

Enrollment No.....



Faculty of Science
End Sem Examination Dec-2023
BT3GE01 Biosafety, Bioethics & IPR

Programme: B.Sc.

Branch/Specialisation: Biotechnology

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. Which of the following involves preventing transmission of disease in the laboratory? **1**
- (a) Biosafety (b) Biosecurity
(c) Biohazard (d) Biofuel
- ii. What is the primary factor that determines the BSL classification of a laboratory? **1**
- (a) The laboratory's location
(b) The laboratory's funding source
(c) The pathogens or agents being handled
(d) The size of the laboratory
- iii. Which one of the following statements is NOT correct with regard to GMO? **1**
- (a) In this technique, a gene from one organism is isolated and transferred to the cell of another organism
(b) This technique has applications only in plants
(c) Genes for insect resistance may spread from crop plants to wild plants
(d) To produce a transgenic animal the novel genes are inserted at a very early stage of development
- iv. What steps should be taken for the disposal of nuclear waste? **1**
- (a) Nuclear waste should be pre-treated
(b) It should be stored in shielded containers
(c) Both (a) & (b)
(d) None of these

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- v. Ethical issues in gene therapy are _____. **1**
 (a) Differentiating good and bad uses of gene therapy
 (b) Using gene therapy not for malfunctioning genes but for improving basic human traits like intelligence, etc.
 (c) Both (a) and (b)
 (d) None of these
- vi. Which are the below is NOT used for the creation of bioweapons? **1**
 (a) Colastridium (b) Anthrax
 (c) Variola Virus (d) Escherichia coli
- vii. The term of copyright is _____. **1**
 (a) 20 years
 (b) 60 years
 (c) 60 years after the death of the owner
 (d) 10 years
- viii. Which of the following statements is TRUE? **1**
 (a) Trademark registrations can be renewed for an unlimited number of ten year periods
 (b) Trademark law is intended to protect the owner's original work
 (c) To qualify for federal protection, a mark must be distinctive and have a "secondary meaning."
 (d) Surnames alone can be trademarked
- ix. Rights of patentee are infringed by supplying substance commercially in _____. **1**
 (a) Process patent (b) Product patent
 (c) Commercial patent (d) National patent
- x. Budapest Treaty provides for deposit of micro-organism with _____. **1**
 (a) Controller of Patents
 (b) State Government
 (c) International Depository Authority
 (d) Contracting States
- Q.2 i. Define biosafety. **2**
 ii. What do you understand by the term containment? Why is it required? **3**
 iii. Describe the practices followed in all the four biosafety levels. **5**
 OR iv. Discuss about good laboratory practices. **5**
- Q.3 i. Give the applications of GMOs in food and agriculture. **2**

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- ii. Elaborate on Cartagena protocol on biosafety. **8**
 OR iii. What are radioactive waste? Explain their types and methods of disposal. **8**
- Q.4 i. State the role of bioethics advisory committee. Enlist any three of them. **3**
 ii. What are biological weapons? List out the potential biological weapons. Add a note on social and ethical implications of biological weapons. **7**
- OR iii. Discuss about the bioethical issues and conflicts in the development of GMOs **7**
- Q.5 i. Write a note on geographical indication. **4**
 ii. What is IPR? Give their types. Add a note on trademark **6**
 OR iii. Explain about patent and copyright with suitable examples. **6**
- Q.6 Attempt any two:
 i. Briefly describe the different types of patents. **5**
 ii. Discuss about patent infringement. **5**
 iii. Explain Budapest Treaty. **5**

Scheme of Marking



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Note: The Paper Setter should provide the answer wise splitting of the marks in the scheme below.

Q.1	i)	Which of the following involves preventing transmission of disease in the laboratory?	1
	b)	Biosafety	
	ii)	What is the primary factor that determines the BSL classification of a laboratory?	1
	c)	The pathogens or agents being handled	
	iii)	Which one of the following statements is NOT correct with regard to GMO?	1
	b)	This technique has applications only in plants.	
	iv)	What steps should be taken for the disposal of nuclear waste?	1
	c)	Both of the above	
	v)	Ethical issues in gene therapy are _____.	1
	d)	both (a) and (b)	
	vi)	Which of the below is NOT used for the creation of bioweapons?	1
	d)	<i>Escherichia coli</i>	
	vii)	The term of copyright is _____.	1
	c)	60 years after the death of the owner	
	viii)	Which of the following statements is TRUE ?	1
	a)	Trademark registrations can be renewed for an unlimited number of ten year periods	
	ix)	Rights of patentee are infringed by supplying substance commercially in _____.	1
	b)	Product patent	
	x)	Budapest Treaty provides for deposit of micro-organism with _____.	1
	a)	Controller of Patents	
Q.2	i.	Define biosafety.	
		Biosafety definition	– 2 marks 2
	ii.	What do you understand by the term containment? Why is it required?	3
		Containment definition	– 1 mark
		Its importance/significance	– 2 marks

	iii.	Describe the practices followed in all the four biosafety levels.	5
		Biosafety level description	– 1 mark
		Practices in 4 biosafety levels	– 4 marks
OR	iv.	Discuss about good laboratory practices.	5
		GLP description & importance	– 1 mark
		List of various GLP practices	– 4 marks
Q.3	i.	Give the applications of GMOs in food and agriculture.	2
		Applications (any four)	– 2 marks
	ii.	Elaborate on Cartagena Protocol on Biosafety.	8
		Introduction	– 1.5 marks
		Significance	– 1.5 marks
		Tasks	– 5 marks
OR	iii.	Radioactive waste definition	– 2 marks 8
		Their types	– 2 marks
		Methods of disposal with description	– 4 marks
Q.4	i.	State the role of bioethics advisory committee. Enlist any three of them.	3
		Role	– 1.5 marks
		3 committees	– 1.5 marks
	ii.	What are biological weapons? List out the potential biological weapons. Add a note on social and ethical implications of biological weapons.	7
		Biological weapons definition	– 1 mark
		Potential bioweapons	– 2 marks
		Social implication	– 2 marks
		Ethical implication	– 2 marks
OR	iii.	Discuss about the bioethical issues and conflicts in the development of GMOs	7
		GMO – definition, application & advantages	– 2 marks
		Bioethical issues & conflicts	– 5 marks
Q.5	i.	Write a note on geographical indication.	4
		Description	– 2 marks
		Valid duration	– 1 mark
		Example	– 1 mark
	ii.	What is IPR? Give their types. Add a note on trademark	6
		IPR definition	– 1 mark
		Types	– 2 marks
		Trademark (description, validity & Example)	– 3 marks

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P.T.O.