

**FIRST SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2020**

Genetics

GEN 1B 01—METHODOLOGY AND PERSPECTIVES OF SCIENCE

Time : Three Hours

Maximum : 80 Marks

I. Answer *all* questions. Each question carries 1 mark :

- 1 A possible explanation for a natural phenomenon is called _____.
- 2 Research induction means _____.
- 3 Who is the author of the book named "Methods in Social Research" ?
 - (a) Kerlinger.
 - (b) C.R. Kothari.
 - (c) Goode and Hatt.
 - (d) Wilkinson.
- 4 What is the name of the conceptual framework in which the research is carried out ?
 - (a) Research hypothesis.
 - (b) Synopsis of Research.
 - (c) Research paradigm.
 - (d) Research design.
- 5 A research intends to explore the result of possible factors for the organization of effective mid-day meal interventions. Which research method will be most appropriate for this study ?
 - (a) Descriptive survey method.
 - (b) Historical method.
 - (c) Ex-post facto method.
 - (d) Experimental method.
- 6 Which of the following does not correspond to characteristics of research ?
 - (a) Research is not passive.
 - (b) Research is systematic.
 - (c) Research is not a problem-oriented.
 - (d) Research is not a process.

Turn over

- 7 The main aim of the scientific method in the research field is to :
- (a) Improve data interpretation.
 - (b) Confirm triangulation.
 - (c) Introduce new variables.
 - (d) Eliminate spurious relations.
- 8 Who can successfully conduct Research ?
- (a) Someone who is a hard worker.
 - (b) Possesses post-graduation degree.
 - (c) Has studied research methodology.
 - (d) Possesses thinking and reasoning ability.
- 9 Research problem is selected from the standpoint of :
- (a) Social relevance.
 - (b) Financial support.
 - (c) Researcher's interest.
 - (d) Availability of relevant literature.
- 10 The unit of length popularly used in microscopy is _____.

(10 × 1 = 10 marks)

II. Short answer questions (any *ten* to be answered). (2 marks each) :

- 11 What is meant by scientific law ?
- 12 What is meant by inductive model of science ?
- 13 Differentiate Mathematical methods and Scientific methods.
- 14 Discuss Robotics.
- 15 What is Null Hypothesis ?
- 16 What is meant by vocabulary of science ?
- 17 Differentiate pattern and trends.
- 18 Differentiate accuracy and precision.

- 19 Differentiate transparency and honesty.
- 20 Write a note on record keeping.
- 21 Explain laws of science.
- 22 What is plagiarism ?

(10 × 2 = 20 marks)

III. Short essays (answer any *five*). (6 marks each) :

- 23 Briefly describe different models used in scientific research.
- 24 What are the functions of statistics ?
- 25 Describe hypothetico deductive model.
- 26 Revolutions in science.
- 27 Write a note on scientific instruments.
- 28 Write an account on data presentation.
- 29 Explain documentation methods of experiments.
- 30 Write an account on scientific information.

(5 × 6 = 30 marks)

IV. Essays (answer any *two*). (10 marks each) :

- 31 Write an account on ethics in scientific research.
- 32 Write an account on various methods and tools used in scientific research.
- 33 Explain scientific knowledge.
- 34 Write an account on revolution in science.

(2 × 10 = 20 marks)

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Genetics

GEN 1B 01—METHODOLOGY AND PERSPECTIVES OF SCIENCE

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Questions)

*Answer at least **eight** questions.*

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 24.

1. What is meant by pure science ?
2. What is Empiricism ?
3. Define dimensions and its type.
4. What is meant by scientific proof ?
5. Explain type 2 errors.
6. What is meant by factual truths ?
7. What is meant by patent ?
8. What are the important examples of pseudoscience ?
9. What is secondary data ?
10. Differentiate between information and knowledge.
11. What is Falsification ? Mention its importance in science ?
12. What is meant by Epistemology ?

(8 × 3 = 24 marks)

Turn over

Section B (Paragraph Questions)

Answer at least five questions.

Each question carries 5 marks.

All questions can be attended.

Overall Ceiling 25.

13. Describe the process of peer review.
14. Write a brief note on replication and treatment.
15. Significance of mean, median and mode in data presentation.
16. Differentiate controlled and uncontrolled observation.
17. Explain the need of scientific control ? Why is it so important ?
18. What is an Experiment ? Which are different kinds of experiment ?
19. Explain the origin of microscopic techniques.

(5 × 5 = 25 marks)

Section C (Essay Questions)

Answer any one question.

The question carries 11 marks.

20. Explain the sequential steps to be followed during the experimentation to prove a theory.
21. What are graphs in data presentation ? Describe the structure of graphs in statistics. Explain various types of graphs.

(1 × 11 = 11 marks)