[A-78]

Sardar Patel University
MSc Integrated Biotechnology Examination -Semester 8
PS08CIGGB3: Omics
Saturday 25th April, 2015
2:30 pm to 5:30 pm

Note: **Total Marks: 70**
1. Figures to the right indicate marks.
2. Draw neat and labelled diagram, wherever necessary.

Q.1   **Multiple choice questions**   **[08]**

1   In automated fluorescent sequencing _____ number of fluorescent tags are
used
a) one   b) two   c) three   d) four

2   Following is not true for ORF
a) can be translated in six frames   b) covered between start and stop codon
c) nucleotides present in ORF are in multiple of three   d) always uninterrupted

3   _____ genome is first sequenced as pilot project for HGP.
a) Zea maiz   b) homo sapience
c) *Caenorhabditis elegance*   d) *Haemophilus influenzae*

4   Which of this describes a contig
a) a complete genomic library including overlapping clones
b) a complete mRNA library
c) a chromosome specific library
d) none of these

5   The complete set of mRNA at a given time present in a cell is known as _____
a) transcriptomic   b) mRNAs   c) trancriptom   d) none of these

6   Following is not true in Isoelectric focussing
a) proteins separated based on net charge   b) IPG strips are used
c) proteins migrated toward both the electrodes
d) Urea and thiourea used as chaorophic agent

7   Microarray is extension of the _____ technique.
a) Western blot   b) Southern blot   c) PCR   d) 2D gel

8   The branch of genomics deals with genetic mapping and sequencing of whole
genome is _____
a) functional genomics   b) comparative genomics
c) computational genomics   d) structural genomics

Q.2   **Attempt any seven**   **[14]**

1   What is Codon bias?

2   What is bridge PCR?

3   What is chromosome walking?

4   Principle of Sanger sequencing method.

5   Briefly describe silver staining method.

6   Write principle of ionization in MALDI.

7   What is phage display library?

8   Briefly describe probe immobilization chemistry on microarray chip

	9	What are metabolic networks?	
Q.3	A	Write a detailed account on automated fluorescent sequencing.	[06]
	B	What is genetic code? Compare the gene structure of prokaryote and eukaryote.	[06]

<div align="center">OR</div>

	B	What is massively parallel sequencing? Enlist various NGS platforms and describe ion torrent in detail.	[06]
Q.4	A	Write a detailed note on principle and application of RFLP in HGP.	[06]
	B	What are physical maps? Briefly describe the radiation hybrid maps.	[06]

<div align="center">OR</div>

	B	Narrate clone by clone sequencing approach used in HGP.	[06]
Q.5	A	Write a short note on yeast two hybrid system.	[06]
	B	Describe the principle of ESI QQQ.	[06]

<div align="center">OR</div>

	B	Enlist various protein visualization techniques. Describe types of metal stains used for protein visualization.	[06]
Q.6	A	Define transcriptomics. Describe the principle of SAGE used to determine transcriptomics.	[06]
	B	What is metabolomics? Write a note on importance of studying metabolomics and give overview of Human metabolome project.	[06]

<div align="center">OR</div>

	B	Give comparative account on oligonucliotide and in situ fabricated microarray.	[06]

<div align="center">— ✗ —</div>