

**S. Y. B. Sc. (Biotechnology) SEM – III (CBCS - 2015 COURSE) :**  
**SUMMER - 2019**

**Subject: Principles & Techniques in Molecular Biology**

Day: Friday  
Date: 05/04/2019

**S-2019-1378**

Time: 02.00 PM TO 05.00 PM  
Max. Marks: 60

**N.B.:**

- 1) Q1 and Q5 are compulsory.
- 2) Answer ANY TWO questions from Q 2, 3, 4 in Section I.
- 3) Answer ANY TWO questions from Q 6, 7, 8 in Section II.
- 4) Answers to Both the sections to be written in **SAME** answer books.
- 5) Draw a labeled diagram WHEREVER necessary.

**SECTION - 01**

Q.1) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) Draw the structure of Cytosine and Guanine
- b) What is Hyperchromicity?
- c) What is Open Reading Frame?
- d) How DNA purity is analyzed by UV absorption technique?
- e) What are pseudogenes? Mention its characteristics
- f) What are kinetochores?

Q.2) Answer the following: (5 Marks X 2 = 10)

- a) Write a note on chemical mutagens in brief.
- b) Differentiate between prokaryotic and eukaryotic mRNA

Q.3) Explain the following: (5 Marks X 2 = 10)

- a) What is induced mutation? Explain the role of base modifying agents in mutation.
- b) Explain the concept of Gene number of Prokaryotes

Q.4) Write short notes on the following: (5 Marks X 2 = 10)

- a) Cloverleaf model of t-RNA
- b) Watson and Crick model of DNA

**SECTION - 02**

Q.5) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) What is role of histone and non histone proteins?
- b) What is C value paradox?
- c) What is pyrosequencing?
- d) Why acid depurination is carried out in blotting technique?
- e) What is Northern blotting?
- f) What is the role of acid depurination in Southern Blotting?

Q.6) Answer the following: (5 Marks X 2 = 10)

- a) Explain the process of DNA supercoiling in bacteria
- b) Give an account on Gradient centrifugation

Q.7) Explain the following: (5 Marks X 2 = 10)

- a) How the compaction of eukaryotic chromosomes occurs?
- b) Explain DNA Microarray technique

Q.8) Write short notes on the following: (5 Marks X 2 = 10)

- a) Polymerase chain reaction
- b) Agarose gel electrophoresis

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