

## Biology - 12th Class Biology Chapter 20 Short Questions Preparation

Q1. Define phenylketonuria. OR What is phenylketonuria?

**Ans 1:** In phenylketonuria, phenylalanine is not degraded because of defective enzyme phenylalanine hydroxylase. Phenylalanine consequently accumulates in the cells leading to mental retardation, as the brain cells fail to develop in infancy. This disorder is due to point mutation.

Q2. Define central Dogma.

**Ans 1:** Central Dogma means all the organisms use the same basic mechanism of gene expression which is referred to as Central Dogma.

**Ans 2:** Central Dogma consists of two steps  
a) Transcription: synthesis of mRNA from DNA  
b) Translation: Synthesis of protein from mRNA.

Q3. Differentiate between sense and anti sense strands of DNA.

**Ans 1: Sense strand;** The strand of DNA which is opposite to the antisense strand and is not transcribed is known as sense strand or coding strand.

**Ans 2: Anti-sense strand:** Only one of the two strands of DNA are transcribed. This strand is called template strand or the antisense strand

Q4. Differentiate between conservative and dispersive replication of DNA.

**Ans 1: Conservative Replication:** Conservative replication stated that the parental strands would remain intact and generate DNA copies consisting of entirely new molecules.

**Ans 2: Dispersive Replication:** Dispersive model states that parental DNA would become completely dispersed and that each strand of all the daughter molecules would become mixture of old and new DNA.

Q5. What is meant by promoter?

**Ans 1:** A specific nucleotide sequence to which RNA polymerase attaches and initiate transcription of mRNA from a gene.

Q6. Compare telocentric and acrocentric chromosomes.

**Ans 1: Telocentric Chromosomes:** Telocentric has centromere at one end and chromatid part is present at other end.

**Ans 2: Acrocentric Chromosomes:** Acrocentric has two unequal arms one is short and other is long.

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Q7. What is phosphodiester bond? How it is formed?

**Ans 1:** The reaction between phosphate group of one nucleotide and hydroxyl group of another is a dehydration synthesis, eliminating a water molecule and forming a covalent bond between two groups. This linkage is called a phosphodiester bond.

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Q8. What is tRNA? Give its role.

**Ans 1:** tRNA is a type of RNA which is 70 to 90 nucleotides in length. It transfers amino acids during the protein synthesis to the place where protein is synthesized in the cell.

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Q9. Define Mutation.

**Ans 1:** The sudden change in DNA or gene is called mutation.

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Q10. What is the difference between R, and S, type of bacteria?

**Ans 1: R Form:** The mutant form of streptococcus pneumoniae bacteria, which lacks an enzyme needed to manufacture the polysaccharide coat is called the R form because it forms R colonies. On growth medium.

**Ans 2: S Form:** The normal pathogenic form of streptococcus pneumoniae bacteria is referred as the S form because it forms smooth colonies on a culture dish.

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