

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2022  
(First Semester)

Branch – BIOTECHNOLOGY

**RESEARCH, IPR AND ETHICS IN BIOTECHNOLOGY**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. The main feature of secondary source of data is that \_\_\_\_\_.
  - (i) It provides first-hand information to the researcher
  - (ii) It is more reliable compared to primary data
  - (iii) It implies that the data is collected from its original source
  - (iv) It involves collecting data from existing sources that had gathered primary data beforehand for their research purpose
  
2. Among the following options, which sampling is based on equal probability?
  - (i) Simple random sampling
  - (ii) Stratified random sampling
  - (iii) Systematic sampling
  - (iv) Probability sampling
  
3. ANOVA calculates \_\_\_\_\_.
  - (i) T-scores
  - (ii) Chi square
  - (iii) F ratios
  - (iv) R ratios
  
4. Which of the following is not an intellectual property law?
  - (i) Copyright Act, 1957
  - (ii) Trademark Act, 1999
  - (iii) Patent Act, 1970
  - (iv) Customs Act, 1962
  
5. SARS-CoV-2 comes under \_\_\_\_\_ risk group category.
  - (i) Risk group I
  - (ii) Risk group III
  - (iii) Risk group II
  - (iv) Risk group IV

**SECTION-A (15 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 3 = 15)

6. (a) Explain the significance of research in any technical field.  
**OR**  
(b) Write short notes on Data Collection.
  
7. (a) Pen down the features & importance of Research Design.  
**OR**  
(b) Write brief note on sampling error.
  
8. (a) Expand ANOVA. Explain its types with examples.  
**OR**  
(b) Give an account on the properties of coefficient correlation.
  
9. (a) Explain the role of patent law in research methodology.  
**OR**  
(b) What is a patent application and how is it prepared?

Cont...

10. (a) Discuss the Biosafety Cabinets.  
OR  
(b) Explain the need and duty of animal ethics committee.

**SECTION -C (30 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks

(5 x 6 = 30)

11. (a) Elaborate on need of research design.  
OR  
(b) Describe specific data collection techniques.
12. (a) Describe types of research designs.  
OR  
(b) Explain Sampling techniques in detail.
13. (a) Review the Principal component analysis.  
OR  
(b) Expound the cluster analysis.
14. (a) Describe the benefits of Intellectual Property Rights (IPR).  
OR  
(b) Give detailed notes on GATT.
15. (a) Describe Biosafety Regulations and Guidelines for environmental protection.  
OR  
(b) Describe international agencies involved with scientific conducts.

Z-Z-Z

END