

N.B. : (1) All questions are compulsory.

(2) Figures to the right indicate full marks.

(3) Draw neat and labeled diagrams wherever necessary.



**Q.1 (A) Fill in the blanks.**

**(10 Marks)**

1. The 5' end of .....is modified by addition of a cap of 7-methyl guanosine to the terminal 5' end.  
a) mRNA                      b) tRNA                      c) rRNA
2. In males two patterns of sex determination are known as .....  
a) XX-XY                      b) ZZ-ZO                      c) XX-XO
3. ....a component of chromatin is a largest and complex biomolecule.  
a) mRNA                      b) RNA                      c) DNA
4. The mitochondrion is bounded by .....membranes made up of lipoprotein material.  
a) two                      b) three                      c) five
5. The .....is the basic structural, functional and biological unit of all known living organisms.  
a) cell                      b) tissue                      c) organ
6. The chromosome section without a centromere is known as .....fragments.  
a) centric                      b)acentric                      c) none
7. The missing piece is deleted, the phenomenon is referred to as .....  
a) Duplication                      b) Inversion                      c) deletion
8. DNA was described by Watson, crick and wilkin in .....  
a) 1943                      b) 1953                      c) 1963
9. Ribosomes are ultramicroscopic particles made up of one or more .....molecules.  
a) mRNA                      b) tRNA                      c) rRNA
10. Single locus or a large piece of chromosome present more than once in the genome is known as .....  
a) duplication                      b) inversion                      c) translocation

**Q 1. (b) Answer in one sentence**

**(10 Marks)**

- (a) Define mitosis.
- (b) What is molecular biology.
- (c) What is translocation.
- (d) What is deletion.
- (e) What are cristae?

**Q (2) Answer any two from the following:**

**(20 marks)**

- (a) Describe its stages in Mitosis.
- (b) Describe structure and function of RNA.
- (c) Describe ultrastructure and function of Mitochondrion.
- (d)What is mitosis? Describe its significance.



**Q (3). Answer any two from the following:**

**(20 marks)**

- (a) Give an account of Haemophilia.
- (b) Explain ZO-ZZ mechanism of sex determination.
- (c) Explain in detail Heterogametic female.
- (d) What is chromosomal aberration? Give in detail inversion.

**Q (4). Answer any two from the following:**

**(20 marks)**

- (a) Describe transcription in Prokaryotes.
- (b) Describe central dogma of protein synthesis.
- (c) Describe Meselson and Stahl experiment.
- (d) Explain the role of various enzymes involved in prokaryotic DNA replication

**Q (5). Write short notes on: (Any four)**

**(20 marks)**

- (a) Theta model
- (b) Significance of Mitosis
- (c) Termination and elongation of transcription.
- (d) Peroxisomes.
- (e) XX-XY mechanism of sex determination.
- (f) Translocation