

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION-2022

B. Tech.-III Semester (BT)

COURSE CODE (CREDITS): 18B11BI311 (3)

MAX. MARKS: 35

COURSE NAME: CELL AND MOLECULAR BIOLOGY

COURSE INSTRUCTORS: DR. JATA SHANKAR

MAX. TIME: 2 Hours

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*Note: All questions are compulsory. Marks are indicated against each question in square brackets.*

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Q1. What are major differences between active and passive transport in prokaryotic or eukaryotic cells? [3 Marks] CO I

Q2. What is purpose of charged and uncharged of tRNA, describe the process? [3 Marks] CO III

Q3. Proteins are sorted out in the eukaryotic cells, what are different methods for protein trafficking? [3 Marks] CO II

Q4. Write the genome size and estimated number of genes in *E. coli* and human genome? [3 Marks] CO I & III

Q5. Define DNA replication process? What are critical enzymes and steps are involved in DNA replication process? [3 Marks] CO I

Q6. If DNA polymerase incorporates 1 base incorrectly out of millions, how many incorrect bases will be incorporated in Human after complete cell cycle, considering proof reading has failed? [3 Marks] CO III

Q7. If speed of RNA polymerase is 40 bases per sec, how much time it will take transcribe to a 1kb gene, considering 100b intron in it? [3 Marks] CO III

Q8. Describe the process of translation, different steps involved in the protein synthesis process? [4 Marks] CO III

Q9. Write on following; [10 Marks- each carry 2.5 marks] CO I, II & III

- a. RNA polymerase
- b. SNP vs Point mutation
- c. Oncogene
- d. Draw the structure of Maltose and one acidic amino acid