

P-239**B. Sc. (Biotechnology) Part - II Examination – 2016****BIOTECHNOLOGY****Paper : VII****(Molecular Biology)****Time : Three Hours]****[Maximum Marks : 75**

Note : Attempt *all* questions from *Section – A* (Objective type questions), *seven* questions from *Section – B* (Short answer type questions) and *two* questions from *Section – C* (Long/Essay type questions).

SECTION – A**[Marks : 1 × 10 = 10**

1. triple hydrogen bonds occur in DNA between :
(a) Adenine and Guanine (b) Thymine and Guanine
(c) Uracil and Adenine (d) Guanine and Cytosine
2. The 80 S ribosome has subunits :
(a) 40 S & 60 S (b) 50 S & 30 S
(c) 40 S & 40 S (d) 60 S & 20 S
3. Codons that code for the 20 common amino acids :
(a) 61 (b) 64
(c) 60 (d) 20
4. RNA required for translation process is :
(a) t-RNA (b) m-RNA
(c) r-RNA (d) All of the above
5. The enzyme taking part in separation of turn strands of DNA is :
(a) Helicase (b) Primase
(c) Ligase (d) Polymerase

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6. Wobble hypothesis was proposed by :
- (a) Francis Crick (b) Nirenberg & Holley
(c) Watson & crick (d) Nirenberg & Matthaei
7. Which site of t-RNA molecule hydrogen bonds to a m-RNA molecule ?
- (a) Codon
(b) Anticodon
(c) 5' ends of t-RNA
(d) 3' ends of t-RNA
8. Which of the following is false about the E-coli Lac operon
- (a) It is polycistronic
(b) It is an example of negative control
(c) The presence of lactose acts as an inducer
(d) The repressor binds to the promoter
9. Which of the following sugar is found in DNA ?
- (a) 2'-deoxy ribose (b) 3'-deoxy ribose
(c) D-ribose (d) D-xylulose
10. Reverse transcriptase catalyzes formation of :
- (a) DNA to DNA (b) DNA to RNA
(c) RNA to DNA (d) RNA to RNA

SECTION - B

(Marks : 5 × 7 = 35

1. Discuss structure of B and Z DNA.
2. Explain split genes and pseudogenes.
3. What is Operon ? Explain regulation of trp operon.
4. Write a note on insertion elements and transposons.
5. Briefly explain RNA processing.

6. Describe briefly prokaryotic translation.
7. Write a note on Wobble hypothesis.
8. Explain DNA recombination in short.
9. Discuss regulation of protein degradation.
10. Discuss properties of genetic code and codon assignment.

SECTION – C

[Marks : 15 × 2 = 30

1. Explain methods of genome sequencing.
 2. Describe prokaryotic and eukaryotic replication.
 3. Discuss various methods of genome analysis.
 4. Describe prokaryotic and eukaryotic transcription.
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