



# UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Sixth Semester – 2019

Paper: Molecular Genetics II

Course Code: ZOOL-310 Part – I (Compulsory)

Time: 15 Min. Marks: 10

Roll No. in Fig. ....

Roll No. in Words. ....

Signature of Supdt.:

**ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY.**

**Division of marks is given in front of each question.**

**This Paper will be collected back after expiry of time limit mentioned above.**

**Q.1. Encircle the correct choice.**

**(1x10=10)**

**1. Bonding between purines and pyrimidines of two strands of DNA is:**

- (a) Ionic bonding (b) Hydrogen bonding (c) Covalent bonding (d) Vander wall forces

**2. It is highly variable protein among different organisms:**

- (a) H<sub>1</sub> (b) H<sub>2</sub>A (c) H<sub>2</sub>B (d) H<sub>3</sub>

**3. Enzyme used in PCR is:**

- (a) RNA polymerase (b) Taq polymerase (c) Helicase (d) Primase

**4. Replication in which two original strands of DNA remain together (after serving as templates), as would the two newly synthesized strands:**

- (a) Semi conservative replication (b) Conservative replication  
(c) Dispersive replication (d) all of the above

**5. Sequence of initiator (Inr) in case of Drosophilla is:**

- (a) GCC (G/T) (G/T) C (b) GCA (G/T) T (T/G)  
(c) GCA (G/T) T (T/C) (d) GCC (G/T) T (T/C)

**6. Two regions in mRNA that are not translated:**

- (a) Initiation codon (b) 5' UTR (c) 3' UTR (d) both (b) and (c)

**7. Splicing takes place in:**

- (a) Nucleus (b) Nucleolus (c) Cytoplasm (d) All of the above

**8. Group of genes that are regulated together is called:**

- (a) Repressor (b) Operator (c) Operon (d) Promotor

**9. The process in which mature mRNA make proteins is called:**

- (a) Replication (b) Transcription (c) Splicing (d) Translation

**10. Transposable elements were first discovered in eukaryotic cells:**

- (a) Viral genome (b) Maize (c) Pea (d) All of the above



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Course Code: ZOOL-310 Part – II

Time: 2 Hrs. 45 Min. Marks: 50

**ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED**

**Q.2. Write the short note on the following. (10x2=20)**

- i. Differentiate between metacentric and telocentric chromosome.**
- ii. Write down the requirements for replication in Eukaryotes.**
- iii. Define topological domain.**
- iv. Differentiate between Core promoter elements and Proximal promoter elements.**
- v. What is Spliceosome?**
- vi. Draw structure of tRNA.**
- vii. Discuss points of Watson and Crick model of DNA.**
- viii. Draw the structure of premature mRNA.**
- ix. Define Molecular Genetics.**
- x. What is the function of Helicase?**

**Q.3. Questions with brief answers. (3x10=30)**

- i* - Give a detailed account of Transcription in prokaryotes.**
- ii* - Discuss Transposable elements in Eukaryotes in detail.**
- iii* - Give a detailed account of Leader and Trailer sequence.**