

MOLECULAR BIOLOGY

CC-11

UNIT-I

DNA replication, Repair & Transcription

Fill in the blanks

1 marks

1. Nucleic acid was 1st discovered by _____.
2. Nucleic acid was discovered in _____.
3. Monomeric units of nucleic acid is _____.
4. Phosphate esters of nucleosides is _____.
5. 6-aminopurine is _____.
6. Other name of guanine is _____.
7. Other name of cytosine is _____.
8. Other name of thymine is _____.
9. Other name of uracil is _____.
10. The configuration of all sugars in nucleic acids is _____.

Answer the followings.

1.5/2.5 marks

1. Define replication?
2. What is B DNA?
3. What is Z DNA?
4. Write 4 differences in prokaryotic and eukaryotic replication.
5. What is RNA?
6. Write a note on circular DNA.
7. What is DNA repair?
8. What is a primer?
9. Why RNA was replaced with DNA?
10. Write a note on DNA denaturation.

Long answer questions.

6 marks

1. Describe the process of DNA replication in prokaryotes.
2. Describe the experiment that shows the semiconservative mode of DNA replication
3. What is DNA repair? Describe the pyrimidine dimerization and mismatch repair.

UNIT-II

Transcription and Translation

Fill in the blanks

1 marks

1. Transcription is carried out by _____ enzyme.
2. Initiation codon is _____.
3. tRNA transcription needs _____ polymerase.
4. mRNA is transcribed by _____ polymerase.
5. The direction of RNA synthesis is _____.
6. The direction of polypeptide chain synthesis is _____.

7. Translation occurs at _____ of cell.
8. _____ RNA is the template for transcription.
9. _____ RNA brings the amino acids to the site of translation.
10. The termination codons are _____.
11. Sequence of _____ RNA is important for determining the phylogeny of prokaryotes.

Answer the followings.

1.5/2.5 marks

1. Write a note on stop codons.
2. What is degeneracy of codons?
3. Write the structure of ribosome.
4. What is charging of tRNA?
5. Aminoacyl tRNA synthetase.
6. Write the steps of translation
7. What is central dogma of life?
8. Write Wobble's hypothesis.
9. Differentiate prokaryotic and eukaryotic initiation.
10. What is genetic code?

Long answer questions.

6 marks

1. What is transcription? Describe the method of transcription in prokaryotes.
2. What is genetic code? Write its characters.
3. Write the charging process of tRNA.
4. Differentiate prokaryotic and eukaryotic translation

UNIT-III

Post Transcriptional modifications and Processing of Eukaryotic RNA

Fill in the blanks

1 marks

1. Globin is a part of _____.
2. Introns are _____.
3. Exons are _____.
4. Cutting and joining of exons is _____.
5. Haemoglobin contains _____ number of globin proteins.

Answer the followings.

1.5/2.5 marks

1. What is a globin protein?
2. Write the structure of mRNA of globin gene.
3. What are exons?
4. What is split gene?
5. Define splicing with example.
6. What is alternative splicing?
7. What is exon shuffling?
8. What is RNA processing?

Long answer questions.

6 marks

1. Write the structure of globin mRNA.
2. What is splicing? Describe alternative splicing.
3. Write the processing of tRNA.

UNIT-IV

Gene regulation & Regulatory RNAs

Fill in the blanks

1 marks

1. Lac Y codes for _____.
2. Lac Z codes for _____.
3. Lac operon is a _____ kind of operon.
4. Full name of miRNA is _____.
5. Role of guide RNA is _____.
6. Role of operator is _____.
7. Role of promotor is _____.
8. Trp is a _____ kind of operon.

Answer the followings.

1.5/2.5 marks

1. What is an operon?
2. What is lac operon?
3. What is trp operon?
4. What are enhancers and activators?
5. What are repressors and silencers?
6. What is gene silencing?
7. What is the role of miRNA?

Long answer questions.

6 marks

1. What is an operon? Describe lac operon.
2. Describe trp operon.
3. How transcription is regulated in eukaryotes?
4. Describe the process of gene silencing.