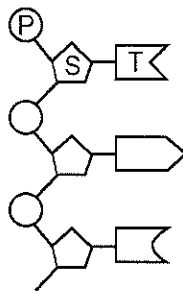
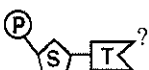


2nd Quarter Practice Test

1) The diagram below represents a portion of an organic molecule.



In the diagram above, what is represented by ?

- A) codon B) nucleotide C) simple sugar D) nucleic acid
- 2) A polymer commonly found in the nucleus of cells is
- A) ATP B) cellulose C) hemoglobin D) DNA
- 3) In the chart below, *X* indicates that a component is present within a substance.

Components	Substance 1	Substance 2
Compound A	X	
Compound B		X
Cytosine	X	X
Guanine	X	X
Thymine	X	
Adenine	X	X
Uracil		X
Phosphate	X	X

Substances 1 and 2 are most likely

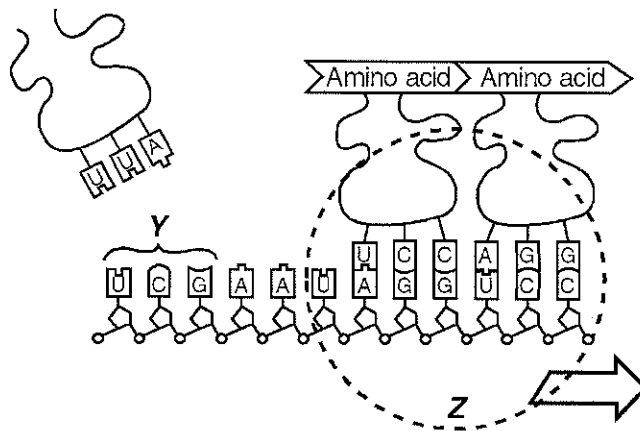
- A) DNA and ATP B) DNA and RNA C) ATP and ICF D) RNA and ATP
- 4) Which pair of molecules, when bonded together, would most likely be found in a nucleotide of DNA?
- A) deoxyribose and uracil C) deoxyribose and guanine
- B) ribose and adenine D) ribose and thymine
- 5) Which scientists developed the double helix model of the DNA molecule?
- A) Weismann and Miller C) Watson and Crick
- B) Darwin and Lamarck D) Hardy and Weinberg
- 6) What is the role of DNA in controlling cellular activity?
- A) DNA determines which enzymes are produced by a cell.
- B) DNA provides energy for all cell activities.
- C) DNA is used by cells for the excretion of nitrogenous wastes.
- D) DNA provides nucleotides for the construction of plasma membranes.
- 7) Which statement *best* describes messenger RNA?
- A) It is chemically more complex than DNA. C) It has one oxygen atom less than DNA.
- B) It is composed of a single strand of nucleotides. D) It transfers polypeptides to the nucleus.
- 8) Which chemical components may be parts of a molecule of transfer RNA?
- A) ribose, phosphate group, uracil base C) maltose, carboxyl group, uracil base
- B) glucose, amino group, thymine base D) deoxyribose, phosphate group, guanine base

9) Choose the type of nucleic acid molecule that is *best* described by the given phrase.

Are present in the nucleus of the cell

- A) Neither DNA nor RNA molecules
- B) RNA molecules, only
- C) Both DNA and RNA molecules
- D) DNA molecules, only

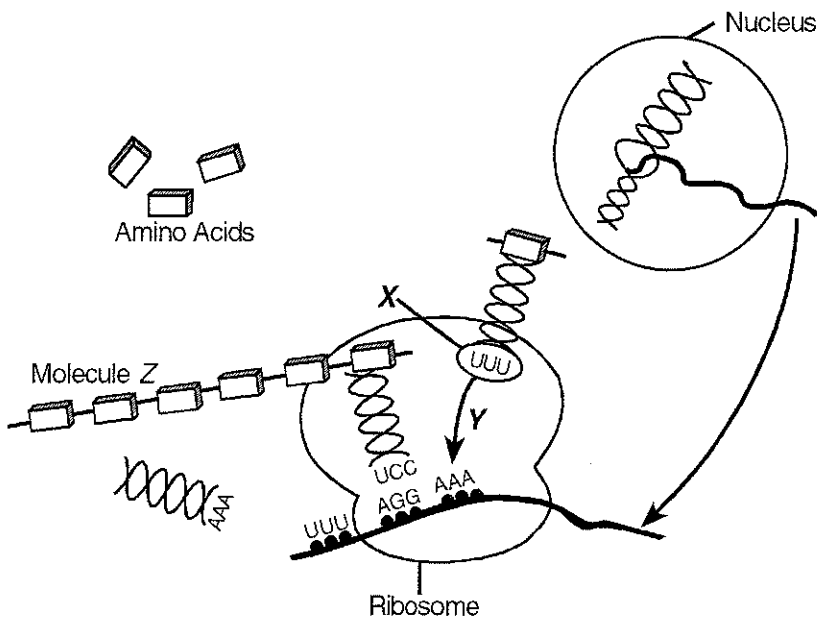
10) The diagram below represents a biochemical process that occurs in a cell.



The organelle labeled Z represents a

- A) mitochondrion
- B) Golgi body
- C) nucleus
- D) ribosome

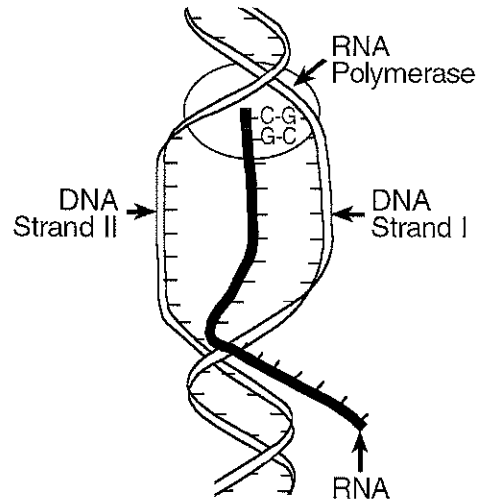
11) The diagram below represents the mechanism of protein formation.



The arrow labeled Y indicates the

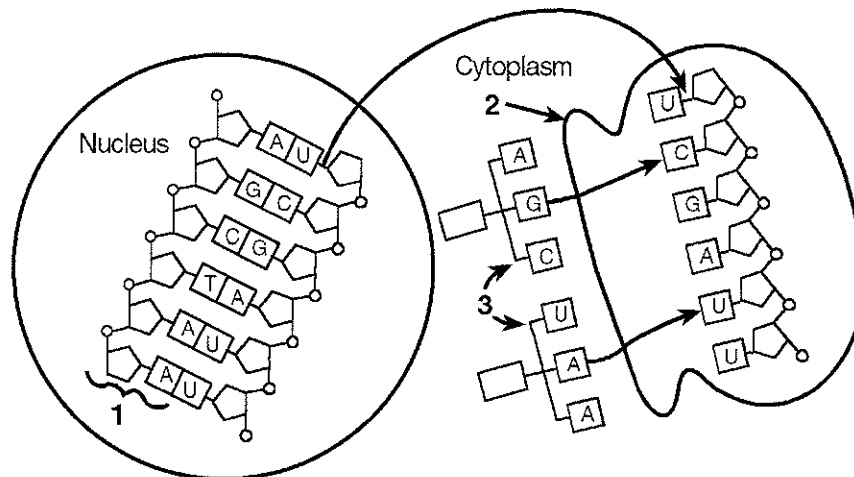
- A) random deletion of an amino acid during protein hydrolysis
- B) genetically controlled addition of an amino acid during protein synthesis
- C) random addition of an amino acid during protein synthesis
- D) genetically controlled deletion of an amino acid during protein hydrolysis

- 12) The diagram below represents a step in protein synthesis.



The molecule labeled "RNA polymerase" is classified as

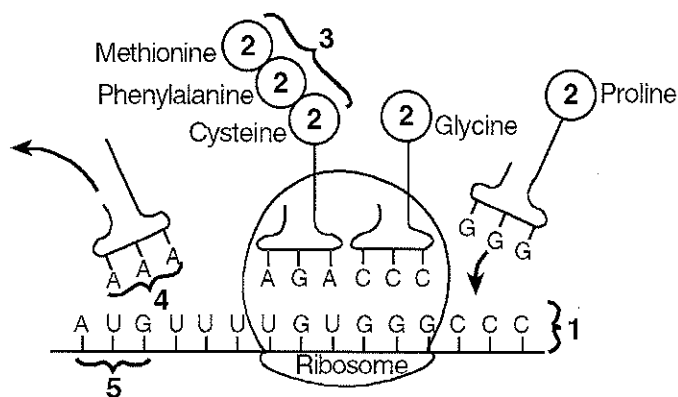
- A) a carbohydrate B) a neurotransmitter C) a lipid D) an enzyme
- 13) The diagram below represents some steps in a metabolic process.



The structure indicated by number 1 most likely represents

- A) part of a transfer-RNA molecule C) an amino acid molecule
 B) a messenger-RNA molecule D) part of a DNA molecule

14)



The molecules indicated by number 2 are

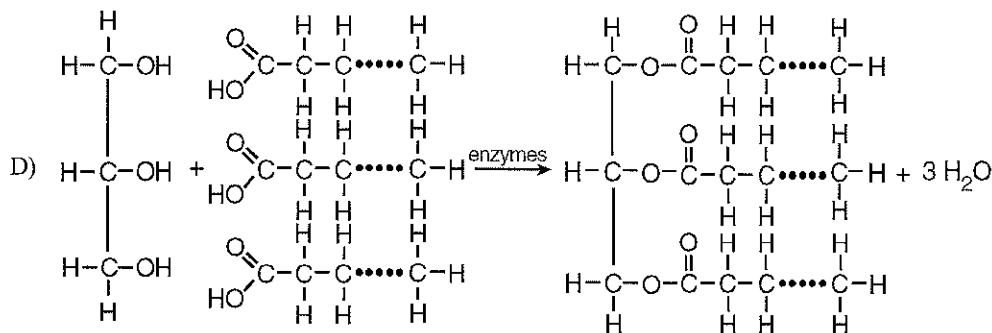
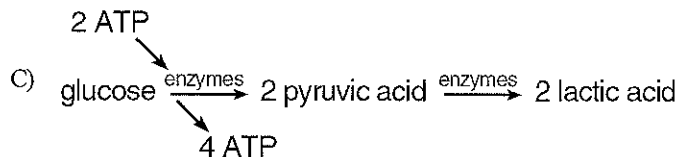
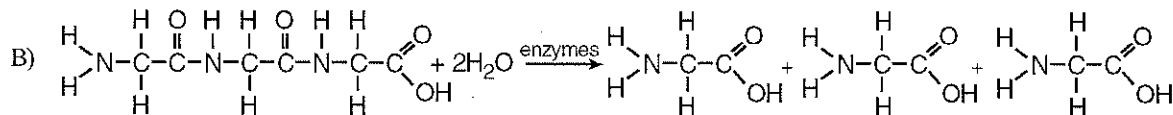
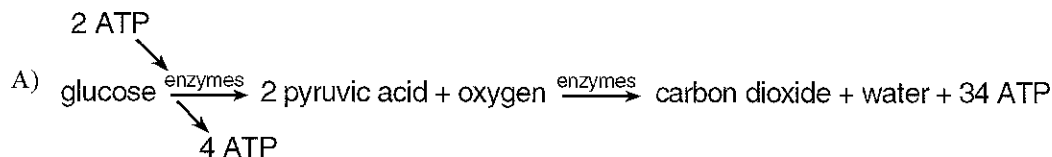
- A) monosaccharides B) glycerol C) amino acids D) fatty acids
- 15) An increase in the amount of cosmic radiation striking the Earth is likely to cause an increase in the rate of
 A) mutation B) synapsis C) hybridization D) disjunction
- 16) The mutation rates in *Drosophila* will most likely increase after exposure to
 A) ultraviolet radiation C) yeast growing on a nutrient medium
 B) extremely cold temperatures D) oxygen gas
- 17) A gene mutation may be transmitted to offspring if the mutation occurs within
 A) muscle cells B) an egg cell C) blood cells D) cells of the uterus

Questions 18 and 19 refer to the following:

For the given phrase, select the biological process that is most closely related to the phrase.

- 18) results in a net gain of 36 ATP molecules and gives off CO_2 and H_2O
 A) fermentation C) carbon fixation
 B) photochemical reactions D) aerobic respiration
- 19) requires O_2
 A) fermentation C) aerobic respiration
 B) photochemical reactions D) carbon fixation
- 20) Which three substances must be present in mitochondria for the process of aerobic respiration to take place?
 A) oxygen, enzymes, and organic molecules C) oxygen, enzymes, and chlorophyll
 B) food molecules, enzymes, and carbon dioxide D) chlorophyll, enzymes, and carbon dioxide

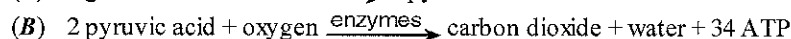
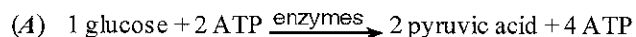
21) Which reaction represents the process of aerobic respiration?



22) In plant cells, which organelle is most closely associated with aerobic respiration?

- A) nucleolus B) chloroplast C) lysosome D) mitochondrion

23) According to the summary equations below, what is the net gain of ATP molecules from the complete oxidation of one glucose molecule?



- A) 34 B) 36 C) 40 D) 38

24) Photosynthesis transforms molecules of water and carbon dioxide into molecules of

- A) carbohydrate and nitrogen C) polypeptide and oxygen
B) polypeptide and nitrogen D) carbohydrate and oxygen

25) Green plants usually do *not* excrete large amounts of CO_2 because they use CO_2 in the process of

- A) anaerobic respiration C) photosynthesis
B) hydrolysis D) transpiration

26) Which summary word equation *best* describes a process that directly requires light energy?

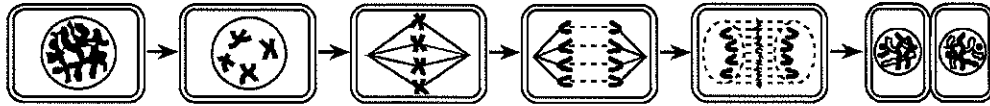
- A) $\text{glucose} \longrightarrow \text{alcohol} + \text{carbon dioxide} + \text{ATP}$
B) $\text{glucose} + \text{oxygen} \longrightarrow \text{carbon dioxide} + \text{water} + \text{ATP}$
C) $\text{water} + \text{carbon dioxide} \longrightarrow \text{glucose} + \text{oxygen} + \text{water}$
D) $\text{glucose} + \text{glucose} \longrightarrow \text{maltose} + \text{water}$

27) For the following statement, select the reaction of photosynthesis that is most closely associated with the given statement.

Chlorophyll pigments absorb light energy.

- A) neither the photochemical nor the carbon-fixation reactions
B) carbon-fixation reactions, only
C) both the photochemical and the carbon-fixation reactions
D) photochemical reactions, only

28) Which process is represented by the series of diagrams below?

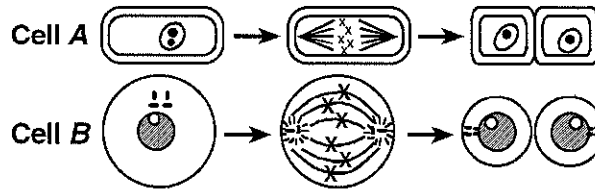


- A) meiotic cell division
- B) gametogenesis
- C) mitotic cell division
- D) fertilization

29) Which diagram *best* represents mitotic cell division?

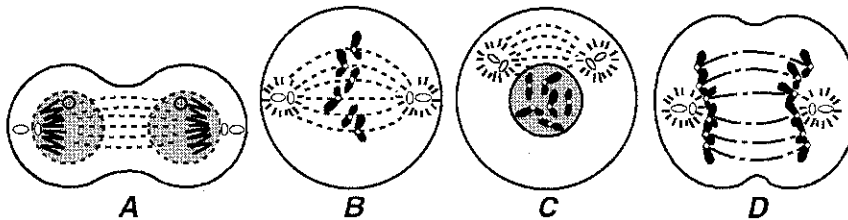


30) The diagram below shows two different cells undergoing mitotic cell division.



Which statement *best* describes these cells?

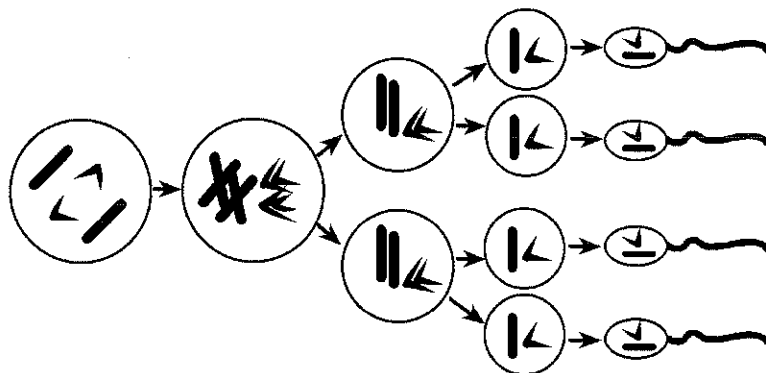
- A) *A* and *B* are different types of plant cells.
 - B) *A* is a plant cell and *B* is an animal cell.
 - C) *A* and *B* are different types of animal cells.
 - D) *A* is an animal cell and *B* is a plant cell.
- 31) Each root cell of a giant redwood tree contains 22 chromosomes. Two new cells that each contain 11 pairs of chromosomes are produced when one of these cells undergoes cell division involving the process of
- A) meiosis
 - B) synapsis
 - C) oogenesis
 - D) mitosis
- 32) The diagrams below represent states of a cellular process.



Which is the correct sequence of these stages?

- A) C → B → D → A
- B) A → B → C → D
- C) B → D → C → A
- D) D → B → A → C

33) Which process is represented in the diagram below?



- A) meiosis B) budding C) fertilization D) mitosis
- 34) Which statement *best* describes chromosomes that contain genes for the same characteristics?
- A) They are linked. C) They are present in a normal gamete.
- B) They are homologous. D) They occur in the same monoploid cell.
- 35) After one primary sex cell in a human testis undergoes meiosis, the usual result is
- A) four monoploid cells C) one diploid cell
- B) four diploid cells D) one monoploid cell

2nd Q Practice Test

Key

Answer Key 1346 - 1 - Page 1

- 1) B 2) D 3) B 4) C 5) C
- 6) A 7) B 8) A 9) C 10) D
- 11) B 12) D 13) D 14) C 15) A
- 16) A 17) B 18) D 19) C 20) A
- 21) A 22) D 23) B 24) D 25) C
- 26) C 27) D 28) C 29) A 30) B
- 31) D 32) A 33) A 34) B 35) A