

KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

(6 Pages)

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PG Degree - End Semester Examinations, April 2025

Second Semester

M.Sc. MICROBIOLOGY

Elective - Biosafety, Bioethics and IPR

(For those who joined in July 2024 onwards)

Time : 3 Hours

Maximum : 75 Marks

PART - A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer :

1. Which of the following is NOT a form of Intellectual Property Right?
(a) Patent (b) Trademark
(c) Copyright (d) Constitution
2. The international agreement that governs global IPR

regulations is:

- (a) WHO
- (b) TRIPS
- (c) UNESCO
- (d) IMF

3. Which of the following is a post-grant opposition?
 - (a) Filed before the patent is published
 - (b) Filed after the patent is granted
 - (c) Filed during the application review
 - (d) Filed before the patent application is submitted
4. Sui generis system in patent law refers to _____
 - (a) Filing procedure
 - (b) Unique legal protections like plant variety protection
 - (c) Database maintenance
 - (d) Patent fee system
5. According to the Patent Act 1970 (Amended 2005), which of the following is patentable?
 - (a) A naturally occurring gene sequence
 - (b) A genetically engineered microorganism
 - (c) A human being
 - (d) Traditional knowledge
6. TRIPS agreement allows patents to be granted in the field of:
 - (a) Food only
 - (b) All fields of technology including biotech

- (c) Literature
 - (d) Human organs
7. The primary concern about genetically modified foods.
- (a) Higher yield
 - (b) Impact on human health and environment
 - (c) Taste difference
 - (d) Expensive packaging
8. Convention on Biological Diversity aims to:
- (a) Promote cloning
 - (b) Support GMO use in agriculture
 - (c) Conserve and sustainably use biodiversity
 - (d) Remove patents on biological materials
9. Which of the following requires informed consent under medical ethics?
- (a) Regular vaccination
 - (b) Participation in clinical trials
 - (c) Medical insurance
 - (d) Medical billing
10. Which area of research raises ethical concerns due to potential for human cloning?
- (a) Food technology
 - (b) Virology
 - (c) Stem cell research
 - (d) Nanotechnology

PART - B (5X5=25 Marks)

**Answer ALL Questions choosing either (a) or (b).
Answer should not exceed 250 words.**

11. (a) What is Intellectual Property Right (IPR)?

(OR)

(b) Define trademark and record its importance.

12. (a) Differentiate between pre-grant and post-grant opposition.

(OR)

(b) What are patent databases? Give one example.

13. (a) What is meant by patentability?

(OR)

(b) List two biotechnological inventions that can be patented.

14. (a) What is the Cartagena Protocol?

(OR)

(b) Explain the need of bioethics for biodiversity conservation.

15. (a) What is informed consent in clinical research?

(OR)

(b) What ethical issues are involved in organ transplantation?

PART - C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 600 words.

16. (a) Describe the importance and legal implications of trade secrets and nondisclosure agreements in scientific industries.

(OR)

- (b) Compare and contrast patents, trademarks, copyrights, and geographical indications with suitable examples.

17. (a) Outline the steps involved in the patenting process, from invention to grant.

(OR)

- (b) Describe the structure and purpose of a Patent Cooperation Treaty (PCT) application.

18. (a) Discuss the ethical and legal challenges associated with patenting living organisms and genetic material.

(OR)

- (b) Analyze the merits and demerits of applying a uniform patent law to biotechnological inventions.

19. (a) Define bioethics and explain its need and relevance in modern biotechnology.

(OR)

(b) Discuss the ethical, social, and environmental concerns related to genetically modified organisms (GMOs).

20. (a) Examine the ethical debates surrounding human cloning, including the risks and potential benefits.

(OR)

(b) Describe the importance of bioethics in stem cell research, the Human Genome Project, and the use of animals in research.