

1. A lac I<sup>-</sup> mutation is  
 A. constitutive      B. repressible      C. trans-dominant      D. all of the above
2. In the presence of the inducer, what is the effect of a lac I<sup>S</sup> mutation (both genes) on a partial diploid E. coli cells?  
A. constitutive      B. inducible      C. activation       D. no protein synthesis
3. Operons that are ----- are only activated in the presence of a substrate.  
A. constitutive      B. repressible       C. inducible      D. operational
4. Eukaryotic genes are often  
A. found in operon      B. polycistronic       C. under coordinate control  
D. all of the above      E. none of the above
5. During galactose metabolism in yeast, the GAL4 protein binds to which specific type of DNA?  
A. upstream activator sequence      B. promoter      C. positive regulatory element  
 D. all of the above
6. Spontaneous mutations may occur as a result of  
A. errors in DNA replication      B. normal cell biochemistry  
C. transposition       D. all of the above
7. In an Ames test experiment, bacterial cells are spread on a minimal agar plate. A drop of chemical A, a suspected carcinogen is placed on the agar at the center of the plate. After incubation, colonies are observed growing on the plate. This indicates that  
 A. the chemical is poisonous to the cell      B. chemical A is not mutagenic  
 C. chemical A is mutagenic      D. the experiment is not correct
8. In E. coli which genes play a key role in controlling the SOS response?  
A. lex A      B. rec A      C. mut B       D. both A and B      E. all of the above