

Quiz 1E for Tuesday 3-4

Your Name ___1E_____KEY KEY___ Section # __117-120_____

1. **Anfinsen's experiment with ribonuclease showed**
 - A. proteins can be denatured
 - B. metal ions are required for protein folding
 - C. the information for protein folding is contained in the primary sequence
 - D. the enzyme was always inactive
 - E. chaperones are required for the stabilization of tertiary structure

2. **The beta-sheet and the alpha-helix are stabilized by**
 - A. disulfide bonds
 - B. hydrophobic interactions
 - C. prosthetic group binding
 - D. side chain hydrogen bonds
 - E. peptide-linkage hydrogen bonds

3. **Phospholipids contain ___ and are commonly found in ____.**
 - A. a low molecular weight alcohol esterified to a phosphate group, the plasma membrane
 - B. nucleotides and nucleosides, the nucleus
 - C. hydrophobic amino acids, the cytoplasm
 - D. a covalently bound sugar molecule, the cytosol
 - E. a phosphate group attached to a fatty acid, ribosomes

4. **Cellulose and glycogen are similar because ____.**
 - A. they are both found in animal cells
 - B. they are both found in plant cells
 - C. they both form beta sheets
 - D. they both contain hexoses
 - E. they both contain pentoses

5. **A nucleotide**
 - A. always contains a phosphate group
 - B. always contains a pentose sugar
 - C. always contains a purine base
 - D. only A and B are correct
 - E. A, B, and C are all correct

6. **Which of the following most accurately describes the lysosome:**
 - A. An organelle that is a component of the endomembrane system
 - B. An organelle that has an acidic internal environment
 - C. An organelle that contains oxidative enzymes
 - D. only A and B are correct
 - E. A, B, and C are all correct

7. **Sugar groups are sometimes added to proteins ____.** These are important for ____.
 - A. in the cytosol of the cell, cytoskeleton formation
 - B. in the smooth ER, the biosynthesis of lipids
 - C. in the rough ER and the Golgi, targeting to specific cellular locations
 - D. in the plasma membrane, secretion
 - E. lysosome, hydrolytic digestion

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8. The fractionation of organelles is based primarily upon _____.
A. the fact that some cells do not have a nucleus
B. the fact that different organelles have different sizes
C. the hydrophobic and hydrophilic nature of cellular components
D. the soluble nature of many cellular enzymes
E. the fact that all cells are surrounded by a plasma membrane
9. The rough ER plays a role in ____ while the smooth ER is involved in _____.
A. the synthesis of cytosolic proteins, protein degradation
B. the synthesis of lipids, oxidative metabolism
C. the synthesis of mitochondrial proteins, the synthesis of peroxisomal proteins
D. the degradation of polysaccharides, the degradation of lipids
E. the synthesis of secreted proteins, the synthesis of hydrophobic molecules
10. Nerve cells contain 5 mM Na⁺ and outside these cells, the concentration of Na⁺ is 440mM. However, these cells transport Na⁺ out of the cell. This would be an example of ____ and requires _____.
A. active transport, an energy source
B. facilitated diffusion, protein channels
C. uniport transport, both Na⁺ and K⁺
D. passive transport, the Na⁺/K⁺ transporter
E. downhill transport, ATP
11. Peripheral proteins
A. require a detergent for isolation
B. are most likely bound to membranes through ionic interactions
C. are bound to the hydrophobic core of a membrane
D. are always modified with the addition of sugar molecules
E. are soluble in the cytosol of a cell

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12. (3 points) Describe the pathway of synthesis of a protein that is localized in the plasma membrane.

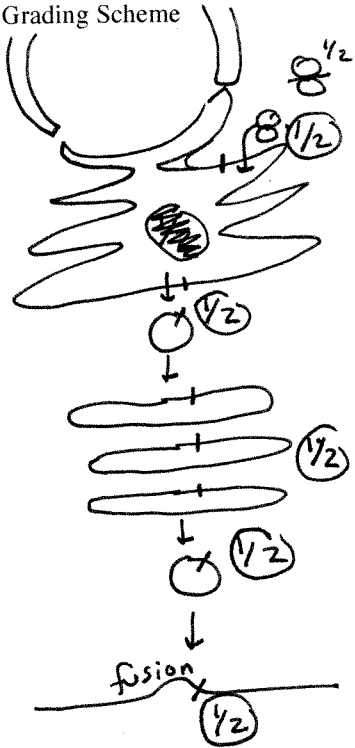
Translation starts on a free ribosome (most will probably leave this off, check answers, probably OK to leave out), i) signal sequence is present at N terminus, ii) then the ribosome binds to RER (portion of protein remains embedded in the membrane of the RER), iii) transport vesicle, iv) Golgi, v) transport vesicle, vi) vesicle fuses with plasma membrane and protein remains present in the plasma membrane. (They do not need to mention modification of sugars, etc.).

KEY

1C	2E	3A	4D	5D	6D
7C	8B	9E	10A	11B	

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-- Grading Scheme



Partial list of wrong answers (how graded)

- ribosome synthesizes protein into plasma membrane
- cytosol \rightarrow pm.
- ribosome synthesizes protein in the nucleus