



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Cell and Molecular Biology-II
Course Code: ZOOL-301 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. 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 right answer, cutting and overwriting is not allowed. (0.5x20=10)

1. A nucleoside is similar to nucleotide except
 - a. Nitrogenous base
 - b. Ribose
 - c. Phosphate
 - d. All of above
2. In prokaryotes, during replication, supercoiles are formed which are removed by the action of
 - a. Ligase
 - b. Topoisomerase
 - c. Telomerase
 - d. helicase
3. In eukaryotes the RNA polymerase required for the transcription of t-RNA is
 - a. I
 - b. II
 - c. III
 - d. Sigma factor
4. During translation, translocation of ribosomes is done by
 - a. EFTS
 - b. EFTU
 - c. EFG
 - d. Chain terminator codons occur
5. Sigma factor is a component of
 - a. DNA ligase
 - b. RNA polymerase
 - c. DNA Polymerase
 - d. Reverse transcriptase
6. A promoter on DNA
 - a. Initiates transcription
 - b. Regulates termination
 - c. Codes for RNA
 - d. Transcribes repressor
7. Thymine dimers are often corrected by light induced repair mechanism. The enzyme involved in the process is
 - a. Photolyase
 - b. Photoligase
 - c. Endonuclease
 - d. Exonuclease
8. Which of the following DNA polymerase is involved in replication of mitochondrial DNA.
 - a. DNA polymerase alpha
 - b. DNA polymerase beta
 - c. DNA polymerase gamma
 - d. DNA polymerase delta
9. Which of the following enzymes are used to join DNA fragments.
 - a. DNA ligase
 - b. DNA polymerase
 - c. Telomerase
 - d. Endonuclease
10. DNA template for RNA synthesis has the following order of bases AGCTTCGA. What will be the order of bases in mRNA
 - a. TCGAAGCT
 - b. UGCUAGCT
 - c. TCGAUCGU
 - d. UCGAAGCU
11. What would be the effect on the PCR reaction if any of the following circumstances arose:
1) there are no primers in the reaction, 2) there are no dNTPs in the reaction, 3) there is no Taq polymerase in the reaction?
 - a. PCR would proceed normally
 - b. Non-specific PCR of random templates will occur
 - c. The reaction will cease after a few cycles
 - d. The PCR reaction will not commence

P.T.O.



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MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2: Give short answers of following questions.

2x10=20

- i) What is linker DNA in chromatin
- ii) Define Heterochromatic DNA.
- iii) Describe the function of restriction endonuclease.
- iv) State the Wobble effect of genetic code.
- v) Describe general and specific transcription factor
- vi) What are Monoclonal antibodies?
- vii) Define Gene therapy.
- viii) Define a Transgenic animals.
- ix) Describe the charging of tRNA.
- x) Enlist posttranscriptional modification of mRNA.

Q-3 Give brief answers of the following questions

(3 x 10 = 30)

- a. What is a polycistronic mRNA. Explain the process of Trp operon regulation in prokaryotes.
- b. Give a comprehensive account of process of translation.
- c. Describe the structure of nuclear envelop with reference to the nuclear pore complex. How the movement of material occur across the nuclear envelop.