MEDICAL BIOTECHNOLOGY (SEMESTER - 4)

CS/M.Sc (Genetics)/SEM-4/MSGEN(MBT)-403/09

1. ....
Signature of Invigilator

2. ....
Signature of the Officer-in-Charge

Reg. No. | | | | | | | | | | | | | | | |

Roll No. of the Candidate | | | | | | | | | | | | | | | |

CS/M.Sc (Genetics)/SEM-4/MSGEN(MBT)-403/09

ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

MEDICAL BIOTECHNOLOGY (SEMESTER - 4)

Time : 3 Hours] [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

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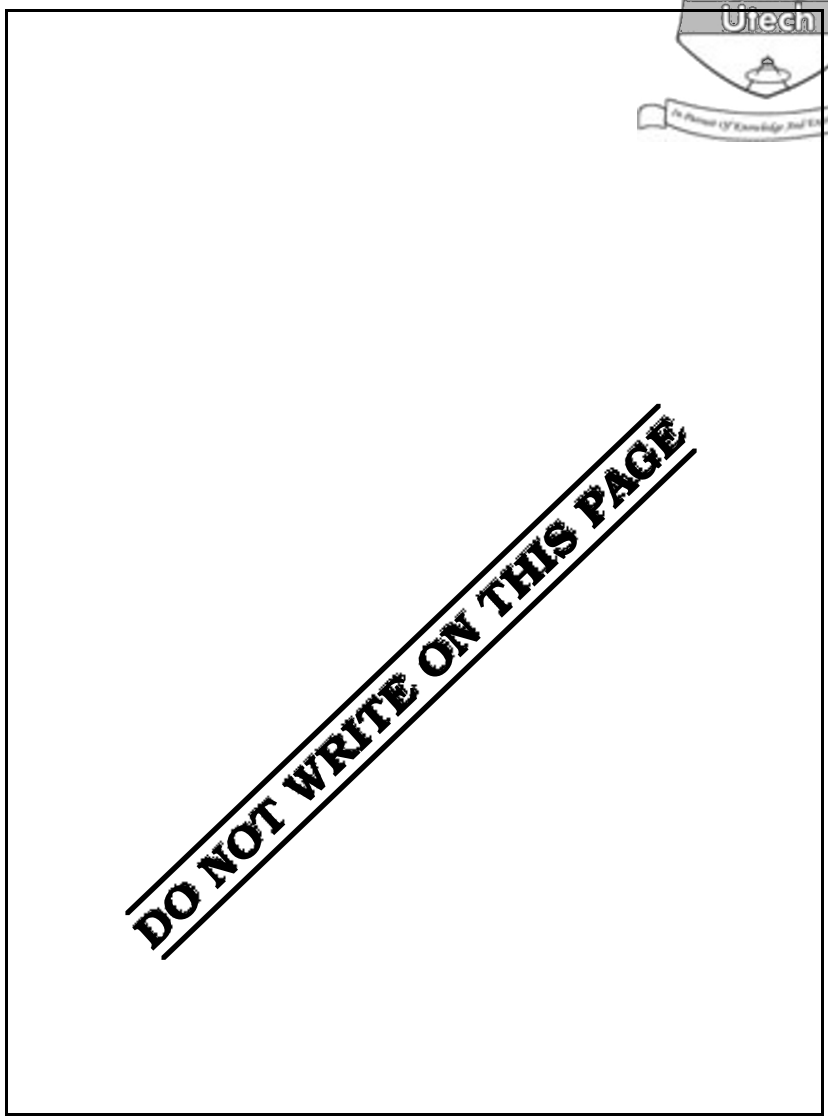
FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

	Group – A										Group – B			Group – C				
Question Number																	***Total Marks***	***Examiner's Signature***
Marks Obtained																		

....

Head-Examiner/Co-Ordinator/Scrutineer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MEDICAL BIOTECHNOLOGY

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GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 ∞ 1 = 10

i) Modern human behaviour starts to develop in Africa after

a) 50 KYA b) 80 KYA

c) 90 KYA d) None of these. ☐

ii) Modern human is distinct from Neanderthal based on genetic markers

a) Y chromosomes b) mt DNA

c) STS d) PCR-RFLP. ☐

iii) Chromosome duplication occurs due to

a) Homologous recombination b) Non-homologous recombination

c) Inversions d) Translocation. ☐

iv) Failure of chromosome or chromatids to segregate at meiosis or mitosis

a) Aneuploidy b) Non-disjunction

c) Polyploidy d) None of these. ☐

v) Cytogenetics diagnosis by Chromosome Banding analysis by GTB needs minimum band level

a) 300-400 b) 400-550

c) 600-700 d) None of these. ☐

vi) Gender dysphoria or Transexualism is known as

a) Genetic sex b) Gender sex

c) Gonadal sex d) Genital sex. ☐

vii) The phenomenon of different expression of alleles depending on the parent of origin is

a) UPD b) Genomic imprinting

c) Mitochondrial inheritance d) Anticipation. ☐

viii) How many genes do we have ?

a) 30,000 b) 25,000

c) 40,000 d) 50,000. ☐

ix) The genetic material is transferred directly into the body of the patient known as

a) ex vivo b) in vivo

c) in vitro d) none of these. ☐

x) The genetic material is first transferred into the cells grown in vitro known as

a) in vivo b) ex vivo

c) in vitro d) none of these. ☐

xi) What precisely has been done to Ashanti DeSilva ?

a) IL-Cell therapy

b) Gene therapy by retroviral vector

c) Gene therapy by non-viral vector

d) None of these. ☐

xii) During Human clinical trial for OTC deficiency Jesse Gelsinger, an 18 year old from Arizona died after fast developing fever and organ failures due to

a) High level of ammonia

b) Viral overload

c) Grade III toxicity

d) Not known. ☐

GROUP – B

(Short Answer Type Questions)

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

2. Write a short note on Human Genetic Diversity in modern human population. 5

3. Genetic evidence suggest Modern Humans have originated in jeographically isolated regions. Explain. 5

4. Explain genetic syndrome associated with immunodeficiency. 5

5. Define cryptic rearrangements of chromosome with example. 5

6. Define the conditions of 45 XO sex-type. 5

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 ∞ 15 = 45

7. Define genetic basis of Complex Genetic Disorder. How does it differ from monogenic disorder ? How do Genetic Markers help to find alleles or causative gene in complex disorder like coronary artery disease ? What is the evidence that Diabetic type II is genetic ? 4 + 3 + 4 + 4

8. What is Non-Mendelian inheritance ? What are the types of Non-Mendelian inheritance in human genetic disorders ? Define UPD with examples. 3 + 5 + 7

9. Write short notes on Genetic factors in following diseases : 5 ∞ 3

   a) Schizophrenia

   b) Alzheimer's disease

   c) Beta-Thalassemia

   d) Diabetes mellitus

   e) Male infertility. 3 + 3 + 3 + 3

10. What is Genomics ? Why do we study genomes of different organisms ? What is the rest of the human genome made up of ? What we from then learn ? 2 + 5 + 4 + 4

11. What is the function of vectors in Gene therapy ? Describe ideal characteristics of BAC. What are the limitations of viral vectors ? 5 + 5 + 5

12. What are Pharmacogenetics and Pharmacogenomics ? What is Genetic polymorphism ? Explain the molecular basis of drug designing ? 2 + 2 + 4 + 7

END