Ch.2 Self-Quiz Biology PDF

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What is the primary function of the ribosome in the cell?

- ◯ DNA replication
- ◯ Protein synthesis
- ◯ Lipid synthesis
- ◯ Energy production

Which of the following are functions of proteins in the cell?

- ☐ Enzyme catalysis
- ☐ Genetic information storage
- ☐ Structural support
- ☐ Energy storage

Explain the process of DNA replication and the role of enzymes involved in this process.

Which of the following is a characteristic of prokaryotic cells?

- ◯ Presence of a nucleus
- ◯ Membrane-bound organelles
- ◯ Circular DNA
- ◯ Large size compared to eukaryotic cells

Which organelles are involved in energy conversion within the cell?

- [ ] mitochondria
- [ ] Ribosomes
- [ ] Chloroplasts
- [ ] Golgi apparatus

Discuss the importance of the cell membrane's structure in maintaining homeostasis within the cell.

What is the main purpose of photosynthesis?

- ◯ To produce ATP for cellular activities
- ◯ To convert solar energy into chemical energy
- ◯ To break down glucose into simpler molecules
- ◯ To recycle carbon dioxide in the atmosphere

Which processes are part of cellular respiration?

- [ ] Glycolysis
- [ ] Calvin cycle
- [ ] Krebs cycle
- [ ] Electron transport chain

Describe the differences between aerobic and anaerobic respiration in terms of energy yield and by-products.

Which stage of cellular respiration produces the most ATP?

- ◯ Glycolysis
- ◯ Krebs cycle
- ◯ Electron transport chain
- ◯ Fermentation

Which macromolecules are primarily involved in cell membrane structure?

- ☐ Carbohydrates
- ☐ Proteins
- ☐ Lipids
- ☐ Nucleic acids

Analyze how mutations in DNA can affect protein synthesis and potentially lead to diseases.

What is the role of the Golgi apparatus in the cell?

- ◯ DNA replication
- ◯ Protein modification and sorting
- ◯ Energy production
- ◯ Photosynthesis

Which of the following statements about enzymes are true?

- ☐ Enzymes are consumed in the reactions they catalyze.
- ☐ Enzymes lower the activation energy of reactions.
- ☐ Enzymes are specific to their substrates.
- ☐ Enzymes can be reused multiple times.

Evaluate the impact of environmental factors on enzyme activity, providing examples of how temperature and pH can alter enzyme function.

What is the primary role of chlorophyll in photosynthesis?

- ◯ Absorb carbon dioxide
- ◯ Absorb light energy
- ◯ Release oxygen
- ◯ Store glucose

Which of the following are stages of the Calvin cycle?

- ☐ Carbon fixation
- ☐ Reduction phase
- ☐ Glycolysis
- ☐ Regeneration of RuBP

Describe the role of ATP in cellular processes and explain how it is generated and utilized within the cell.

Which type of bond holds the two strands of DNA together?

- ◯ Ionic bonds
- ◯ Covalent bonds
- ◯ Hydrogen bonds
- ◯ Peptide bonds

Which components are part of the nucleotide structure?

- [ ] Phosphate group
- [ ] Amino acid
- [ ] Nitrogenous base
- [ ] Pentose sugar

Discuss the significance of the fluid mosaic model in understanding cell membrane dynamics.

What is the main function of the lysosome in the cell?

- ◯ Protein synthesis
- ◯ Digestion of macromolecules
- ◯ Energy production
- ◯ Photosynthesis

Which processes are involved in gene expression?

- [ ] Transcription
- [ ] Translation
- [ ] DNA replication
- [ ] RNA splicing

Explain how the principles of Mendelian genetics apply to modern genetic research and the study of hereditary diseases.

Which phase of the cell cycle is characterized by DNA replication?

- ◯ G1 phase
- ◯ S phase
- ◯ G2 phase
- ◯ M phase

Which of the following are functions of carbohydrates in biological systems?

- ☐ Energy storage
- ☐ Structural support
- ☐ Catalysis of reactions
- ☐ Cell recognition

Analyze the relationship between structure and function in enzymes, providing examples of how enzyme structure can influence its activity.

What is the main function of the nucleolus within the nucleus?

- ◯ DNA replication
- ◯ Ribosome production
- ◯ Lipid synthesis
- ◯ Protein degradation