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Name:	A
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:

 $10 \times 1 = 10$

- 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.

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				Suggit 1		
iii)	Whi	ch type of vectors are	most	ly used in gene therapy		
	clini	cal trials?		A parago (y Exceptings 2nd Explored		
	a)	Retrovirus	b)	Pox virus		
	c)	Vaccinia virus	d)	Adeno-associated virus.		
iv)	Firs	t human gene therapy t	rial v	was done using		
	a) MoMLV based delivery vector					
	b)	Liposome based deliver	ry			
	c) Human artificial chromosome baded delivery					
	d)	Non-viral based deliver	y.			
v)	Repetitive sequence within coding region causes					
	a)	Huntington disease				
	b)	Fragile X syndrome				
	c)	Baker Muscular dystro	phy			
	d)	Cystic fibrosis.				
vi)		=	lonii	ng is awarded to Cohen		
		Boyer in the year		1070		
	a)	1977	b)	1978		
	c)	1980	d)	1982.		
vii)	The DNA fingerprinting technique is developed in the					
	year		1 \	1000		
	a)	1978	b)	1982		
	c)	1984	d)	1990.		
viii)	 i) Congress funds the Human Genome Project, a ma effort to map and sequence the human genetic coowell as the genomes of other species in the year 					
	a)	1984	b)	1986		
	c)	1988	d)	1990.		
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- ix) Recombinant developed by Genetics Institute and used in the treatment of hemophilia A, becomes the first genetically engineered blood clotting factor approved in the U.S. in the year
 - a) 1982

b) 1988

c) 1992

- d) 1996.
- x) The FDA declares that genetically engineered foods are "not inherently dangerous" and do not require special regulation in the year
 - a) 1990

b) 1993

c) 1996

- d) 1998.
- xi) The first complete animal genome for the elegans worm is sequenced in the year
 - a) 1994

b) 1998

c) 1999

- d) 2000.
- xii) "Golden Rice," modified to make vitamin A, promises to help third-world countries alleviate blindness in the year
 - a) 1996

b) 1997

c) 2000

d) 2001.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following.

 $3 \times 5 = 15$

- 2. Why genetic map differ from physical map?
- 3. How STS markers helps in Gene Mapping?
- 4. How PCR technology help in detecting disease genes?
- 5. What is the application of DNA fingerprinting?
- 6. What are SNPs? What is Haplotype?

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GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following.

- 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

 $3 \times 15 = 45$

- 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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