



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Sc(H)/BT/SEM-6/BTL-604/2013**

**2013**

**BIOTECHNOLOGY SOCIAL, LEGAL &  
ETHICAL ISSUES**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

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

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) IPR stands for
  - a) Indian Patent Regulation
  - b) Intellectual Property Right
  - c) International Patent Regulation
  - d) Intellectual Property Regulation.
- ii) PVP is generally known as
  - a) Patent Variety Protocol
  - b) Plant Variety Protection
  - c) Patent Variety Protection
  - d) Plant Variation Patents.

CS/B.Sc(H)/BT/SEM-6/BTL-604/2013



- iii) TRIPs agreement forms a part of the
  - a) Indian Patent Act, 1970
  - b) Utility Patent Act, 1980
  - c) Uruguay Round to GATT
  - d) all of these.
- iv) The first patented gene *aro A* was termed useful as it confers
  - a) bacterial resistance
  - b) pest resistance
  - c) vitamin A
  - d) glyphosate resistance.
- v) The first plant Patent was done in 1931 for a
  - a) climbing rose
  - b) climbing vine
  - c) climbing apple
  - d) none of these.
- vi) Convention of Biological Diversity in Rio de Janeiro by United Nations at the year of 1992 is commonly known as
  - a) Global summit
  - b) Earth summit
  - c) Farmer's right
  - d) None of these.
- vii) According to Indian Patent Law an invention is
  - a) contrary to public order
  - b) a new property of a known substance
  - c) new product or process involving an inventive step and capable of industrial application
  - d) none of these.



- viii) In India ethical guidelines for biomedical research in human was supplemented by
- Medical Council of India
  - Departement of Biotechnology
  - University of Delhi
  - none of these.
- ix) A Cporyright is valid for
- 25 years
  - 39 years
  - 50 years
  - 75 years.
- x) DNA fingerprinting using microsatellites, uses which of the following techniques ?
- RFLP
  - PCR
  - Both (a) and (b)
  - none of these.
- xi) Screening via pap smear is recommended for
- Lung cancer
  - Breast cancer
  - Cervical cancer
  - Prostate cancer.
- xii) Which novel therapeutic molecule is used to treat human diseases ?
- miRNAs
  - antisense RNAs
  - shRNAs
  - siRNAs.



**GROUP - B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. Discuss the viral and nonviral methods of gene therapy.
3. Name one genetically modified food, one genetically modified microorganism. Discuss the controversies of GM food.  $1 + 1 + 3$
4. What is the difference between copyrights and patents ?
5. Give one example of xenotransplantation which has been successfully commercialized in pig.
6. Mention the screening techniques of breast and prostate cancer.

**GROUP - C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. What is UPOV ? What is the criteria for deciding protection of a plant variety ? Does India have any law for protecting new plant varieties ? What is the meaning of Farmers' Variety as per PPVFR Act, 2001 ?  $2 + 8 + 2 + 3$
8. Write short notes on any *three* :  $3 \times 5$ 
  - a) Minisatellite marker
  - b) Patenting of life forms
  - c) Patenting genes
  - d) Protection of plant materials
  - e) Sui generic system
  - f) Applications of genetic testing.
9. Define Geographical indication with suitable examples. Write in brief about the various forms of protection of intellectual property and discuss the necessity for IPR.  $3 + 7 + 5$
10. Discuss a case in detail involving the patentability of live forms.
11. Write short notes on any *three* of the following :  $3 \times 5$ 
  - a) Gene transfer methods
  - b) DNA-molecular conjugates in Gene therapy
  - c) In vivo Gene therapy
  - d) "Bubble boy" syndrome.
12. What is PGD ? Write down the methods used in PGD. What are the ethical and social issues regarding PGD ?  $3 + 6 + 6$