{1+\cos\theta}$$

(b) Show that 4

$$\frac{\sin A+\sin 3A+\sin 5A+\sin 7A}{\cos A+\cos 3A+\cos 5A+\cos 7A} = \tan 4A$$

6. (a) Prove that 4

$$\frac{1-\cos A}{\sin A} = \tan\frac{A}{2}$$

(b) Show that 4

$$\frac{\sin^2 A-\sin^2 B}{\sin A\cos A-\sin B\cos B} = \tan(A+B)$$

7. (a) Differentiate $\tan\sqrt{x}$. 4

(b) For $\cos(x+y) = y\sin x$ 4

find $\frac{dy}{dx}$.

8. (a) If $x = a(t+\sin t)$ 4

$y = a(1-\cos t)$,

Find $\frac{dy}{dx}$.

(b) If $u=\log(x^2+y^2)$, prove that 4

$$\frac{\partial^2 u}{\partial x^2}+\frac{\partial^2 u}{\partial y^2}=0$$

9. (a) Evaluate 4

$$\int \frac{dx}{1+\sin x}$$

(b) Evaluate $\int x\sec^2 x\,dx$ 4

10. (a) Evaluate $\int \frac{(2x+3)}{(x-3)(x+1)}dx$ 4

(b) Show that $\int_0^{\pi/2} \log(\tan x)\,dx = 0$ 4

(20518) Roll No. .....

B. Sc.(Micro.)-II

3501

B. Sc. (Micro.) Examination, May 2018

Computer & Biostatistics

(B-208)

Time : Three Hours] *[Maximum Marks : 35*

Note : Attempt any *Five* questions. All questions carry equal marks. Calculator is allowed.

1. Discuss the various input and output devices of computer system.

2. Explain the different classifications of computer system.

3. Discuss the applications of Microsoft Excel. Convert the following :

   (i) $(346)_8 = (\quad)_2$

   (ii) $(4117)_{10} = (\quad)_2$

   (iii) $(13.15)_{10} = (\quad)_2$

   (iv) $(155)_8 = (\quad)_2$

4. What is measure of central tendency ? Describe mean, median and mode with their merits and demerits.

5. Write a detailed note on binomial and Poisson distributions.

6. Differentiate between correlation and regression analysis. Obtain Karl-Pearson's coefficient of correlation for the following data set :

x	14	12	10	8	6	5	4	3	2
y	2	4	5	9	11	13	10	15	17

7. Describe t and F tests. Does the sample evidence indicate that the average time an employee stays with a company in their current positions is less than 3 years ? A random sample of 50 employees yielded a mean of 2.79 years and standard deviation of 0.76. Use $\alpha = .05$.

8. Discuss systematic and stratified sampling with their importances.

9. Explain the basic principles of design of experiment.

10. Give the layout and analysis of randomized block design (RBD). Highlight the importance of RBD over CRD.