

**B**

**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, ALLAHABAD**

**1<sup>st</sup> Quiz for Engineering Biology (Date: 07/02/2024)**

**B. Tech. IT-VI Sem.**

**Duration: 50 min**

**Max Marks: 30**

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**Answer all the questions. Each question carries 2 marks**

(1) Write the nucleotide sequence of the Start and Stop codons. (2) What are the differences between Simple diffusion and Facilitated diffusion? (3) What is the function of A and P site of ribosome in protein synthesis/translation process? (4) What is the Semi-conservative model of DNA replication? (5) What is the function of Topoisomerase and DNA polymerase III enzyme in DNA replication? (6) Draw the diagram of cell-membrane with proper labeling. (7) What are the building blocks of DNA and protein? (8) Why the DNA synthesis in lagging strand of DNA double helix is not continuous? (9) Why the polarity of a DNA molecule is conventionally denoted by 5' to 3'? (10) What is the Central dogma of Molecular Biology? (11) How does the 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> carbon of the sugar molecule involved in making a DNA structure? (12) How does 5' UTR and 3' UTR region of a gene help in its expression (protein synthesis)? (13) The nucleotide sequence of the sense strand of a DNA molecule is 5' ATGCATACTTAA 3'. Write the nucleotide sequence of the corresponding antisense strand and the encoded mRNA molecule. (14) In which perspective, active transport differs from passive transport? (15) Why the genetic codon is considered as redundant but non-ambiguous?