

**Chapter 5**  
**Expression and Transmission of Genetic Information**

1. Which of the following are TRUE about homologous recombination?  
(A) Exchange of homologous segments  
(B) Exchange takes place between two homologous DNA molecules  
(C) It is also termed as general recombination  
(D) It involves a direct exchange of sequences of DNA
2. Role of sigma factor in transcription  
(A) Involves in initiation  
(B) Recognition of RNA polymerase  
(C) Involves in elongation  
(D) Helicase action
3. Mark the following, which are the transcription inhibitor in eukaryotes.  
(A) Rifampicin  
(B) Acridine dye  
(C) Actinomycin D  
(D) Rho factor
4. Choose the CORRECT statement about 5' cap.  
(1) Recognized by the transport protein  
(2) Provide stability to RNA  
(3) Participate in the translation initiation  
(4) Increase the life span of RNA
5. Which of the following bacterial operon are controlled by attenuation?  
(A) Arabinose  
(B) Tryptophan  
(C) Leucine  
(D) Histidine
6. Which out of the following are examples of an inducible operon?  
(A) Lactose operon  
(B) Galactose operon  
(C) Maltose operon  
(D) Tryptophan operon
7. Which of the following mutations are used to overcome problems associated with the mismatch repair system?  
(A) MutL  
(B) MutS  
(C) MutH  
(D) MutE
8. Which genes are absent in the E. coli strain CJ236?  
(A) dut-  
(B) Rec-  
(C) duB-  
(D) Ung-

9. Which of the following is the basic requirement of PCR reaction?  
(A) Two oligonucleotide primers  
(B) 90° temperature for primer extension  
(C) DNA segment to be amplified  
(D) A heat-stable DNA polymerase
10. Thermostable polymerase is (are)  
(A) DNA polymerase III  
(B) *Taq* polymerase  
(C) Vent polymerase  
(D) pfu polymerase

**Answer Key**

1. (A), (B), (C)  
2. (A), (B)  
3. (B), (C), (D)  
4. (A), (B), (C)  
5. (B), (C), (D)  
6. (A), (B), (C)  
7. (A), (B), (C)  
8. (A), (D)  
9. (A), (C), (D)  
10. (B), (C), (D)