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Name:	
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Inviailator's Signature :	

## CS/B.SC (H) (BT)/SEM-6/MBT-603/2011

# 2011 MEDICAL BIOTECHNOLOGY

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/write brief answers for any *ten* of the following:

 $10 \times 1 = 10$ 

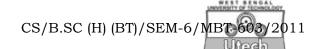
- i) First successful gene therapy was done to treat
  - a) ADA

- b) AML
- c) Cystic fibrosis
- d) Sickle cell anaemia.
- ii) Which type of vectors are mostly used in Gene therapy clinical trials?
  - a) Retrovirus
  - b) Pox virus
  - c) Vaccinia virus
  - d) Adeno-associated virus.

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B.SC	(H) (l	BT)/SEM-6/MBT-603/2	2011	© <sub>©</sub>		
iii)	Who	Who coined the term "Genome" ?				
	a)	Winkler	b)	Bateson		
	c)	Johansson	d)	Mendel.		
iv)	'Bar	muda agreement' is rela	ated t	О		
	a)	Human Genome Projec	et			
	b)	Global warming				
	c)	Hap Map Project				
	d)	Environmental pollution	n.			
v)		which year was the first successful human nsplant of insulin making cells done from cadavers?				
vi)		In which year did researchers first extract stemcells from human embryos?				
vii)	Which chromosome possesses lowest number/density of genes?					
	a)	13	b)	Y		
	c)	1	d)	22.		
viii)	i) Repetitive sequence within coding region causes					
	a)	Huntington disease				
	b)	Fragile X syndrome				
	c)	Baker Muscular dystro	phy			
	d)	Cystic fibrosis.				



- ix) Repetitive sequence outside coding region cause
  - a) Fragile X syndrome
  - b) Baker Muscular dystrophy
  - c) Huntington disease
  - d) Cystic fibrosis.
- x) 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 expressions of a gene in the same locus.
- xi) Allelic heterogeneity means
  - a) Existence of many different disease-causing alleles at same locus
  - b) Same disease by mutations at different loci
  - c) Variable expressions of a gene in the same locus
  - d) Complex patterns of inheritance occurs from the same locus.
- xii) CFTR gene present in the chromosome number
  - a) 7

b) 11

c) x

d) 2.

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## (Short Answer Type Questions)

Answer any three of the following.

 $3 \times 5 = 15$ 

- 2. What is single gene disorder? State with example.
- 3. How does reporter gene help in Gene transfer methods?
- 4. Describe the role of Non-Viral vectors in Gene therapy.
- 5. What is stem cell therapy today?
- 6. What is the role of suicidal Gene in cancer Gene therapy?

#### GROUP - C

#### (Long Answer Type Questions)

Answer any three of the following.

 $3 \times 15 = 45$ 

7. What are the goals of Human Genome Project? What are some of the ethical considerations for using gene therapy?

5 + 10

- Explain various approaches of Cancer Gene Therapy. What is Tumour Suicide Gene Therapy?10 + 5
- 9. What is Tissue Engineering? What are the approaches of Tissue Engineering in Regenerative Medicine? Describe current status of clinical applications.5 + 5 + 5
- 10. What is Nanomedicine? Define Nanometer scale. What are the Nano-Structured materials used in Medicine? 5 + 5 + 5
- 11. How do Molecular Biology and Biochemistry help in sub-unit vaccine production? What are the advantages and disadvantages between recombinant vaccine and natural vaccine?

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