



Name :
Roll No. :
Invigilator's Signature :

**CS/B.Sc.(H)/BT/GEN/MICRO-BIO/
MOL-BIO/SEM-6/MHG-601/2013**

2013

MODEL ORGANISMS IN HUMAN GENOME PROJECT

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) Blastula period of zebra fish embryo lasts for
- a) $2^{1/4}$ h to $5^{1/4}$ h b) $3^{1/4}$ h to $5^{1/4}$ h
- c) $4^{1/4}$ h to $5^{1/4}$ h d) none of these.
- ii) *Saccharomyces cerevisiae* genome contains
- a) 10 pairs chromosomes
- b) 12 pairs chromosomes
- c) 14 pairs chromosomes
- d) 16 pairs chromosomes.



- x) In *Drosophila melanogaster* the locus of eyeless gene is in
a) X chromosome b) chromosome 2
c) chromosome 3 d) chromosome 4.
- xi) In *Drosophila melanogaster* which chromosome is the smallest one ?
a) X chromosome b) chromosome 2
c) chromosome 3 d) chromosome 4.
- xii) *Arabidopsis* genome is organized into
a) 6 chromosomes b) 5 chromosomes
c) 4 chromosomes d) 10 chromosomes.
- xiii) The complete sequencing of the *Arabidopsis* genome was done in the year
a) 2000 b) 1995
c) 2002 d) 2005.
- xiv) *Arabidopsis thaliana* belongs to
a) Solanaceae b) Malvaceae
c) Zingiberaceae d) Brassicaceae.
- xv) The total genome size of *Arabidopsis* is about
a) 125 mb b) 135 mb
c) 175 mb d) 225 mb.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. What are microsatellites ? What are their uses ? 3 + 2
3. What is Expressed Sequence Tag (EST) ?
4. What is RFLP ? What are their uses ? 3 + 2
5. Write a short note on single nucleotide polymorphism.
6. Write a short note on *Arabidopsis* genome.



GROUP – C

(Long Answer Type Questions)

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

7. Discuss the essential features of zebra fish genome ? Discuss the embryogenesis of *Drosophila*. How does it correlate with human genome ? $5 + 7 + 3$
8. What is comparative genomics ? Briefly describe the process and applications of comparative genomic hybridization. Write in brief about structural genomics. $2 + 8 + 5$
9. What do you understand by HGP ? State the benefits and risks involved in human genome project. Explain briefly the ethical, legal and social issues related to Human Genome Project. What are the goals of HGP ? $2 + 5 + 5 + 3$
10. Explain Bridges genic balance theory. Discuss the sexual reproduction in *E.coli*. Why mouse is regarded as a model organism. $5 + 5 + 5$
11. Write short notes on any *three* of the following : 3×5
 - a) Chromosome walking
 - b) FISH
 - c) VNTR
 - d) Beneficial mutation in human
 - e) Chemical cleavage method of DNA sequencing.

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