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Reg. No.....

Name.....

**B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2019**

**Second Semester**

Core Course—**METHODOLOGY AND PERSPECTIVES OF SCIENCE**

(Common for B.Sc. Bioinformatics, B.Sc. Biotechnology, B.Sc. Electronics and B.Sc. Computer Maintenance and Electronics)

[2013–2016 Admissions]

Time : Three Hours

Maximum Marks : 80

**Part A (Short Answer Questions)**

*Answer all questions.*

*Each question carries 1 mark.*

1. What is Scientific knowledge ?
2. Define Scientific temper.
3. The \_\_\_\_\_ of a measurement system, related to reproducibility and repeatability.
4. Difference between test and auxiliary hypothesis.
5. Define Hypothesis.
6. State null hypothesis.
7. What is Plagiarism ?
8. Why data collection is important ?
9. Define Patent.
10. What is test of significance ?

(10 × 1 = 10)

**Part B (Brief Answer Questions)**

*Answer any eight questions.*

*Each question carries 2 marks.*

11. State why record keeping is important.
12. What is difference between controlled and uncontrolled observation ?
13. What is virtual testing ?
14. What is the importance of evidence and proof in scientific research ?
15. State the importance of scientific control in experimentations.

Turn over

16. What is hypothetico-deductive model ?
17. Define accuracy and precision.
18. What is difference between theories and laws ?
19. What are the different source of information ?
20. State any two data presentation technique.
21. State different statistical test for checking hypothesis.
22. Give examples of different types of data.

(8 × 2 = 16)

### Part C (Short Essay)

*Answer any six questions.  
Each question carries 4 marks.*

23. Explain different types of knowledge in detail.
24. Write note on human bias and biased observations.
25. Write note on primary and secondary source of scientific information.
26. Describe what is science and what is not.
27. What are the different ways of proving and disproving hypothesis ?
28. Significance of repeatability and replication in scientific experiments.
29. Write a note on scientific instruments evolution.
30. State the differential steps in formulation of hypothesis.
31. Write a note on acceptance or rejection of a hypothesis ?

(6 × 4 = 24)

### Part D (Long Essay)

*Answer any two questions.  
Each question carries 15 marks.*

32. Explain in detail significance of statistics in scientific research.
33. Explain the research design in hypothesis testing studies.
34. Explain different ethical aspects that a research should take care.
35. Define and distinguish between :
  - (a) Hypothesis, theory and law.
  - (b) Induction and deduction.
  - (c) Practical, theoretical and scientific knowledge.
  - (d) Conceptual vs. Empirical.

(2 × 15 = 30)