

KAMARAJ COLLEGE (Autonomous)

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(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

(6 Pages)

Reg. No:

Question Code No : 25001616

Course Code : 24PEMB24

PG Degree - End Semester Examinations, November 2025

Second Semester

M.Sc. MICROBIOLOGY

Biosafety, Bioethics and IPR

(For those who joined in July 2024 onwards)

Time : 3Hours

Maximum : 75 Marks

PART – A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer:

1. What does WIPO stand for?
 - (a) World Intellectual Property Operations
 - (b) World Intellectual Property Organization
 - (c) Worldwide Industrial Patent Organization
 - (d) Western Institute of Patent Office
2. Which term refers to secret business information that

provides a competitive edge?

- (a) Patent
- (b) Trademark
- (c) Trade secret
- (d) Copyright

3. The first step in the patenting process is:

- (a) Patent grant
- (b) Filing opposition
- (c) Patent search
- (d) Publishing the patent

4. What does PCT stand for in patent filing?

- (a) Patent Court Tribunal
- (b) Patent Cooperation Treaty
- (c) Public Claim Treaty
- (d) Patent Certification Track

5. Which is a demerit of a uniform patent law globally?

- (a) Increased collaboration
- (b) Simplified filing
- (c) Ignoring regional biodiversity rights
- (d) Faster approval

6. Territorial nature of patents means that:

- (a) Patents are global by default
- (b) Patents apply to one field only
- (c) Patents are only valid in the countries where they are granted
- (d) Patents are only for biotechnology

7. Bioethics is essential in biotechnology because it:

- (a) Promotes profit in biotech companies
 - (b) Ensures ethical responsibility in scientific research
 - (c) Removes all legal obligations
 - (d) Focuses only on plant biology
8. Which protocol is related to biodiversity and GMO regulation?
- (a) Geneva Protocol
 - (b) Cartagena Protocol
 - (c) Helsinki Protocol
 - (d) Lisbon Protocol
9. Which of the following is an ethical issue in prenatal diagnosis?
- (a) Birth weight estimation
 - (b) Due date calculation
 - (c) Sex-selective abortion
 - (d) Normal delivery preference
10. Xenotransplantation refers to:
- (a) Gene editing in humans
 - (b) Transplantation of animal organs into humans
 - (c) Foreign organ rejection
 - (d) Human cloning procedures

PART - B (5X5=25 Marks)

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

Answer should not exceed 250 words.

11. (a) Mention any two international organizations related to IPR.

(OR)

(b) What is the significance of geographical indications?

12. (a) What is a patent search and why is it important?

(OR)

(b) What is a PCT application?

13. (a) Why are patents territorial in nature?

(OR)

(b) What is the challenge of applying uniform patent law globally?

14. (a) Explain about bioethics.

(OR)

(b) What are the concerns regarding genetically modified crops?

15. (a) Why human cloning is ethically controversial?

(OR)

(b) Mention any two ethical issues in stem cell research.

PART - C (5 X 8 = 40 Marks)

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

Answer should not exceed 600 words.

16. (a) Explain the various forms of Intellectual Property Rights and their significance in biotechnology and academia.

(OR)

(b) Discuss the role of international organizations like WIPO, WTO and TRIPS in protecting IPR globally.

17. (a) Explain the difference between pre-grant and post-grant opposition in the context of patent filing.

(OR)

(b) Discuss the importance of patent search databases and online tools in research and innovation.

18. (a) What are the statutory provisions for patenting biotechnology inventions in India under the Patent Act, 1970 (as amended in 2005)?

(OR)

(b) Explain the concept of territorial patent rights and the challenges in transitioning to a global patent regime.

19. (a) Explain the role of international protocols in conserving biodiversity and regulating the exchange of biological materials.

(OR)

(b) Analyze the relationship between bioethics and biodiversity conservation with reference to traditional knowledge and indigenous rights.

20. (a) Elaborate on the ethical protocols related to prenatal diagnosis and gene therapy in modern medicine.

(OR)

(b) Discuss the ethical issues involved in organ transplantation and xenotransplantation.

