	Utech
Name:	(A)
Roll No. :	To Ones (y' Exercising and Explored
Invigilator's Signature :	

CS/M.Sc. (GEN)/SEM-4/MSGEN (MBT)-403/2013 2013

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 for any *ten* of the following :

 $10 \times 1 = 10$

- i) Francis Collins and Lap-Chee Tsui identified the gene coding for the cystic fibrosis transmembrane conductance regulator protein (CFTR) on chromosome 7 that, when mutant, causes cystic fibrosis, in which year
 - a) 1990
 - b) 1997
 - c) 1998
 - d) 1989.

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c)

1977

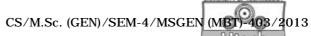
ii) Fred Sanger developed the chain termination (dideoxy) method for sequencing DNA is which year

a) 1975 b) 1976

d)

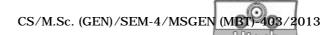
1978.

- iii) George Beadle and Edward Tatum irradiated the red bread mold, Neurospora, and proved that the gene produces its effect by regulating particular enzymes in which year
 - a) 1940b) 1943c) 1942d) 1941.
- iv) Hermann J. Muller used *x*-rays to cause artificial gene mutations in Drosophila in which year
 - a) 1925 b) 1927
 - c) 1928 d) 1929.
- v) Harriet *B*. Creighton and Barbara McClintock demonstrated the cytological proof for crossing-over in maize in which year
 - a) 1930b) 1931c) 1925d) 1933.



vi)	Whi	ch of the following is	not a	a useful way to detect							
	protein-protein interaction ?										
	a)	Pull down assay									
	b)	Yeast two hybrid assay									
	c)	Footprinting assay									
	d)	Phage display.									
vii)	Amino acid present in the protein gel running buffer is										
	a)	Alamine	b)	Glycine							
	c)	Glutamic acid	d)	Valine.							
viii)	Colony blotting is an example of										
	a)	Northern blotting									
	b)	In situ hybridization									
	c)	Southern blotting									
	d)	Western blotting.									
ix)	Monoclonal antibody acting as an enzyme is known as										
	a)	ribozyme	b)	abzyme							
	c)	antizyme	d)	clonozyme.							

x)	Which one among the following is not an example of DNA polymerase with proofreading activity?						
	a)	Pfu-Turbo	b)	Amplitaq			
	c)	Deep Vent Taq	d)	DNA pol III.			
xi) RISC is present in the cytoplasm in the vesicle							
	as						
	a)	p-bodies	b)	o-bodies			
	c)	m-bodies	d)	<i>i</i> -bodies.			
xii)	 xii) All of the following techniques are useful tool to student DNA protein interaction except a) Electrophoretic mobility shift assay b) DNase I footprinting c) Methyl interference assay d) Yeast two hybrid assay. 						
xiii)	xiii) The name of the first cloned mule was						
	a)	ANDI	b)	Idaho Gem			
	c)	Dolly	d)	Alba.			
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- xiv) The genetically modified tomato (Flavr savr) was produced by the company
 - a) Calgene
- b) Zeneca

- c) Aventis
- d) Biocon.
- xv) Dimethyl sulphate methylates
 - a) guanine
 - b) both adenine and guanine
 - c) cytosine
 - d) both cytosine and thymine.

GROUP - B

(Short Answer Type Questions)

Answer any three of the following.

 $3 \times 5 = 15$

- 2. Describe the origin of Homo Habilis.
- 3. How Homo Erectus represent Modern Human?
- 4. How Chromosomal Sex determine the sex of the embryo?
- 5. How Gonadal development take place in embryo?
- 6. What is non-invasive prenatal diagnosis?
- 7. Define the procedure of Therapeutic Cloning.

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GROUP - C



(Long Answer Type Questions)

Answer any three of the following.

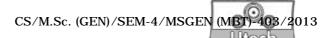
 $3 \times 15 = 45$

- 8. Genetic Markers studies suggest that Modern Human is distinct from Neanderthal Homo erectus. Explain with examples. All humans outside Africa share same subset of African diversity. How?
- 9. What is Genetic Sex? How sex of the embryo determined by Genotype? How internal and external sex organ are differentiation are controlled by Genotype of embryo?

2 + 5 + 8

- 10. What is Non-Mendelian inheritance? What are the types of Non-Mendelian inheritance in human genetic disorders?

 Define UPD with examples. 3 + 5 + 7
- 11. What is Genomics? Why Study Genomes of Different organisms? What is the rest of the human genome made up of? What did they learn? 3 + 5 + 5 + 2
- 12. What is SCID? What are the causes of SCID? What precisely has been done to patient Ashanti De Silva in 1990 by Dr. W. F. Anderson' group (NIH) in USA? 2 + 3 + 10



- 13. Write short notes on Genetic factors in following diseases (any three): 3×5
 - a) Schizophrenia
 - b) Alzheimer disease
 - c) Beta-Thalassaemia
 - d) Diabetes mellitus
 - e) Epilepsies
 - f) Obesity
 - g) Male Infertility.

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