

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 :
$10 \times 1=10$
i) Hyperacute rejection in xenotransplantation is mediated by
a) Polymorphonuclear leukocytes
b) NK cells
c) Complement proteins
d) None of these.
ii) Screening via pap smear is recommended for
a) Lung cancer
b) Breast cancer
c) Cervical cancer
d) Prostate cancer.

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iii) The size of microsatellite loci varies from
a) $1-5 \mathrm{~kb}$
c) $10-15 \mathrm{~kb}$
b)

d) none of these.
iv) Human Beta-lactoferrin has been first expressed in
a) Transgenic cow
b) Transgenic goat
c) Transgenic sheep
d) Transgenic mice.
v) Empysema may result due to the deficiency of
a) A-1 antitrypsin
b) Lysozyme
c) Transgeic sheep
d) None of these.
vi) Mutation in BRCA1 gene is risk factor for
a) Prostate cancer
b) Cervical cancer
c) Breast cancer
d) None of these.
vii) The size of minisatellite varies from
a) $\quad 1-5 \mathrm{~kb}$
b) $\quad 5-10 \mathrm{~kb}$
c) $\quad 10-15 \mathrm{~kb}$
d) None of these.
viii) Which one is an exclusively single locus genetic marker ?
a) Minisatellite
b) Microsatellite
c) Both (a) \& (b)
d) None of these.
ix) First Cohen-Boyer recombinant DNA patent was done in the year of
a) 1988
b) 1980
c) 1986
d) 1985 .
x) Gilead sciences, a California based bio-pharmaceutical research firm, and its patent partner, Roche Holding AG, have sued which of the following Indian generic drug makers in March, 2011 for allegedly infringing a US Patent for Tamiflu, a drug used in treatment of bird and swine-flue infections?
a) Dr. Reddy's
b) Natco Pharma
c) Ranbaxy Laboratories
d) GlaxoSmithKline.

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xi) To benefit from legal protection a patent should have
a) Scientific basis
b) appreciation from scientific community
c) market potential
d) all of these.
xii) Intellectual property rights may be protected by
a) Patents and Copyrights
b) Trademarks and Service marks
c) Publications and exposition
d) Both (a) \& (b).

## GROUP - B

( Short Answer Type Questions )
Answer any three of the following. $3 \times 5=15$
2. What is the Paris convention ? What are the principal features of the Paris convention? $2+3$
3. What is Budapest Treaty ? What is Patent Cooperation Treaty ( PCT ) ? $3+2$
4. Why are the IPRs protected ? Can computer software be protected by copyright?
5. Write short notes on any one of the following :
a) Copyrights
b) DNA fingerprinting.
6. Write two applications of transgenic cows.

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Answer any three of the following. $3 \times 15=45$
7. What is the WTO ? What are the objectives of WTO ? Discuss the functions of WTO. How many annexes are there in the WTO agreement and what are the contents ?

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1+3+5+1+5
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8. What is UPOV ? What is the criteria for deciding protection of a plant varieties ? Does India have any law for protecting new plant varieties ? What is the meaning of Farmers' Variety as per PPVFR Act, 2001? $2+8+2+3$
9. Define patents. Discuss various requirements and the process of award of a patent. $4+8+3$
10. What does 'TRIPS' stands for ? Discuss in brief about patenting in rDNA technology. What is xenotransplantation ? Discuss why nonhuman primates are not preferred as donors for xenotransplantation. $5+4+6$
11. What is cancer screening? What are the limitations of cancer screening ? Discuss the screening methods of any three common cancers. $1+2+4+4+4$
