LaBanca
Honors Biology
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Take Home Cell Quiz

Please complete the following quiz by bubbling the best answer on the bubble sheet. You may use any resource you find with the EXCEPTION of your classmates. Remember, you are under the honor code to ensure that this work is your OWN. Please report any incidents of academic misconduct to me.

1) The idea that all living things are composed of cells and that all cells come from other cells defines:
A) central dogma.
B) the laws of inheritance.
C) organelle theory.
D) cell theory.
E) inheritance of acquired characteristics.

2) As cell size increases, the
A) volume and surface area decrease.
B) volume increases faster than the surface area.
C) surface area increases faster than the volume,
D) surface area and volume increase at the same rate.
E) None of the choices are correct.

3) Which one of the following cells would have the greatest surface-to-volume ratio?
A) bacterium
B) human red blood cell
C) human muscle cell
D) frog egg
E) ostrich egg

4) The nucleoid region of a prokaryotic cell
A) contains the cell's DNA.
B) separates the RNA from the cytoplasm.
C) is surrounded by a nucleoid membrane.
D) contains the cell's nucleoli.
E) is the site of organelle production.

5) You are told that the cells on a microscope slide are plant, animal, or bacterial. You look at them through a microscope and see cell walls and membrane-bound organelles. You conclude that the cells
A) are plant cells.
B) are animal cells.
C) are bacteria.
D) could be either plant or bacterial.
E) could be plant, animal, or bacterial.

6) In eukaryotic cells, internal membranes
A) greatly increase a cell's total membrane area.
B) provide additional area where many metabolic processes occur.
C) form membranous compartments called organelles.
D) contain proteins essential for metabolic processes.
E) All of the choices are correct.

7) The function of the nucleolus is
A) to manufacture polypeptides.
B) to help manufacture ribosomes.
C) intracellular digestion.
D) to store chromatin.
E) to produce H202.

8) Chronic administration of a drug (such as a barbiturate or an antibiotic) may cause the liver to A) produce additional smooth endoplasmic reticulum.
B) increase the production of enzymes that detoxify the drug in question.
C) increase the production of enzymes that break down certain other drugs or foreign substances.
D) increase the body's tolerance to the drug.
E) All of the choices are correct.

9) The cells that produce hair contain a lot of _____ . The cells that produce the oils that coat the hair contain a lot of _____
A) smooth endoplasmic reticulum; lysosomes
B) rough endoplasmic reticulum; smooth endoplasmic reticulum
C) smooth endoplasmic reticulum; rough endoplasmic reticulum
D) microbodies; lysosomes
E) nuclei; chromatin

10) The Golgi apparatus
A) is composed of stacks of membranous vesicles that are continuous with one another.
B) stores, modifies, and packages proteins.
C) strings together amino acids to produce proteins.
D) forms fats from glycerols and fatty acids.
E) is the site of carbohydrate breakdown.

11) Lysosomes
A) help to digest worn-out or damaged organelles.
B) recycle materials within the cell.
C) fuse with food vacuoles to expose nutrients to lysosomal enzymes.
D) destroy harmful bacteria engulfed by white blood cells.
E) All of the choices are correct.

12) When a cell is deprived of oxygen, its lysosomes tend to burst and release their contents into the cell. As a result of this, that cell will
A) recycle damaged organelles.
B) produce additional ER.
C) undergo cell division.
D) produce replacement lysosomes.
E) undergo self-digestion and die.

13) A manufacturing company dumps its wastes into a nearby pond. One of the wastes is found to paralyze the contractile vacuoles of certain protists. A biologist looking at these organisms would find that these protists
A) have lost water and shrunk.
B) have gained water and burst.
C) have died of malnutrition.
D) have died because wastes have built up in the cytoplasm.
E) are surviving but are unable to reproduce.

14) Insulin is a protein that is produced by pancreatic cells and secreted into the bloodstream. Which of the following choices best describes the route of insulin from its production to its exit from the cell?
A) rough ER, transport vesicles, Golgi apparatus, transport vesicles, cell membrane
B) rough ER, lysosomes, transport vesicles, cell membrane
C) rough ER, Golgi apparatus, smooth ER, cell membrane
D) rough ER, transport vesicles, cell membrane
E) None of the choices are correct.

15) Mitochondria differ from chloroplasts in that mitochondria
A) convert solar energy to chemical energy, whereas chloroplasts convert one form of chemical energy to another.
B) contain three different membrane-bound compartments, whereas chloroplasts contain two.
C) contain membrane folds called cristae, whereas chloroplasts contain disklike vesicles in stacks called grana.
D) are not found in plants, whereas chloroplasts are not found in animals.
E) produce glucose, whereas chloroplasts break glucose down.

16) A woman is having trouble becoming pregnant. Examination of her partner's sperm indicates that dynein arms are missing from the flagella in his sperm cells. A physician explains that this could interfere with fertility by
A) preventing the sperm from attaching to the egg cell.
B) preventing the sperm from swimming to the egg cell.
C) preventing the sperm from producing enough energy to power swimming.
D) interfering with the attachment of the flagella to the sperm.
E) interfering with the ability of the sperm to tolerate the acid conditions in the vaginal canal.

17) Plasmodesmata
A) penetrate plant cell walls.
B) are one type of cell junction in plants.
C) carry chemical messages between plant cells.
D) carry nutrients between plant cells.
E) All of the choices are correct.

18) All cells on Earth
A) are enclosed in a membrane that maintains internal conditions different from the surroundings.
B) have DNA as the genetic material.
C) can interconvert forms of energy.
D) can interconvert chemical materials.
E) All of the choices are correct.

19) A child is hospitalized for a series of chronic bacterial infections and dies despite heroic efforts. At autopsy, the physicians are startled to see that the child's white blood cells are loaded with vacuoles containing intact bacteria. Which of the following explanations could account for this finding? A defect in the
A) Golgi apparatus prevented the cells from processing and excreting the bacteria.
B) rough endoplasmic reticulum prevented the synthesis of the antibodies (defensive proteins) that would have inactivated the bacteria.
C) cell walls of the white blood cells permitted bacteria to enter the cells.
D) lysosomes of the white blood cells prevented the cells from destroying engulfed bacteria.
E) surface receptors of the white blood cells permitted bacteria to enter the cells.

20) Cyanide inhibits mitochondrial function; as a result, the rate of
A) ATP synthesis would increase.
B) ATP synthesis would decrease.
C) photosynthesis would increase.
D) lipid synthesis would increase.
E) protein synthesis would increase.