

WORKSHEET_A

THE GENE EXPRESSION REGULATION PART 1

- 1) Which of the following represents the correct sequence of events in the central dogma of biology?**
 - a) Translation → Transcription → Replication
 - b) Replication → Transcription → Translation
 - c) Translation → Replication → Transcription
 - d) Replication → Translation → Transcription

- 2) During translation, the genetic information stored in mRNA is used to assemble what molecule?**
 - a) DNA
 - b) tRNA
 - c) rRNA
 - d) Proteins

- 3) Genes are subject to positive or negative regulation**
 - a) TRUE
 - b) FALSE

- 4) Which of the following best defines gene expression?**
 - a) The activation of specific genes in response to environmental stimuli.
 - b) The regulation of gene transcription and translation.
 - c) The replication of DNA molecules during cell division.
 - d) The mutation of genes leading to genetic disorders.

- 5) The lac repressor is inactivated by binding to which of the following**
 - a) Lactose
 - b) Beta Galactosidase
 - c) Transcription factors
 - d) Glucose
 - e) Allolactose

6) The mRNA is transcribed from the lac operon when lactose is present in the cell

- a) TRUE
- b) FALSE

7) The lac repressor protein is active in the absence of lactose within the cell

- a) TRUE
- b) FALSE

8) In the absence of tryptophan, the trp repressor is:

- a) active and can bind to the operator
- b) active and can bind to the operator
- c) inactive and cannot bind to the promoter
- d) inactive and can bind to the operator
- e) inactive and cannot bind to the operator

9) In the presence of tryptophan, tryptophan binds to the

- a) operator.
- b) Promoter
- c) RNA polymerase
- d) Trp genes
- e) Trp repressor

10) In the presence of tryptophan, transcription of the trp operon is on.

- a) TRUE
- b) FALSE

11) An operon is a group of genes that is under the control of a single operator site

- a) TRUE
- b) FALSE