

Chapter – 5 | Molecular Basis of Inheritance**QUIZ
PART-01**

1. Who discovered genetic material (nuclein) in 1869?
- A. Frederick Griffith
B. Friedrich Miescher
C. Alfred Hershey
D. Oswald Avery (B)

Explanation : Friedrich Miescher discovered nuclein (DNA) from the nucleus in 1869.

2. Frederick Griffith performed the transformation experiment in 1928 using:
- A. Escherichia coli
B. Tobacco mosaic virus
C. Streptococcus pneumonia
D. Bacteriophage (C)

Explanation : Griffith used Streptococcus pneumoniae to demonstrate bacterial transformation.

3. In Griffith's experiment, which strain of bacteria had a polysaccharide coat?
- A. R-strain
B. S-strain
C. Mutant strain
D. Heat-killed R-strain (B)

Explanation : The S-strain had a polysaccharide capsule and was virulent, causing death of mice.

4. Avery, MacLeod and McCarty concluded that the transforming principle was:
- A. Protein
B. RNA
C. DNA
D. Lipid (C)

Explanation : Their experiments showed that DNA was responsible for transformation.

5. Which enzyme prevented bacterial transformation in Avery's experiment?
- A. Protease
B. RNase
C. DNase
D. Lipase (C)

Explanation : DNase destroyed DNA and stopped transformation, proving DNA was the genetic material.

6. Hershey and Chase used which organism to prove DNA as genetic material?
- A. Bacteria
B. Bacteriophage
C. Yeast
D. Virus infecting plants (B)

Explanation : Hershey and Chase worked on bacteriophages that infect bacteria.

7. In Hershey and Chase experiment, radioactive phosphorus (P^{32}) was used to label:
- A. Protein capsule
B. Lipids
C. DNA
D. RNA (C)

Explanation : DNA contains phosphorus, so P^{32} was used to trace DNA entry into bacteria.

8. Which molecule is considered the first genetic material according to the RNA World hypothesis?
- A. DNA
B. Protein
C. RNA
D. Lipid (C)

Explanation : RNA is considered the first genetic material because it could act as both genetic material and catalyst.

9. Which property makes DNA more suitable than RNA for storing genetic information?
- A. Higher chemical reactivity
B. Less stability
C. Greater structural stability
D. Faster mutation rate (C)

Explanation : DNA is more stable chemically and structurally, making it better for long-term storage of genetic information.

10. A molecule acting as genetic material must have the ability to:
- A. Produce energy only
B. Replicate itself
C. Stop mutations completely
D. Destroy proteins (B)

Explanation : Replication is an essential property required for genetic material to pass information to the next generation.