S. Y. B. Sc. (Biotechnology) SEM – III (CBCS - 2015 COURSE) : WINTER - 2018

Subject: Principles & Techniques in Molecular Biology

Day: Friday
Date: 26/10/2018

W-2018-1176

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 SEPARATE answer books.
5) Draw a labeled diagram WHEREVER necessary.

SECTION - 01

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

a) What is point mutation?
b) Why ssDNA is hyperchromic in comparison with ds DNA?
c) What is Tm? How the GC content affects the Tm of DNA?
d) What is Shine–Dalgarno sequence?
e) What do you mean by heterochromatin and euchromatin?
f) What are linker histones?

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

a) Justify "codon – anticodon recognition involves wobbling"
b) What are base modifying agents? Explain its effect on DNA

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

a) Features of A, B and Z form of DNA
b) Explain repetitive sequences of the human genome

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

a) Exceptions to genetic code
b) Centromere and telomer

SECTION - 02

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

a) What is C value?
b) What is RNA splicing?
c) Write any two applications of DNA Microarray.
d) What are Nested primers?
e) What is the role of Ethidium bromide in detection of DNA in gel electrophoresis?
f) Mention the steps involved in PCR

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

a) How the compaction of bacterial chromosomes occurs?
b) Write the principle and application of CHiP

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

a) Explain the structural features of eukaryotic Genome.
b) What is Real time Quantitative PCR?

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

a) Gradient centrifugation
b) Dideoxy DNA sequencing

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