

KATHMANDU UNIVERSITY
End Semester Examination [C]
December, 2024

Marks Scored:

Level : B.Tech.

Year : III

Exam Roll No. :

Time: 30 mins.

Registration No.:

Course : BIOT 313

Semester : II

F. M. : 10

Date 23 DEC 2024

SECTION "A"

[20 Q. × 0.5 = 10 marks]

Choose and encircle the most appropriate option from each set of choices

1. What was the conclusion of the star formation research described in the book:
 - a. Massive protostars form from gravitational assist
 - b. Massive protostars are found clustered with other stars
 - c. Their conclusions negate massive protostars formation from gravitational assist
 - d. Massive star formation takes place from fusion reaction
2. According to the "Scientist's Guide to Writing" what is appropriate in methods section
 - a. Detail specified such that experiment can be repeated
 - b. Detail such that credibility can be ascertained
 - c. Details as exemplified by Boyle
 - d. Details such that results can be interpreted
3. Which of the following is **NOT** true?
 - a. It is very effective for two writers to write at the same time by discussion
 - b. A lead author has to be appointed while writing
 - c. Draft should be exchanged and updated
 - d. It is a good idea to divide the writing task
4. What is the author's opinion about beauty in writing
 - a. Such thing is not allowed in scientific writing
 - b. Beautiful phrases should fill up papers
 - c. Beautiful writing was accepted in the past but not nowadays
 - d. Unconventional beautiful writing should be seldom used
5. What did Galileo put to test in the leaning tower?
 - a. He dropped two metal balls of different weight from the tower
 - b. He dropped a feather and a metal ball from the tower
 - c. He only dropped a heavy ball from the tower
 - d. He only dropped a light ball from the tower
6. Which of the following is **NOT** additional caveat associated with "seeing is believing"
 - a. Seeing by two people can be different
 - b. Seeing depends on experience by the observer
 - c. Seeing depends on the knowledge of the observer
 - d. Seeing is often complemented by other senses

7. What is a criticism of the falsificationist view of science
 - a. The data is heavily theory laden
 - b. There is only empty consensus in science
 - c. The different paradigms of science are incommensurable
 - d. Not much consideration is given to the inductivist approach

8. What about Copernican revolution is true
 - a. The idea was proposed by Aristotle 2000 years ago
 - b. According to Copernicus, epicycles are needed to explain data
 - c. Copernicus developed mechanics to drive the revolution
 - d. It took over 100 years for the idea to be verified by science

9. What about hypothesis testing is true
 - a. The null and alternative hypothesis need not be mutually exclusive.
 - b. After testing one of out the two, null or alternative hypothesis is accepted.
 - c. If direction is not specified you get a one tailed test
 - d. Usually your prediction is called the null hypothesis.

10. In 1999, Jesse Gelsinger was an 18-year-old with a rare disease who died during participation in a study.
 - a. This was an example of conflict of interest for company running the study
 - b. This was an example of conflicted beneficence
 - c. This was an example of distorted autonomy
 - d. This was an example of a wrong decision by IRB

11. Careful planning of focus group does **NOT** include the following:
 - a. What will the focus group questions be?
 - b. Who will be the participants?
 - c. How long will the focus group take place?
 - d. How will you analyze the data?

12. What most accurately describes the sampling frame?
 - a. Who is in your study
 - b. How can you get access to the sample from a population
 - c. To whom do you want to generalize
 - d. To what population can you get access

13. Temperature of this room is an example of

a. Nominal scale	b. Interval scale	c. Ordinal scale	d. Ratio scale
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14. CPI and SES are examples of

a. Indexes	b. Scales	c. Tests	d. Exams
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15. Which of the following does probing in an interview not entail?
 - a. Asking for alternative answers
 - b. Asking for elaboration
 - c. Asking for clarification
 - d. Asking for repetition

16. IF there is no random assignment and there are no control groups or multiple measures, the research is a
- Double blinded randomized control trial.
 - Observational quasi experiment
 - Non experiment
 - Regression discontinuity quasi experiment
17. Randomized experimental designs was invented in _____ and is most widely used in _____.
- Agriculture; psychology
 - Psychology; medicine
 - c. Agriculture; medicine
 - d. Medicine; medicine
18. The separate pre-post samples design is used when
- The experiment has already begun before data collection
 - The samples recycle in the case of the experiment
 - Random assignment into groups is possible
 - Enhancement of internal validity if required
19. What is testing the significance of a correlation?
- It is testing whether or not correlation occurred by chance
 - It is testing the magnitude of correlation between different tests
 - It is analyzing the variables to determine if they are judicious
 - It is testing to see if the correlation is greater or smaller than specific values
20. What does GLM stand for?
- General Linear Model
 - Gentle Line Model
 - General Line Model
 - Gentle Linear Model

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F. M. : 40

Indicate by checking (✓) of each question you have answered in the cover page of main answer book.

SECTION "B"

[8 Q. × 2 = 16 marks]

Attempt *ANY EIGHT* questions.

1. Describe the decisions major revision, minor revision and accept for a paper. [2]
2. In terms of breath of the content, what format does discussion follow? [2]
3. How does Bayes' theorem relate evidence to hypothesis? Describe. [2]
4. What did Deborah Mayo say about severe experimental testing? [2]
5. What are two threats to conclusion validity? [2]
6. Describe the Tuskegee Syphilis Case. [2]
7. Describe two reasons why we sometimes use qualitative research instead of quantitative research? [2]
8. What is true score theory in mathematics? [2]
9. What is probing in an interview? [2]
10. What is correlation in statistics? [2]

SECTION "C"

[3 Q. × 4 = 12 marks]

Attempt *ANY THREE* questions.

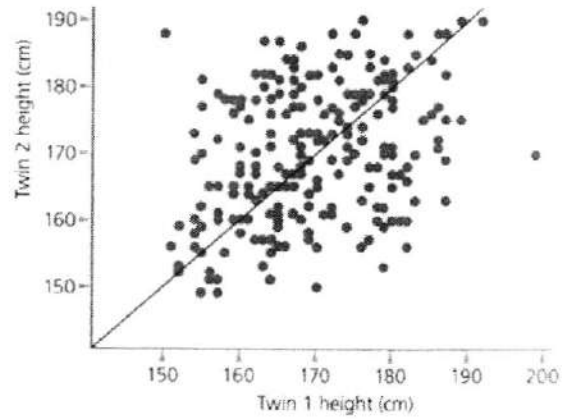
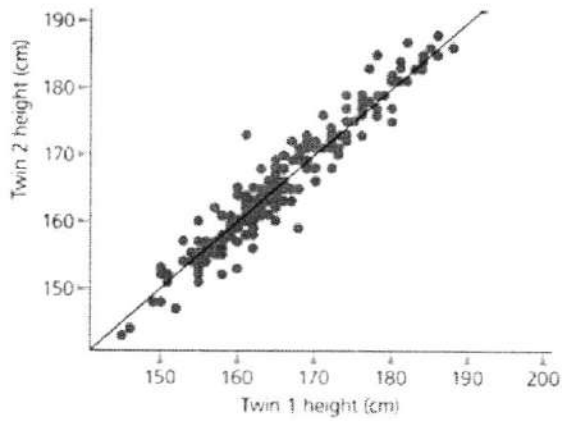
11. How do multiple authors coordinate to write a paper? [4]
12. What is Feyerabend's opinion of science? [4]
13. What are purposive sampling, modal instance sampling, expert sampling, quota sampling and heterogeneity sampling methods? [4]
14. Describe the inferential statistics of randomized block design and analysis of covariance. [2+2]

P.T.O.

SECTION "D"
[2 Q. × 6 = 12 marks]

Attempt *ANY TWO* questions.

15. The following figure shows correlation between the height of monozygotic and dizygotic twins. Write a 200-word abstract using the data [6]



16. What is the role of falsificationism in science? Describe. [6]
17. What are the four different general classes of reliability estimators? Describe them. [6]