

**BIOETHICS & IPR
(BIOT 4231)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

***Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.***

Candidates are required to give answer in their own words as far as practicable.

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) Preclinical trial do not involve
 - (a) in vitro model
 - (b) in vivo animal model
 - (c) both in vivo animal model and in vitro model
 - (d) human model.
 - (ii) Genetic enhancement is
 - (a) an IPR
 - (b) a bioethics issue,
 - (c) distributive justice
 - (d) all of these.
 - (iii) Entrepreneurships is an essential driver of economic development because
 - (a) entrepreneurs provide new products and services
 - (b) entrepreneurship stimulates employment
 - (c) entrepreneurs cause companies with outdated products, service and models change for the better
 - (d) all of the above.
 - (iv) The Govt. of India became signatory to TRIPs after joining WTO in the year
 - (a) 1990
 - (b) 1995
 - (c) 2000
 - (d) 2003.
 - (v) What does an IP right entitle a person?
 - (a) Right to file suit in case of an infringement
 - (b) Right of commercial exploitation
 - (c) Right to license others
 - (d) All of the above.
 - (vi) A patent can be granted if the invention is
 - (a) novel
 - (b) monovious
 - (c) capable of industrial applicability
 - (d) all of the above.
 - (vii) In which year product patent started in India?
 - (a) 2001
 - (b) 2002
 - (c) 2004
 - (d) 2005.

- (viii) Validity of patent right in India
(a) 5 yrs (b) 10 yrs (c) 15 yrs (d) 20 yrs.
- (ix) A patent is a/an
(a) legal document (b) official document
(c) application (d) none of these.
- (x) Protection of patent is the responsibility of the
(a) patent and trade mark office (b) patent lawyer
(c) patent holder (d) Government.

Group- B

2. (a) What is bioethics? Describe the principle of bioethics and explain with real example from your life. [(C02)(Remember/LOCQ)]
(b) Discuss the Ethical, Legal and Social Issues (ELSI) in Biotechnology on the following: (i) Genetic testing, (ii) Abortion. [(C02)(Remember/LOCQ)]
(1 + 5) + (2 × 3) = 12
3. (a) What is plagiarism? "Plagiarism is the road block in modern biotechnology" explain with example. [(C01)(Remember, Explain/LOCQ)]
(b) What is Nuremberg code? Explain the "Ten commandments of Nuremberg code" in the context of Biotechnology and its significance. [(C01)(Remember, Explain/LOCQ)]
(1 + 5) + (1 + 5) = 12

Group - C

4. (a) What do you understand by the term Biosafety? [(C01)(Remember/LOCQ)]
(b) Explain convention of biological diversity. [(C01)(Remember/LOCQ)]
(c) Discuss national and international guidelines of DBT for biosafety. [(C03)(Understand/IOCQ)]
2 + 4 + 6 = 12
5. (a) Why Good Manufacturing Practice (GMP) is essential to-day? [(C03)(Understand/LOCQ)]
(b) Explain r-DNA guide lines for animal cell culture laboratory. [(C03)(Remember/LOCQ)]
(c) Define Biohazards. [(C01)(Remember/LOCQ)]
4 + 5 + 3 = 12

Group - D

6. Write notes on (any six) **(6 × 2) = 12**
Trade mark, process patent, rights and obligation of patentee, prior art, claims, state of the art, promoting fair competition, encouraging development and economic reform, objective of WTO, principles of the trading system, trade without discrimination.
[(C04)(Understand/IOCQ)]

7. (a) Definition and concept of property. [(C04)(Remember/LOCQ)]
 (b) Discuss infringement and its remedies. [(C04)(Remember/LOCQ)]
 (c) Explain geographical indication. [(C04)(Remember/LOCQ)]
3 + 6 + 3 = 12

Group - E

8. (a) Write two differences between invention and innovation? Write about the fundamental idea for marketing and selling of a bioproduct or bioservice. [(C05)(Remember, Explain/IOCQ)]
 (b) What is bioentrepreneurship? Why it is important? Which five most important characters necessary to become bioentrepreneur? Discuss all the characters you motioned, with an example of bioentrepreneur from India (other than Kiran Shaw Majumdar). [(C05)(Remember, Explain/IOCQ)]
(2 + 3) + (1 + 1 + 2 + 3) = 12
9. (a) Design a trade mark for a sunscreen cream whose target group is only men. [(C06)(Design/HOCQ)]
 (b) How you will protect your start-up products from copycats? [(C06)(Understand/LOCQ)]
 (c) Discuss the appropriateness of the support mechanism available for entrepreneurship in India. [(C06)(Analyse/HOCQ)]
4 + 4 + 4 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	60	31	9

Course Outcomes:

At the end of this course students will be able to:

1. Interpret basics of biosafety and bioethics and its impact on all the biotechnology and the quality of human life.
2. Understand and analyze the different ethical, legal and social issues aspects related to biological, biomedical, health care, biotechnology and biotechnology research.
3. Understand the historical background, importance and levels of biosafety at laboratory and industrial scale and explain the biosafety-regulatory framework in India & international Level.
4. Gain an understanding of the basic concepts of patents, trademarks, copy rights, geographical indications and patent data base and their protection in biotechnology.
5. Gain entrepreneurial skills to apply the different objectives and fundamentals of entrepreneurship in biotechnology.
6. Identify scope for entrepreneurship in biotechnology.

*LOCQ: Lower Order Cognitive Question; IOCQ: Intermediate Order Cognitive Question;
 HOCQ: Higher Order Cognitive Question

