

Assignment (BS-MLT 4th)

Course Title: Molecular Biology

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Q1: Fill in the Blanks.

- 1) James Watson and Francis crick discovered the double helical structure of the DNA molecule.
- 2) Watson and Crick were awarded Nobel Prize in 1962.
- 3) Deoxyribonucleic acids store, transmit, and help express hereditary information.
- 4) The amino acid sequence of a polypeptide is programmed by a unit of inheritance called a gene.
- 5) Hundreds of Y-shaped regions of replicating DNA molecules where new strands are growing called Okazaki fragments.
- 6) Topoisomerase are enzyme which relieves stress on the DNA molecule by allowing free rotation around a single strand.
- 7) Genetic code is a dictionary that corresponds with sequence of nucleotides and sequence of amino acids.
- 8) Amino acylation is the process of covalently attaching an amino acid to the tRNA.
- 9) Deoxyribonucleic acids helicase are proteins which attach and help keep the separated strands apart.

Q2: Write short notes on the following

- 1) Common tools of molecular biology
- 2) Nucleic acids
- 3) Chargaff's rule
- 4) Wobble hypothesis
- 5) Names of main steps in Translation and Transcription

Q3: Explain the process of DNA Replication.

Q2) WRITE SHORT NOTES ON THE FOLLOWING:

ANSWER...

1) COMMON TOOL'S OF MOLECULAR BIOLOGY.

- Nucleic acid fractionation.
- Polymerase chain reaction.
- Molecular cloning, vector.
- DNA sequences.
- Microarray.
- Hybridization; probes
- Detection of genes.

DNA, southern blotting: in situ hybridization fish techniques.

RNA, Northern blotting, protein: western blotting immunohistochemistry.

Electrophoretic separation of nucleic acid.

2) NUCLEIC ACIDS,

Nucleic acids discover by Friedrich miesher in 1869, where name is Nucleon, Hertwing 1884, the Nucleon to be carrier of hereditary traits, Nucleonic acid ---nucleic acids. Nucleic acids store transmissions, hand express hereditary information, the amino acids sequences of the polypeptide programmed by unite of an inheritance called gene,

TYPES;

- Deoxyribonucleic acids called (DNA).
- Ribonucleic acids called (RNA).
- Nucleic acid are polymerase monomerase.....nucleotide.

3) CHARGAFF'S RULE;

Chargaff rules start that the DNA belonging of the cell of any living organism most have a 1 by 1 ratio and that the in particular the amount of guanine should be equally to that the cytosine, and the amount of adenine should be, equivalent to thymine. The pattern is found in both sides of the DNA. They discovered in the late 1940s by awtrian born chemist Irwin Chargaff, 1 and 2.

4) WOBBLE HYPOTHESIS;

Crick 1966 proposed wobble hypothesis 61 different TRNA could theoretically exist, one for each codon that specifies an amino acids and only 49 different gene that TRNA, encoded that TRNA , this is because that the some type of TRNA. Can detect a synonym for codon, with the only different being whether the vulture (third) position is u or c , phenylalanine synonyms ending in a or g used different tRNA.

5) NAME OF MAIN STEPS IN TRANSLATION AND TRANSCRIPTION;

A) TRANSCRIPTION,

Transcription process by which genetic information encoded in DNA is copied into messenger RNA occur in the nucleus, Deoxyribonucleic acids and messenger Ribonucleic acids.

STEPS:

1) INITIATION;

In the nucleus RNA recognize the polymerase identification points then divide the DNA into single strand so that template strand can be read in 3 to 5 direction.

2) ELONGATION;

Pre messenger RNA nucleotides are pairing with their complementary figures that are compatible with the DNA template is anti-moving in the direction of ties, instead of used of the uren as an additional admission of dean.

3) TERMINATION;

The RNA reaches the polymerase termination, it required DNA and release, the two DNA come back to gather and come to improve double helix. Newly prepared prime RNA molecules has been released.

B) TRANSLOCATION;

In translocation is decoded the ribosomes decoded center to produce a specific chain polypeptide or amino acids.

STEPS;

1) INITIATION;

The ribosome assemble around the target MRNA the first TRNA is attached it the start codon.

2) ELONGATION;

The ribonucleic acids to the ribonucleic acids corresponding to the next codon, move then the ribosome to the next messenger ribonucleic acids codon to continue the process, to amino acids chain will be created it.

3) TERMINATION;

Encounters a stop codon, the ribosome folds the DNA polypeptide into its final structure.

Q3) EXPLAIN THE PROCESS OF DNA REPLICATION;

ANSWER...

DNA REPLICATION

DNA replication in molecular biology is the DNA movement is a biological process of creating DNA two like replicas from of DNA molecules, DNA movement is a located in all living organism which is the Base of biological inheritance cell division is a special property which is duplicated DNA. DNA is a made up of double helix of two complementary pathways. During transcription these wires become detached, each stand of the counterpart, the process being send a supplementary replace. In result the semi conservative replace the new helix will consist of an original DNA stand as a newly synthesized stand ,cedar proof reading and error -checking procedures ensure perfect integrity of DNA replication. In the cell DNA is coping starts in a specific genes and start the replicate In the new edges are dwars DNA synthesis and help of the provisions of many protein with the proteins are coping, the important things is the DNA is a new standing of the polymerase to add nucleotides and complete the strand of DNA is duplicated during the stage of the interface DNA movement (DNA promotion) vitro artificial can be performed demo DNA palm's and artificial DNA premises can be used to start the DNA synthesis on a set of DNA molecules on a loading settings, polymerase chain reaction, also called PCR. Legs chain reaction, also known as LCR. And immediate impressions TMA example it.

THE END.
