

**M. SC. BIOINFORMATICS SEM.-I (C.B.C.S.) (2013
COURSE) / ADVANCED DIPLOMA IN BIOINFORMATICS
SEM.-I (C.B.C.S.) (2013 COURSE) : SUMMER - 2018
SUBJECT: BASIC BIOSCIENCES**

Day : **Wednesday**
Date : **04/04/2018**

Time: **10.00 AM TO 01.00 PM**
Max. Marks: 60

S-2018-1121

N.B.:

- 1) **Q.No.1 and Q. No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Draw neat labelled diagrams **WHEREVER** necessary.
- 4) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Explain why? [10]
- a) GC% of an organism is very important.
 - b) Microorganisms are smarter to protect themselves.
 - c) Expression of a protein can change without changing the sequence.
 - d) Intestinal bacterial flora is helpful in digestion.
 - e) Introns can be used as genetic markers.
- Q.2** Draw neat labeled diagrams of the following: (**ANY TWO**): [10]
- a) Mitosis b) Meiosis c) Cell cycle
- Q.3** Write short notes on **ANY TWO** of the following: [10]
- a) Na⁺ / K⁺ pump
 - b) Actin filaments
 - c) Plasmodesmata
- Q.4** Answer **ANY TWO** of the following: [10]
- a) Explain the different forms of DNA and RNA with examples. Draw their respective diagrams.
 - b) What are promoter, operator and enhancer sequences? Explain their importance with example.
 - c) Explain briefly Genetic Code. Enlist all its features.

SECTION – II

- Q.5** Define: [10]
- a) Mendel's law of segregation
 - b) Nucleoid and Nucleosome
 - c) Chromosome banding
 - d) Signal transduction
 - e) Desmosomes and hemi-desmosomes
- Q.6** Write short notes on **ANY TWO** of the following: [10]
- a) Extra Chromosomal Genomes
 - b) Prokaryotic Genome Organization
 - c) Chromatin, Euchromatin and Heterochromatin
- Q.7** Answer **ANY TWO** in brief: [10]
- a) Explain homologous and site-specific model of recombination.
 - b) Describe Eukaryotic DNA replication process with a diagram.
 - c) Describe all known DNA repair systems.
- Q.8** Write in detail about post-transcriptional modification and RNA splicing reactions. [10]

OR

Describe structure of RNA polymerase, its role and different subunits functions in detail.

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