Answers to cell Unit Test review Packet

II. Vocabulary

A. Eukaryotic K. cytolysis

B. Fluid-Mosaic model L. compound light

C. Robert Hooke M. endoplasmic reticulum

D. concentration gradient N. pinocytosis/phagocytosis

E. vacuoles O. mitochondria

F. hypertonic P. cell membrane

G. ribosomes Q. chloroplasts

H. prokaryotic R. nucleus

I. selectively permeable S. Shleiden/Schwann

J. centrioles

III. Short Answer

A. The invention and development of microscopes, especially the compound light

microscope, allowed scientists to discover and observe cells.

B. Eukaryotic and prokaryotic cells are similar, in that both contain DNA and have

cytoplasm. Eukaryotic cells are considered complex have membrane bound

organelles, including a nucleus. Prokaryotic cells are considered simple and

do not have membrane bound organelles or a nucleus. Bacteria are the only

organisms composed of prokaryotic cells, while animals, plants, algae, and

fungi are composed of eukaryotic cells.

C. Protein molecules embedded in the eukaryotic cell membrane function as

channels to carry particles across the cell membrane. They may also

function as the attachment site for carbohydrates markers. Carbohydrate

chains may be attached to proteins or lipids on the external surface of the

cell membrane. They act as markers for cell identification, and cell to cell

interactions.

D. Animal and plant cells are very similar, containing many of the same organelles

(nucleus, cytoplasm, mitochindria, etc). They differ, in that plant cells have a

rigid exterior organelle, the cell wall. Plant cells also contain a large central

vacuole for storing water and dissolved substances, as well as green

chlorplasts, where photosynthesis occurs. Animal cells contain centrioles, which are involved in cell division.

E. Passive transport involves the diffusion of particles across the cell membrane.

This means that particles travel from an area of high concentration to an area

of low concentration; the particles are said to be flowing down the

concentration gradient. thus, passive transport requires no energy by the

cell. In contrast, active transport is the passage of materials UP the concentration gradient(from an are of low concentration to an area of high concentration), and requires extra energy by the cell.

F. Hypertonic solutions have a HIGHER concentration of solutes than a cell.

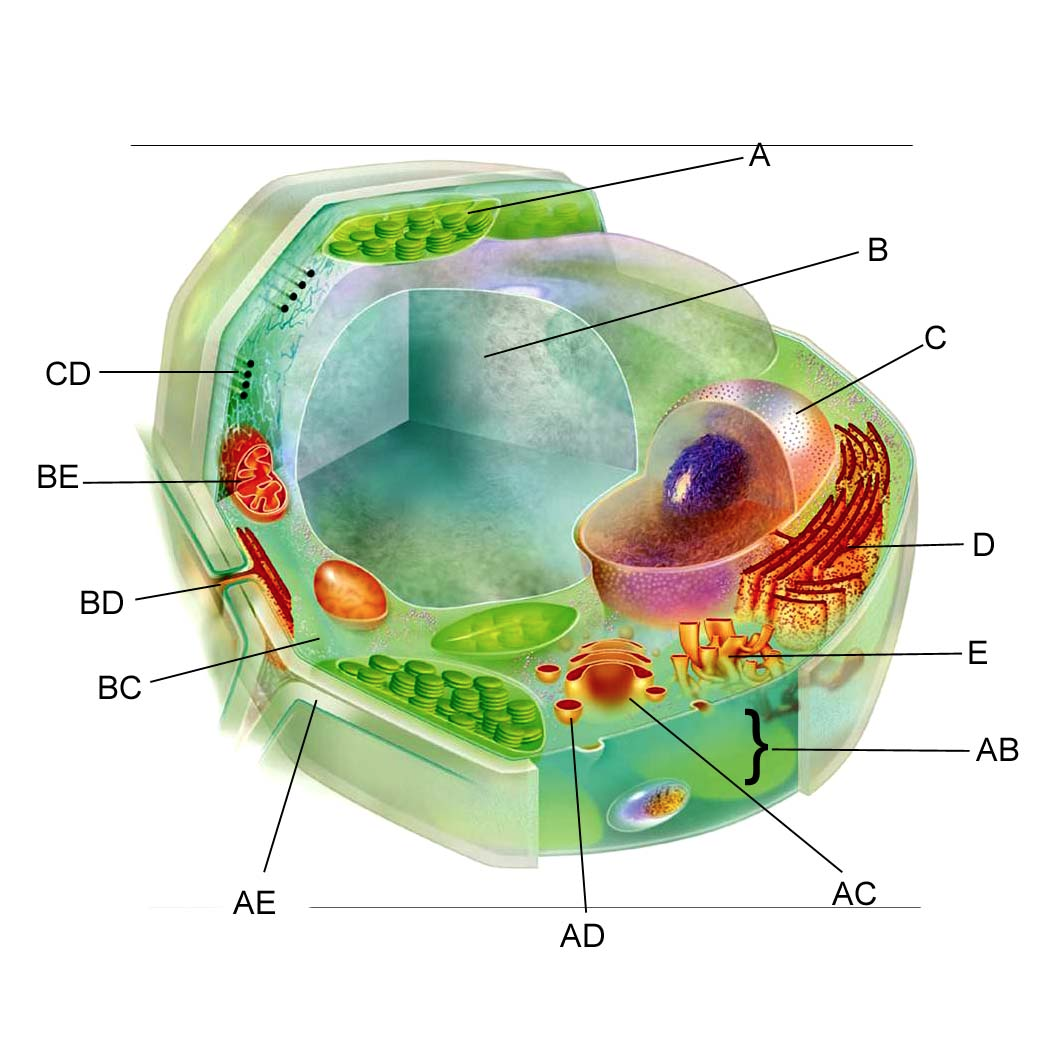
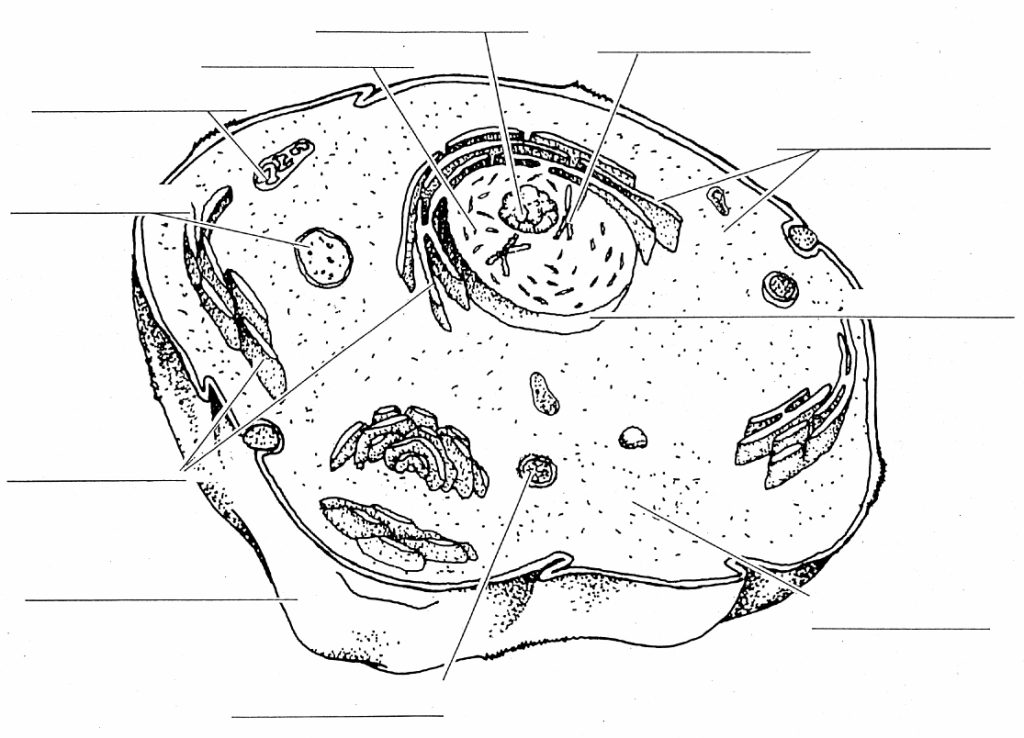
Hypotonic solutions have a LOWER concentration of solutes than a cell.

Isotonic solutions have the SAME concentration of solutes as a cell.

G. Answers will vary: Example: cytoplasm is similar to blood because it circulates

around the cell and carries dissolved substances to all parts of the cell.

**IV. Diagrams:** Label each of the following diagrams.

Animal Cell Plant Cell

(clockwise starting at the top) A. chloroplast

Top 3 Nucleus B. vacuole

Ribosomes C. nucleus

Nuclear envelope D. rough endplasmic reticulum

cytoplasm E. smooth ER

lysosome AB. cell membrane

cell membrane AC. Golgi body

endoplasmic reticulum AD. vesicle

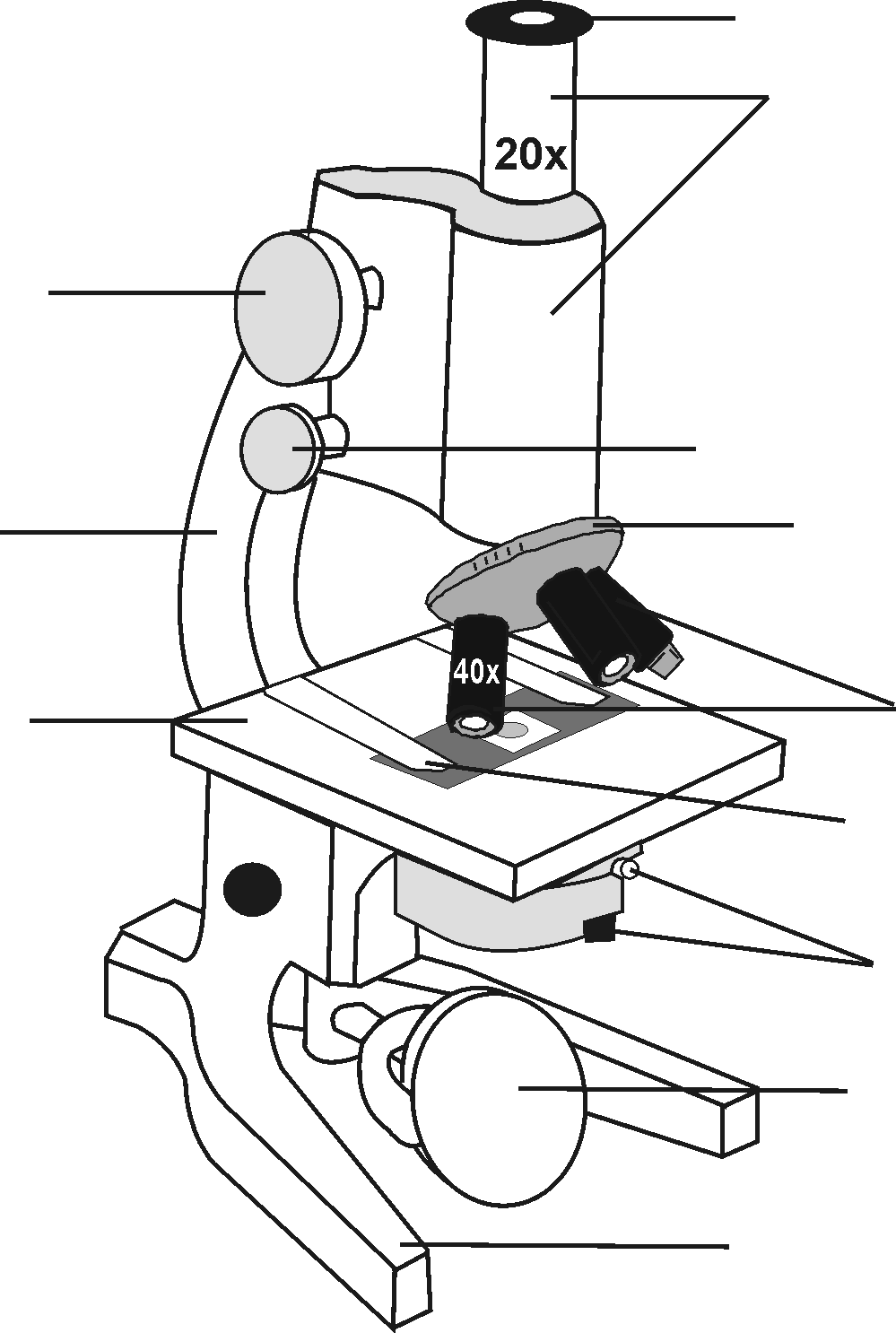
ER/vesicle AE. cell wall

mitochondria BC. cytoplasm

BD.

BE. mitochondria

CD. cytoskeleton

What is the magnification of this microscope?80X

Microscope from top to bottom

eyepiece

body tube

coarse adjust

fine adjust

arm

revolving nosepiece

objective lenses

stage

stage clips

diaphragm

light source

base

hypotonic isotonic hypertonic

