1.

_____ is a glucose storage polymer in plants.

A) Starch
B) Fatty acids
C) Cellulose
D) Glycogen
E) No answer

Answer: A)

2.

The lipids that make up the main structural component of cell membranes are _____.

A) triacylglycerols
B) phospholipids
C) cholesterol
D) carbohydrates
E) No answer

Answer: B)

3.

When proteins are denatured by pH, salt concentration, and temperature, why do they lose their functionality?

A) Different amino acids are substituted into the sequence, so the protein's properties change.
B) Denaturation destroys the primary structure of the protein, and the protein breaks down to monomers.
C) Denaturation breaks the intramolecular bonds, such as hydrogen bonds and van der Waals interactions, that hold the protein in its three-dimensional shape.
D) All of the above.
E) No answer

Answer: C)

4.

The α-helix and β-sheet represent which level of protein structure?

A) Primary structure
B) Secondary structure
C) Tertiary structure
D) Quaternary structure
E) No answer

Answer: B)

5.

Which one of the following is most likely to passively diffuse across the plasma membrane?

A) Sodium ion
B) Hemoglobin
C) Carbon dioxide
D) Glucose
E) No answer

Answer: C)

6.

Which of the following categories best describes the function of the rough endoplasmic reticulum?

A) Information storage
B) Energy processing
C) Breakdown of complex foods
D) Manufacturing
E) No answer

Answer: D)

7.

Most of the ATP associated with cellular respiration comes from which of the following processes?

A) Oxidative phosphorylation
B) The citric acid cycle
C) Glycolysis
D) Fermentation
E) No answer

Answer: A)

8.

_____ is where the reactions of glycolysis occur in a eukaryotic cell.

A) The intermembrane space of the mitochondrion
B) The matrix of the mitochondrion
C) The cytosol
D) The inner membrane of the mitochondrion
E) No answer

Answer: C)

9.

The citric acid cycle takes place in _____ of eukaryotic cells.

A) The intermembrane space of the mitochondrion
B) The matrix of the mitochondrion
C) The cytosol
D) The inner membrane of the mitochondrion
E) No answer

Answer: B)

10.

In the aerobic cellular respiration, the energy given up by electrons as they move through the electron transport chain is used in _____.

A) the production of CO_2
B) the production of NADH and $FADH_2$
C) the oxidation of water
D) pumping H^+ across a membrane
E) No answer

Answer: D)

11.

During the aerobic cellular respiration, molecular oxygen (O_2) is used _____.

A) as a source of O_2 in every reaction that produces CO_2
B) at the end of the citric acid cycle to regenerate citric acid
C) between glycolysis and the citric acid cycle to split a carbon from pyruvate, producing CO_2
D) at the end of the electron transport chain to accept electrons and form H_2O
E) No answer

Answer: D)

12.

In photosynthesis, plants use carbon from _____(I)_____ to make ___(II)____, oxygen molecules (O_2) and other organic molecules.

A) (I) carbon dioxide, (II) water
B) (I) carbon dioxide, (II) sugar
C) (I) sugar, (II) carbon dioxide
D) (I) glucose, (II) sugar
E) No answer

Answer: B)

13.

Chlorophyll molecules are in _____ of the chloroplast.

A) Thylakoid lumen
B) Stroma
C) Thylakoid membranes
D) Stomata
E) No answer

Answer: C)

14.

The region of a chromosome where the two chromatids are attached to each other is called _____.

A) a microtubule
B) a chromatin
C) a centriole
D) a centromere
E) No answer

Answer: D)

15.

If a cell contains 80 chromatids at the start of mitosis, how many chromosomes will be found in each daughter cell at the completion of the cell cycle?

A) 160
B) 80
C) 40
D) 20
E) No answer

Answer: C)

16.

Gabri carefully measured the quantity of DNA in cricket cells growing in cell culture. Cells examined during the G2 phase of the cell cycle contained 100 units of DNA.
What would be the amount of DNA at G1 of the cell cycle in one of the cricket daughter cells?

A) 50 units
B) 100 units
C) 200 units
D) 250 units
E) No answer

Answer: A)

17.

In a certain plant, the alleles B, D, and F are completely dominant to the alleles b, d, and f.
A plant with the genotype BBDdff will have the same phenotype as a plant with the genotype _____.
(Let’s assume that this plant follows Mendel's principles of inheritance.)

A) AADDFf
B) BbDDff
C) Bbddff
D) bbddff
E) No answer

Answer: B)

18.

If two genes are said to be linked, _____.

A) they are on different chromosomes
B) they are on sex chromosomes
C) they are on the same chromosome
D) they code for the same protein
E) No answer

Answer: C)

19.

The table shows three anticodons (3’ □ 5’) for different amino acids.

amino acid	anticodon
alanine	CGU
histidine	GUA
serine	UCA

Which DNA triplet on the DNA template strand codes for the amino acid serine?

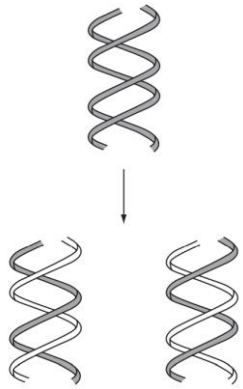
A) AGU
B) AGT
C) UCA
D) TCA
E) No answer

Answer: D)

20.

The diagram shows a process involving DNA.

What is the name of the process and the stage in the cell cycle at which it occurs?



A)	replication,	prophase
B)	transcription,	interphase
C)	replication,	interphase
D)	transcription,	prophase

E) No answer

Answer: C)
