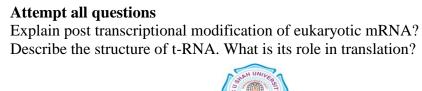
| | Enrollm | ent No: | | Exam Seat No: | | | |
|------|--------------------------------|--|----------------------------------|--|------------|--|--|
| | | | C.U.SHAI | H UNIVERSITY | | | |
| | Summer Examination-2018 | | | | | | |
| | Subject 1 | Name: Mol | ecular Biology | | | | |
| | Subject Code: 4SC02MOB1 | | | Branch: B.Sc (All) | | | |
| | Semester | r: 2 | Date: 04/05/2018 | Time: 10:30 To 01:30 Marks: 70 | | | |
| | (2) I (3) I | Use of Prog Instructions Oraw neat d | written on main answ | & any other electronic instrument is prohibited. wer book are strictly to be obeyed. (if necessary) at right places. | | | |
| Q-1 | | Attempt 1 | the following question | ons: | (14) | | |
| | a) | What is th | ne role of sigma factor | r in transcription? | | | |
| | b) | Define ge | | | | | |
| | c) | | gin of replication | | | | |
| | d) | | - | synthesis of DNA from RNA. | | | |
| | e) | | ATA box? ne role DNA topoison | naraga? | | | |
| | f) g) | Define Pro | - | nerase: | | | |
| | h) | | ne role of rRNA in tra | nslation | | | |
| | i) | | | prokaryotic ribosome | | | |
| | j) | | three major requireme | <u>-</u> | | | |
| | k) | Define Tr | anscription factors | • | | | |
| | l) | Name the | four different nucleo | otides | | | |
| | m) | | three Termination co | odons in Translation | | | |
| | n) | | kazaki fragments | | | | |
| Atte | mpt any i | four questi | ons from Q-2 to Q-8 | j | | | |
| Q-2 | | Attomnt | all questions | | (14) | | |
| Q-2 | a) | _ | _ | somes in bacterial and eukaryotic cells. Draw a | (7) | | |
| | u) | | ve chart for it. | bollies in outcertar and cakaryotte cens. Braw a | (1) | | |
| | b) | | ne enzymology of DN | JA replication? | (4) | | |
| | c) | | | represents part of the transcribing strand of DNA | (3) | | |
| | | i) Gi ii) Gi | | d base sequence of the complementary strand. and base sequence of the RNA that is synthesized | | | |



Q-3

(14) (7)

(4)

| | c) | What is the significance of the T _m (melting temperature) of DNA? | (3) | | |
|-----|-----------------------|---|-------------|--|--|
| Q-4 | a) | Attempt all questions Distinguish between: i) Operator and Promoter | (14) (7) | | |
| | 1. | ii) Leading strand and Lagging strandiii) Intron and Exon | (4) | | |
| | b) c) | Briefly explain different steps in prokaryotic and eukaryotic transcription? Give three structural features of the B-form of the DNA double helix | (4) (3) | | |
| Q-5 | | Attempt all questions | | | |
| | a) | What does it mean that replication is semi-conservative? Explain. | (7) | | |
| | b) | A certain mRNA codon is determined to be AUG. | (4) | | |
| | | i) What is the anticodon in the tRNA? | | | |
| | | ii) What sequence of DNA is responsible for the mRNA codon? | | | |
| | -) | iii) AUG codon codes for which amino acid? | (2) | | |
| | c) | What is meant by repression and derepression of gene expression? Give examples in support of your answer | (3) | | |
| Q-6 | | Attempt all questions | (14) | | |
| | a) | Describe the series of events that occur in a bacterial cell following the addition of lactose | (7) | | |
| | b) | What is mRNA splicing? Explain its mechanism in detail with the help of a diagram | (4) | | |
| | c) | Compare and contrast the structure of B-DNA with that of Z-DNA. | (3) | | |
| Q-7 | | Attempt all questions | (14) | | |
| | a) | Write a note on Organelle DNA | (7) | | |
| | b) | Briefly describe initiation and termination of protein synthesis in prokarotes | (4) | | |
| | c) | What is RNA interference? Explain its role in gene expression. | (3) | | |
| Q-8 | | Attempt all questions | (14) | | |
| | a) | Give a brief account of mechanism of action of Telomerase and explain the importance of telomerase in human biology | (7) | | |
| | b) | Outline the causes of DNA damage and give a brief account of DNA repair system. | (4) | | |
| | c) | What is genetic code? Discuss the characteristics of genetic code | (3) | | |

