



Name :
Roll No. :
Invigilator's Signature :

CS/B.Sc. (H), Genetics, Molbio/SEM-6/MLG-603/2011

2011

MOLECULAR HUMAN GENETICS

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) Locus heterogeneity means
 - a) Same disease by mutations at different loci
 - b) Existence of many different disease causing alleles at same locus
 - c) Complex patterns of inheritance occurs from the same locus
 - d) Variable expression of a gene in the same locus.
- ii) In which of the following years was Map based Cystic Fibrosis Gene discovered on chromosome 7q ?
 - a) 1987
 - b) 1989
 - c) 1992
 - d) 1998.



- iii) Which type of vectors are mostly used in gene therapy clinical trials ?
 - a) Retrovirus
 - b) Pox virus
 - c) Vaccinia virus
 - d) Adeno-associated virus.
- iv) First human gene therapy trial was done using
 - a) MoMLV based delivery vector
 - b) Liposome based delivery
 - c) Human artificial chromosome based delivery
 - d) Non-viral based delivery.
- v) Repetitive sequence within coding region causes
 - a) Huntington disease
 - b) Fragile X syndrome
 - c) Baker Muscular dystrophy
 - d) Cystic fibrosis.
- vi) The U.S. patent for gene cloning is awarded to Cohen and Boyer in the year
 - a) 1977
 - b) 1978
 - c) 1980
 - d) 1982.
- vii) The DNA fingerprinting technique is developed in the year
 - a) 1978
 - b) 1982
 - c) 1984
 - d) 1990.
- viii) Congress funds the Human Genome Project, a massive effort to map and sequence the human genetic code as well as the genomes of other species in the year
 - a) 1984
 - b) 1986
 - c) 1988
 - d) 1990.



GROUP – C

(Long Answer Type Questions)

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

7. What are Gene Mapping Strategies ? What are the methods of Gene Mapping ? Why Map a Disease Gene ? How to Map a Human Disease Gene ? $3 + 4 + 2 + 6$
 8. What is RFLP ? How RFLP helps in searching disease genes in a family ? How it helps in sequencing a disease gene or a trait ? $4 + 6 + 5$
 9. What is Genome ? What are the types of Genome in Human Genome ? What are the levels of Genomic Variation ? $3 + 6 + 6$
 10. What is Unstable Expanding DNA Repeats ? Describe its impact in Non-Mendelian Genetic Syndromes, i.e.
a) Fragile-X syndrome b) Myotonic Dystrophy $5 + 10$
 11. What is molecular pathology ? What are the types of mutations observed in human genome ? Describe Mendelian inheritance pattern observed in Human Monogenic Disorders. What is OMIM ? $3 + 6 + 4 + 2$
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