

KAMARAJ COLLEGE (Autonomous)

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(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(3 Pages)

Reg. No:.....

Question Code: 26E01610

Course Code : 24PEMB24

PG Degree - End Semester Examinations, April 2026

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 :

- CO:4 1. What does WIPO stand for?
K:1 (a) World Intellectual Property Operations (b) World Intellectual Property Organization
(c) Worldwide Industrial Patent Organization (d) Western Institute of Patent Office
- CO:4 2. Which term refers to secret business information that provides a competitive edge?
K:1 (a) Patent (b) Trademark
(c) Trade secret (d) Copyright
- CO:5 3. The first step in the patenting process is:
K:1 (a) Patent grant (b) Filing opposition
(c) Patent search (d) Publishing the patent
- CO:5 4. What does PCT stand for in patent filing?
K:1 (a) Patent Court Tribunal (b) Patent Cooperation Treaty
(c) Public Claim Treaty (d) Patent Certification Track
- CO:4 5. Which is a demerit of a uniform patent law globally?
K:2 (a) Increased collaboration (b) Simplified filing
(c) Ignoring regional biodiversity rights (d) Faster approval
- CO:5 6. Territorial nature of patents means that:
K:1 (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

CO:4 7. Bioethics is essential in biotechnology because it:

- K:2
- (a) Promotes profit in biotech companies
 - (b) Ensures ethical responsibility in scientific research
 - (c) Removes all legal obligations
 - (d) Focuses only on plant biology

CO:5 8. Which protocol is related to biodiversity and GMO regulation?

- K:1
- (a) Geneva Protocol
 - (b) Cartagena Protocol
 - (c) Helsinki Protocol
 - (d) Lisbon Protocol

CO:4 9. Which of the following is an ethical issue in prenatal diagnosis?

- K:2
- (a) Birth weight estimation
 - (b) Due date calculation
 - (c) Sex-selective abortion
 - (d) Normal delivery preference

CO:4 10. Xenotransplantation refers to:

- K:2
- (a) Gene editing in humans
 - (b) Transplantation of animal organs into humans
 - (c) Foreign organ rejection
 - (d) Human cloning procedures

PART - B (5 X 5 = 25 Marks)

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

Answer should not exceed 250 words.

CO:4 11. (a) Mention any two international organizations related to IPR.

K:1 **(OR)**

(b) What is the significance of geographical indications?

CO:5 12. (a) What is a patent search and why is it important?

K:2 **(OR)**

(b) What is a PCT application?

CO:5 13. (a) Why are patents territorial in nature?

K:2 **(OR)**

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

CO:3 14. (a) Explain about bioethics.

K:2 **(OR)**

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

CO:3 15. (a) Why human cloning is ethically controversial?

K:4

(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.

CO:4 16. (a) Explain the various forms of Intellectual Property Rights and
K:3 their significance in biotechnology and academia.

(OR)

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

CO:5 17. (a) Explain the difference between pre-grant and post-grant
K:3 opposition in the context of patent filing.

(OR)

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

CO:5 18. (a) What are the statutory provisions for patenting
K:3 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.

CO:3 19. (a) Explain the role of international protocols in conserving
K:3 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.

CO:3 20. (a) Elaborate on the ethical protocols related to prenatal
K:4 diagnosis and gene therapy in modern medicine.

(OR)

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