

Directions: Choose the BEST answer from among those given.

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a) Beadle & Tatum b) Alfred Hershey & Martha Chase c) Rosy Franklin
d) Fred Sanger e) choose this answer if none of these is the best choice
- 2) The concept of trying to interpret the properties of a living organism by a detailed study of its constituent molecules and their individual properties is often referred to as a ?
a) vitalism b) natural selection c) reductionism d) micrographia
e) choose this answer if none of these is the best choice
- 3) The Cell Theory is attributed to :
a) Gregor Mendel b) Lenoir Michaelis & Maude Menten c) Frederick Meischer
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- 4) All organism are believed to have descended from a common ancestral cell through the process of evolution via natural selection? a) true b) false
- 5) Cells are able to become more complex and ordered because they are not bound by the second law of thermodynamics, i.e., entropy? a) true b) false
- 6) The human colon bacteria that has been so prolific as a model experimental cellular system and in providing information on the cell and its molecular biology ?
a) Arabidopsis thaliana b) Drosophila melanogaster c) Escherichia coli
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- 7) The limits of resolution, ability to distinguish between two dots in a prepared specimen, of the transmission electron microscope is around ?
a) 2 meters b) 2 micrometers c) 2 millimeters
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a) metabolize b) replicate c) communicate d) grow
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- 10) One of the key events in the origin of life was the evolution of the ability of molecules to catalyze reactions, autocatalytically, that lead to the production of molecules like themselves. Which of the following molecules most likely evolved this property?
a) proteins b) lipids c) RNA
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- 11) The functional group [-C=O] is a ? a) hydroxyl b) carboxyl c) carbonyl
 d) mercaptan e) choose this answer if none of these is the best choice
- 12) The difference between a nucleoside and a nucleotide is the presence of which of the following functional groups in the nucleotide?
 a) uracil b) b-D-2-deoxyribose c) phosphate
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- 16) A weak electrochemical attraction between an electronegative atom such as nitrogen or oxygen and a hydrogen atom bound to another electronegative atom is a(n)?
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- 18) The cleavage of a covalent bond with the accompanying addition of water (-H being added to one product of the cleavage and -OH being added to the other) is referred to as ?
 a) condensation b) hydrolysis c) functional group transfer d) redox
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- 19) Anabolic reactions are the biosynthetic biochemical reactions or pathways in which larger molecules are made from smaller?
 a) true b) false
- 20) A-kinase (cyclic-AMP-dependent protein kinase) is an enzyme that phosphorylates target proteins in response to a rise in intracellular cyclic-AMP. This enzyme belongs to which of the following major class of enzymes?
 a) 1.-oxidoreductases b) 2.-transferases c) 3.-hydrolases d) 4.-lyases
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- 21) The type of protein, often composed of multiple subunits, that exists in two or more conformations depending upon the binding of a specific ligand at a site other than the catalytic site is a(n) ?
 a) acyl-carrier protein b) redox protein c) allosteric protein d) denatured protein
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- 22) A common structural motif of proteins in which a linear sequence of amino acids folds into a right-handed elongated structure that twists in regular corkscrew fashion around a central axis, and is stabilized by internal hydrogen bonding between its backbone atoms is referred to as ?
 a) α barrel b) dimer c) beta sheet d) α -helix e) none of these is best
- 23) The free energy of a reaction is often best described as a numerical measure of how far a reaction is from equilibrium?
 a) true b) false
- 24) Entropy is a thermodynamic quantity that measures the degree of disorder of a system. The greater the entropy of a system the greater the degree of order or complexity exhibited by that system.
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- 25) The conversion of 2-phospho-glyceric acid to phospho-enol-pyruvate has a ΔG^0 of +0.4 Kcal/mol and the conversion of phospho-enol-pyruvate to pyruvate has a ΔG^0 of -7.4 Kcal/mol. The overall free energy change for the coupled reaction of 2 phospho-glyceric acid to pyruvate is ?
 a) -7.4 Kcal/mol b) -7.8 Kcal/mol c) +3.4 Kcal/mol d) -7.0 Kcal/mol
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- 26) The group of amino acids which contain only hydrocarbon-R-groups and are thus possess hydrophobic properties is(are) ?
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 a) 875 units/mg protein b) 1750 μ moles c) 24.5 units/mg protein
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 a) isoenzymes (isozymes) b) histones c) albumins
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- 33) The class of proteins that bind to other proteins and facilitate the native foldings of these other proteins into the energetically most favorable conformation are referred to as?
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- 34) The native conformation of most globular proteins is an interior pocket of hydrophilic amino acids held in place by their solubility with water and an exterior of hydrophobic, non-polar amino acids held in place by their interactions with the hydrogens bonds of fatty acids?
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- 35) The separation of subcell organelles or proteins by layering of samples over a 5% to 20% sucrose gradients and subsequent sedimentation in a centrifuge is referred to as ?
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- 40) Substrate level phosphorylation takes place ?
 a) in the cytoplasm b) in glycolysis c) in Krebs cycle
 d) in matrix of mitochondria e) choose this answer if all of these is a best choice

- 41) Which of the following stages of intermediary metabolism, in the breakdown of the sandwich you had for lunch today, will generate the most ATP?
- a) glycolysis
 - b) Krebs cycle
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 - d) pyruvate \rightarrow AcCoA
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- 42) In the oxidation of glucose, decarboxylation does NOT occur during which of the following stages ?
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- 43) For a single turn of acetyl-coA through the Krebs cycle which of the following molecules is produced?
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