

Write all of your answers in a separated answer sheet, not this question sheet.

1. Please define oncogene and tumor suppressor gene. Discuss how do mutations of these two kinds of genes lead to cancer formation? (20%)
2. Describe general principles of sequencing the amino acid sequence of a given polypeptide. (20%)
3. Match enzymes or reactions in column B with subcellular compartmentation in column A. There may be one or more than one items in B can be filled into any given compartmentation in A. (20%)

Column A	Column B
___ 1. Cytosol	a. enzymes of glycogen synthesis
___ 2. Plasma membrane	b. electron transport
___ 3. Lysosome	c. citric acid cycle
___ 4. Nucleus	d. ribosomal RNA synthesis
___ 5. Nucleolus	e. protein synthesis
___ 6. Golgi complex	f. steroid synthesis
___ 7. Microbodies	g. transfer RNA synthesis
___ 8. Ribosome	h. DNA replication
___ 9. Mitochondria	i. enzymes of hydrolysis
___ 10. Endoplasmic reticulum	j. fatty acid synthesis
	k. gluconeogenesis
	l. energy-dependent transport system
	m. site of amino acid oxidases and catalase

4. There are several events occurred in the formation of a mature mRNA. Start with a DNA molecule and describe the processes involve in formation of a mature mRNA. (20%)
5. Briefly describe how fatty acids, carbohydrates, and proteins are degraded. (20%)