2022

M.Sc.

2nd Semester Examination

BIOMEDICAL LABORATORY SCIENCE AND MANAGEMENT

PAPER—BML-203

COMPUTER APPLICATIONS AND BIO-STATISTICS

Full Marks : 50

Time : 2 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Group—A

Answer any *four* questions.　　　4×2

1. Compute mode if the median and mean values of one group data are 56 and 62 respectively.

2. Write any two preference of cumulative percentage ogive over cumulative frequency ogive.

3. In a statistical test, suppose computed 't' value is 5.85 and critical t at $P_{0.05(10)}$ is 3.80. Write your interpretation.

(Turn Over)

4. Write the conditions for application of 'yates' correction in statistical test.

5. What is the standard writing format using MS-Office Word for a scientific article ?

6. What is the application of auto fill in MS-Office Excel.

Group—B

Answer any *four* questions. 4×4

7. In given data of two variables, suppose $\overline{X} = 50.00$, $b_{yx} = 1.02$ and $\overline{Y} = 160.00$.
   Then
   (a) Compute a_{yx}.
   (b) Write the regression equation of Y on X.
   (c) Suppose X = 55.00, then compute $\hat{Y}$ (proposed value of Y). $2+1+1$

8. In a correlation study r = +0.70, n = 10.
   Then
   (a) Compute s_r.
   (b) Compute t.
   (c) Write your interpretation of $t_{0.05(8)} = 1.95$.
   $1+1+2$

9. In a distribution of variable

$$\sum f\left(X_c - \overline{X}\right)^2 = 1500$$
$$f = 50$$

then compute

(a) s.

(b) variance.

(c) *SE of* $\bar{x}$.   1+1+2

10. Define 'NULL' hypothesis and its importances. 2+2

11. What are the benefits of artificial intelligence in health care ?

12. Write a short note on Pie chart.

Group—C

Answer any *two* questions.   2×8

13. Out of 20 diabetic individuals, 6 subjects are normoreactive to glibenclamide, 9 subjects are hyperreactive to glibenclamide and 5 subjects are hyporeactive to glibenclamide. Out of 15 nondiabetic individuals, 2, 10 and 3 subject are normoreactive, hyperreactive and hyporeactive to that drug. Is these any significant association between diabetic state and reactivity of gliben elelanride ? Interprete your result.

Given $\chi^2_{0.05(3)} = 6.02$ 6+2

14. Apply one way anova to find whether or not there is a significant difference between the mean systolic blood pressure (mm of Hg) of following two groups of individuals from two different professions. Interprete your result.

Group-1	150	155	140	130	135	120
Group-2	110	120	108	140	110	118

Given $f_{0.05}(1, 10) = 4.96$ 6+2

15. Compute r_p between fasting blood glucose level and carbohydrate consumption/day (gm/day) of following students using the following data. Interpret your results.

Given $t_{0.01\ (10)} = 3.169$

Students	1	2	3	4	5	6	7	8	9	10	11	12
Fasting blood glucose level	90,	110,	80,	95,	110,	120,	112,	114,	95,	116,	118,	104
Carbohydrate consumption/day	120,	140,	130,	150,	135,	145,	150,	120,	116,	142,	144,	154

                 6+2

16. Discuss the role of MS-Office Excel in Statistical analysis.

[Internal assessment – 10]

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