

1. Large numbers of ribosomes are present in cells that specialize in producing \_\_\_\_\_

2. Motor proteins are responsible for intracellular movement by interacting with what types of cellular structures?

3. Name 3 structures both prokaryotic and eukaryotic cells have in common.

4. Which of the following structure:function pairs is mismatched?

A nucleolus:ribosome production

B lysosome:intracellular digestion

C ribosome:protein synthesis

D Golgi:protein trafficking

E mitochondrion:steroid production

5. Smooth endoplasmic reticulum exhibits all of the following activities EXCEPT

- A. assembling amino acids to make proteins
- B. manufacturing lipids
- C. manufacturing hormones
- D. breaking down toxins
- E. regulating calcium in muscle cells

6. All of the following are associated with microtubules EXCEPT

- A centrioles
- B. basal bodies
- C. separation of chromatids during mitosis
- D motion of flagella
- E.  $\text{Na}^+$  ion transport

7. A researcher observes a cell through a microscope and determines it is a plant cell because she observes a

- A mitochondrion
- B. nucleus
- C. lysosome
- D central vacuole
- E. centriole

8. Cyanide is a poison that disables an enzyme involved in ATP production. Which organelle does cyanide most directly cripple?

- A smooth ER
- B. ribosomes
- C. mitochondria
- D lysosomes
- E. cytoskeleton

9. All of the following are kinds of active transport EXCEPT

- A receptor mediated endocytosis
- B  $\text{Na}^+ - \text{K}^+$  pump
- C proton pump
- D exocytosis
- E facilitated diffusion



10. Which of the following would most readily move through a selectively permeable membrane?

- A small nonpolar molecule
- B protein hormone
- C large uncharged polar molecule
- D glucose
- E sodium ion

11. Which type of transport creates the acidic environment found inside lysosomes?

12. The cytoplasmic channels between plants cells are called

- A gap junctions
- B tight junctions
- C desmosomes
- D plasmodesmata

13. A child is diagnosed with Tay-Sachs disease, a lipid storage disease. Which organelle is most likely affected?

14 Name a cell part found in animal cells but not plant cells

15 According to the Endosymbiotic theory evidence suggests two cell parts have evolved from early prokaryote ancestors. Name these 2 organelles and give an example of the evidence for this theory.

16 Movement of particles from high concentration to low concentration until dynamic equilibrium is called:

- A Active transport
- B Concentration
- C Exocytosis
- D Diffusion

17 Which part of the plasma membrane is responsible for its selectively permeable properties?

- A glycoproteins
- B phospholipid heads
- C phospholipid tails
- D plasmodesmata

18 If the net movement of water is moving out of the cell, what type of environment is the cell in?

19 The swelling and bursting of an animal cell when water enters is called

\_\_\_\_\_.



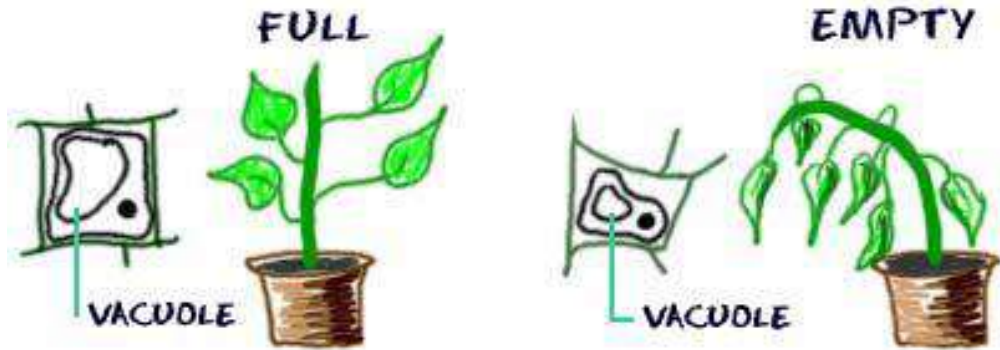
20 What process helps to restore water in the central vacuole of these plant cells when the central vacuole loses water?

A facilitated diffusion

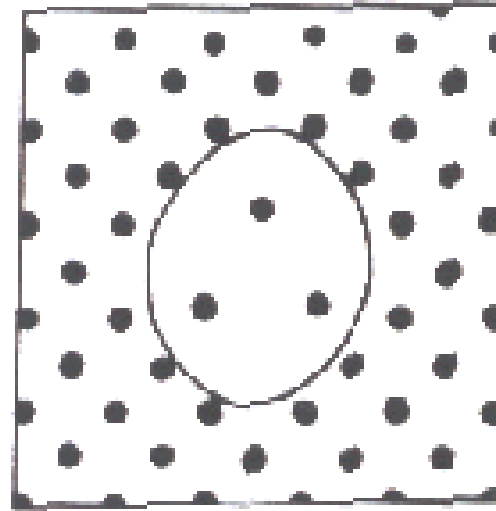
B endocytosis

C osmosis

D exocytosis



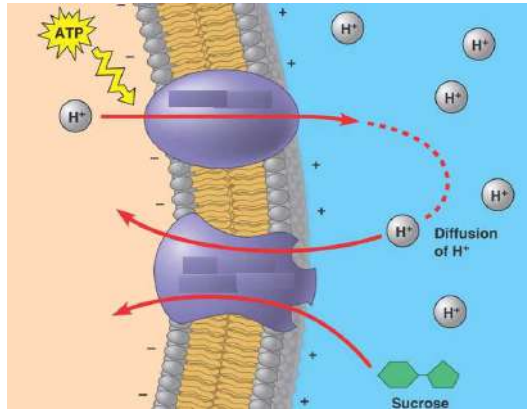
21 Dots represent dissolved solute.  
What will happen to this cell?



22. Potato cores containing 0.2M sucrose are placed in a beaker of distilled water. What is the water potential of the distilled water? What is the water potential of the potato cores? Which way will the water move?

$$\Psi_s = -iCRT$$

Room Temp = 25° C



23. The figure at the left illustrates the process of

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24 An amoeba ingests large food particles by what process?

25 What type of transport requires energy?

- A ion channels
- B proton pumps
- C diffusion
- D osmosis

26 Tell what will happen to an animal cell in a hypotonic solution.

27 Tell two ways sodium and potassium ions can move across membranes?

28. What type of chemical reaction do kinases participate in?

29. A G-protein is \_\_\_\_\_

A. a specific type of membrane-reception protein

B. a protein on the cytoplasmic side of a membrane that becomes activated by a receptor protein

C. a membrane bound enzyme that converts ATP to cAMP

D. a tyrosine kinase relay protein

E. a guanine nucleotide that converts between GDP and GTP to activate or inactivate relay proteins



30 Name the 3 steps to the signal transduction pathway.

31. Which type of signal molecules can pass through cell membranes and bind to intracellular receptors that move into the nucleus and function as transcription factors to regulate gene expression?

A. epinephrine

B. hydrophilic growth factors

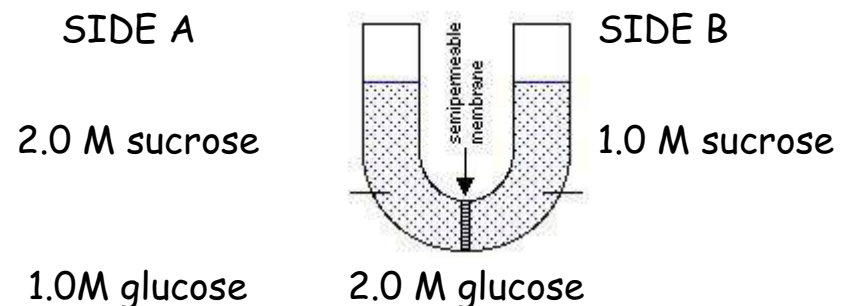
C. insulin

D. neurotransmitter released into synapse  
between nerve cells

E. testosterone (steroid hormone)

32. The drawing below shows two solutions of glucose and sucrose in a U-tube containing a semi-permeable membrane that allows the passage of sugars. Which of the following will take place next?

- A. Glucose will diffuse from side A to side B
- B. Sucrose will diffuse from side B to side A
- C. No net movement of molecules will occur
- D. Glucose will diffuse from side B to side A
- E. There will be a net movement of water from side B to side A



33. Which of the following is an example of passive transport, unaided by proteins, across the cell membrane?

- A. the stimulation of a muscle cell
- B. the uptake of glucose by the microvilli of the cells lining the stomach
- C. the movement of insulin across the cell membrane
- D. the movement of carbon dioxide across the cell membrane
- E. the selective uptake of hormones across the cell membranes

34. Which type of transport is essential for setting up the electrochemical gradient across the plasma membrane of a nerve cell?

35. Give an example of a second messenger in a cell signaling pathway.

36. Adding solute causes the  $\Psi_s$  to \_\_\_\_\_

A. increase

B. decrease

C. stay the same

37. The release of  $\text{Ca}^{++}$  ions from the sarcoplasmic reticulum causes the muscle fiber to \_\_\_\_\_.

contract      relax

38. Insulin is a protein hormone made by the pancreas and released into the blood stream to regulate blood glucose levels. Follow the path of an insulin molecule as it is made, processed, packaged and shipped out of the cell.