BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – B.Sc.(MLT)-2020
Course Name – Research Methodology and Biostatistics
Course Code - BMLT604
(Semester VI)

Full Marks : 60   **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)   1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Identify the correct option: A researcher is morally and legally bound to all except

    a) The participants   b) The colleagues

    c) The funders   d) None of these

(ii) Identify the criteria for authorship in a research article.

    a) The researcher who contributed maximally should be the first author.

    b) The researcher who contributed minimally should be the corresponding author.

    c) The guide in the research should not be the corresponding author.

    d) Name of the colleague researchers who contributed to the research must be included in the paper.

(iii) Identify the purpose of the research proposal.

    a) To generate monetary sources for persuing the research

    b) To identify the research problem

    c) To discuss the research efforts of others who have worked on related topic

    d) To present the topiv to be researched and its importance

(iv) You are willing to use Census report for your research study. Identify the type of data you are using.

    a) Primary data   b) Secondary data

    c) Tertiary data   d) Quarternary data

(v) You are willing to write a review of literature on a topic. Identify the type of data you are using.

    a) Primary data   b) Secondary data

    c) Tertiary data   d) Quarternary data

(vi) Associate rainfall with population growth.

    a) Positive association   b) Negative association

    c) No association   d) None of these

(vii) Choose the correct option: The selection of sample size is dependent on:

    a) The study
    b) The experiment
    c) The researcher
    d) The variables

(viii) Identify the field of study that deals with the application of statistical techniques to scientific research in health-related fields, including medicine, biology, and public health, and the development of new tools to study these areas.

    a) Biology
    b) Medicine
    c) Biostatistics
    d) Health Sciences

(ix) To conduct a research, state the step that must be done first.

    a) Developing a research design
    b) Deciding about the data analysis procedure
    c) Formulating a research question
    d) Formulating a research hypothesis

(x) Identify the characteristics of pilot study.

    a) The researcher tests the design of the research project, usually the data gathering method(s) to be used in the research project, before carrying out the research
    b) The research supervisor carries out the research
    c) The research project is designed but it is not carried out
    d) The student researcher learns how to carry out research

(xi) You measure blood pressure from different student groups. Identify the type of research.

    a) Descriptive
    b) Analytical
    c) Qualitative
    d) Applied

(xii) Select the option which is not a quantitative data.

    a) Tempreature (hot or cold)
    b) Temperature (in degree Celcius)
    c) Tempreature (in degree Farenheit)
    d) Temperature (in Kelvin)

(xiii) Write the correct statement about standard deviaion.

    a) It is the mean value of data set.
    b) It is the dispersion of data around the mean.
    c) It is the likelyhood of differences between sample mean and population mean.
    d) It is the error in calculating the data.

(xiv) Write the source of secondary data.

    a) Journals
    b) Surveys
    c) Interviews
    d) Observations

(xv) Select the incorrect option regarding the schedule and questionnaire method.

    a) Questionnaire is for educated person only, whereas schedule collects data from illeterate also
    b) Schedule requires field workers, whereas questionnaire requires data collectors
    c) The response rate is higher in schedule than in questionnaire method
    d) The respondents can be assisted further in schedule, but not in questionnaire

Group-B
(Short Answer Type Questions)
$3 \times 5=15$

2. Write a short note on empirical research. (3)
3. Write the role of sample size in statistics. (3)
4. The mean of the marks of 24 students is 19. If a new student joins the class, the mean becomes 25. Calculate the marks obtained by the new student. (3)
5. Give examples of grouped data and ungrouped data. (3)
6. Differentiate between dependent variable and independent variable. (3)

OR

Explain the role of control group in research. (3)

Group-C
(Long Answer Type Questions)

5 x 6=30

7. Create a frequency distribution table (using tally marking) from the age of the students in (5) your class: 21, 21, 20, 21, 19, 22, 24, 25, 20, 21, 22, 22, 23, 19, 20, 21, 21, 20.

8. You measured the hemoglobin of both male students and female students in your class. It (5) has been found that there is significant difference between these two data. Explain this statement.

9. The latent period of influenza virus was observed in 6 patients were 3, 7, 4, 5, 6 and 5 days. (5) Calculate the standard deviation of latent period of influenza virus.

10. Restate the steps involved in defining a research problem. (5)

11. Discuss about the advantages and disadvantages of primary data. (5)

12. Mrs. Y has initiated diet-control for weight loss. She measured her weight at regular (5) intervals and noted it down. It has been observed that, before initiation of diet control, her weight was 132 kg. After 7-day, 14-day, 21-day and 28-day, her weight was recorded as 131 kg, 128 kg, 121 kg and 110 kg. Prepare a line diagram to represent this data.

OR

Justify the statement: The mean, median and mode of the data 28, 26. 28, 27, 28, 28, 30, (5) 31, 24, 26, 28, 32, 29, 27, 30, 32 are different.

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BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – B.Sc.(MLT)-2019
Course Name – Genetics & Molecular Biology
Course Code - BMLT602
(Semester VI)

Full Marks : 60   **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question)   1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Identify the structure of t-RNA.

   a) Leaf-shaped   b) Apple-shaped
   c) Shovel shaped   d) Clover-shaped

(ii) Choose the type of polymerase which is not thermostable.

   a) pfu polymerase   b) Taq polymerase
   c) DNA polymerase III   d) Vent polymerase

(iii) Choose the correct option: In polymerase chain reaction, the binding of primer to the denatured strand is called

   a) Annealing   b) Denaturation
   c) Renaturation   d) Primer extension

(iv) Choose the correct option: In polymerase chain reaction, the denaturation process is done at:

   a) Heating between 40 to 60°C   b) Heating between 50-72°C
   c) Heating between 90 to 98°C   d) None of these

(v) Predict the true statements iregarding the migration of biomolecules.

   a) Low voltage is used for separation of high mass molecules   b) Rate of migration is inversely proportional to current
   c) The rate of migration is directly proportional to the resistance of medium   d) Rate of migration is directly proportional to current

(vi) A student performed western blot technique using a solution of 3 proteins with different sizes. The protein of interest is smallest among all proteins present in the solution. Predict the expected location of the protein in the blot.

   a) At the top of the blot.   b) At the bottom of the blot.
   c) At the middle of the blot.   d) The location can not be determined.

(vii) Restate the reason of proper washing in western blot.