

Cells Practice Test

Name \_\_\_\_\_

1) In what organelle of a typical human cell are the chromosomes found?

ANSWER:

2) Which of the following organelles is found in plant cells and NOT in animal cells:

- W) mitochondria
- X) ribosomes
- Y) chloroplasts
- Z) golgi

3) What are the names of the 2 human sex chromosomes?

ANSWER:

4) How many single or simple sugars make up a disaccharide?

ANSWER:

5) In the process of photosynthesis, plants use sunlight to make carbohydrates. What are the 2 molecules from which carbohydrates are made in plants?

ANSWER:)

6) Which of the following is NOT an insect:

- W) spider
- X) flea
- Y) moth
- Z) grasshopper

7) Which of the following is considered a primary function of underarm hair in humans:

- W) insulation from heat and cold
- X) dry lubricant
- Y) to frighten undesirable mates
- Z) it has no known function

8) Which one of the following 5 animals is LEAST related to the others: shark, tuna, bass, swordfish, porpoise

ANSWER:

9) What is the most common name for the boundary of all cells without cell walls that separates the inside of the cell from the outside of the cell?

ANSWER:

10) How many X chromosomes does the typical non-reproductive cell of a human female have?

ANSWER:

11) What is the most common single sugar or monosaccharide in most animals?

ANSWER:

12) Complete this chemical formula for photosynthesis:

$6\text{CO}_2 + 6\text{H}_2\text{O} + \text{photons} \rightarrow$

13) Which of the following cellular structures is NOT found in animal cells:

- W) ribosomes
- X) mitochondria
- Y) cell wall
- Z) golgi

14) What is the most common scientific name for the higher plant organelle that carries on most of the cell's photosynthesis?

ANSWER:

15) What does the term DNA stand for?

ANSWER:

16) Which of the following is a reptile:

- W) salamander
- X) frog
- Y) lizard
- Z) toad

17) Osmosis is primarily a consequence of the movement of what substance in response to changes in salt, protein and sugar concentrations?

ANSWER:

18) Rounded to the nearest million years, how old is the Earth?

ANSWER:

19) Which of the following is NOT an organelle:

- W) chloroplast
- X) endoplasmic reticulum
- Y) mitochondria
- Z) chromosome

20) What is the most common term for the general form of cell that has no nucleus?

ANSWER:

21) What branch of science is dedicated to the naming and organizing of life forms into various categories?

ANSWER:

22) Which of the following human cells contains 23 chromosomes:

- W) zygote
- X) normal liver cell
- Y) skin cell of a female
- Z) an egg cell

23) What part of a cell was given a name meaning colored body and contains the genetic material for hereditary?

ANSWER:

24) Which of the following is the best term that describes a random change in the base sequence of DNA:

- W) genetic pressure
- X) mutation
- Y) genetic pool
- Z) genetic coding

25) Most of the enzymes in a human cell are:

- W) phospholipids
- X) DNA
- Y) proteins
- Z) polysaccharides

26) A red blood cell, when placed in a 25% glucose solution, will do which of the following:

- W) burst
- X) shrink
- Y) stay the same
- Z) cannot be predicted with the information given

27) If a typical human nucleated cell combined its chromosomes with another typical nucleated human cell, how many chromosomes would the resulting cell have?

ANSWER:

28) All proteins are made of what general class of building blocks that are repeating units in protein structure?

ANSWER:

29) Which of the following is NOT a characteristic of birds:

- W) presence of feathers
- X) presence of a beak
- Y) presence of teeth
- Z) presence of well developed lungs

30) Which of the following is NOT true about cells:

- W) all cells have a plasma membrane
- X) all living things are composed of cells
- Y) animal cells are on average smaller than plant cells
- Z) plant cells usually have a cell wall just inside the plasma membrane

31) Chlorophyll absorbs what color of light the least?

ANSWER:

32) Which of the following is a prokaryote:

- W) *Paramecium*
- X) AIDS virus
- Y) *E. coli*
- Z) human liver cell

33) Where, inside of a eukaryotic cell, are proteins typically manufactured:

- W) nucleus
- X) nucleolus
- Y) RER
- Z) plasma membrane

34) Rounded to the nearest billion, how many years ago did the Earth begin accumulating significant amounts of oxygen in its atmosphere?

ANSWER:

35) The cell's plasma membrane is best described as:

- W) a lipid bilayer with imbedded proteins
- X) a protein bilayer with imbedded proteins
- Y) a carbohydrate bilayer with imbedded lipids
- Z) a protein monolayer with an imbedded lipid bilayer

36) What organelle of the typical human body cell produces the majority of the cell's energy?

ANSWER:

37) Which of the following functions as a packaging center and modifies proteins for transport out of the cell:

- W) lysosome
- X) nucleolus
- Y) endoplasmic reticulum
- Z) golgi

38) Which of the following is typically the largest organelle in plant cells:

- W) mitochondria
- X) ribosome
- Y) nucleolus
- Z) vacuole

39) Which of the following is NOT true of proteins:

- W) they can act as hormones
- X) their activity is altered by temperature changes
- Y) their activity is altered by pH changes
- Z) they store genetic information and pass it from generation to generation

40) Which of the following vertebrate groups is the most ancient, arriving first in evolution:

- W) diatoms
- X) angiosperms
- Y) ferns
- Z) lady's slippers

41) Which of the following would a botanist most accurately call a salad made of peppers, tomatoes, and olives:

- W) a vegetable salad
- X) a fruit salad
- Y) a fruit and vegetable salad
- Z) a berry salad

42) Of the following cell structures, which one is the smallest:

- W) ribosome
- X) nucleolus
- Y) golgi
- Z) chloroplast

43) Ribosomes directly function in which of the following ways:

- W) the storage of genetic information
- X) the digestion of proteins and carbohydrates
- Y) the manufacture of proteins
- Z) the liberation of stored energy

44) Order the following 4 taxonomical groups from the largest to the smallest: genus, order, family, class

ANSWER:

45) To the first decimal place, how many billion years ago did life arise on Earth?

ANSWER:

46) What is the plural of genus?

47) What is the meaning of the scientific term, endosymbiosis?

ANSWER:

48) What are the three taxonomical Domains?

ANSWER:

49) Proteins are most directly made from a temporary copy of DNA called:

- W) messenger RNA
- X) c-DNA
- Y) anti-DNA
- Z) amino acid chain

50) Consider a tomato plant that is limp because it needs to be watered. What cellular organelle is most directly responsible for the limpness in the plant:

- W) vacuole
- X) nucleus
- Y) chloroplast
- Z) mitochondrion

51) Which of the following is name for a diagram that groups organisms on how closely they are related based on common ancestors:

- W) nomenclature
- X) binomial nomenclature
- Y) cladogram
- Z) anagram

52) Circle all of the following 4 organisms that would be considered a prokaryote: *E. coli*; *Paramecium*; *Streptococcus*; *diatom*

53) Name two cell structures plant cells have that animal cells do not have

ANSWER:

54) How many chromosomes are contained in a typical mature human sperm cell?

ANSWER:

55) About how many microns long is a bacterial cell?

ANSWER:

56) What is the most common scientific term for the general type of cell that has a nucleus?

ANSWER:

57) In the leaf cell of a maple tree, what organelle is responsible for photosynthesis?

ANSWER:

58) Which one of the following 4 plant products are NOT considered fruits by a botanist: tomatoes; potatoes; eggplants; pumpkins

ANSWER:

59) Which one of the following 5 choices would usually have a cell wall: liver cell; chloroplast; bacterium; plant cell; red blood cell

ANSWER:

60) Which of the following is MOST accurate concerning energy on Earth:

- W) sunlight energy is captured and stored as photons
- X) fossil fuels have chemical energy not derived from the sun
- Y) most forms of energy on earth are derived from the sun
- Z) photosynthesis converts water and carbon dioxide into DNA

61) What are the three most common shapes of bacteria?

ANSWER:

62) Order the following taxonomical groups from the largest to the smallest: order; class; species; phylum

ANSWER:



63) All cells have a :

- W) cell wall
- X) cell membrane
- Y) chloroplast
- Z) nucleus

64) The carbon in glucose that is made by plants from photosynthesis comes from:

- W) carbon stored in soil nutrients
- X) carbon absorbed from roots
- Y) carbon gas absorbed mostly through roots
- Z) carbon dioxide taken in through leaves

65) Which of the following organisms would most likely be considered a Fungus:

- W) anthrax bacteria
- X) Euglena (read as: you-GLLEE-nah)
- Y) mushroom
- Z) tapeworm

66) Which of the following tissues or cell types is most directly responsible for preventing water loss in plants:

- W) phloem
- X) xylem
- Y) epidermis
- Z) parenchyma

67) What are the two most important gases that diffuse into and out of the human body through the lungs?

ANSWER:

68) Which of the following is a scientific instrument most commonly used in the sterilization of equipment:

- W) autoclave
- X) gonculator
- Y) incubator
- Z) spectronic 20

69) Which of the following is a scientific instrument most commonly used in the sterilization of equipment:

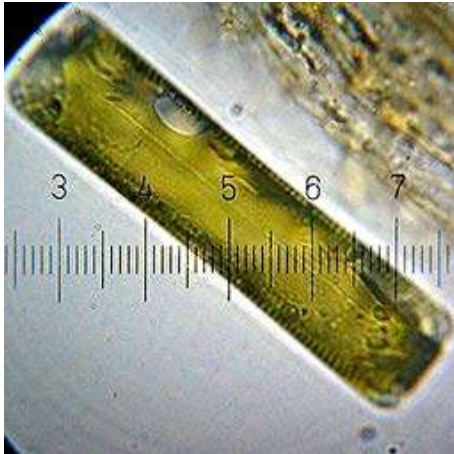
- W) autoclave
- X) gonculator
- Y) incubator
- Z) spectronic 20

70) The name phytoplankton comes from the Greek words φυτόν (phyton), meaning \_\_\_\_\_

71) Name the group of organisms that sustain the aquatic food web for much of the entire life on Earth, and are "primary producers" and the creators of organic compounds from carbon dioxide dissolved in the water.

ANSWER:

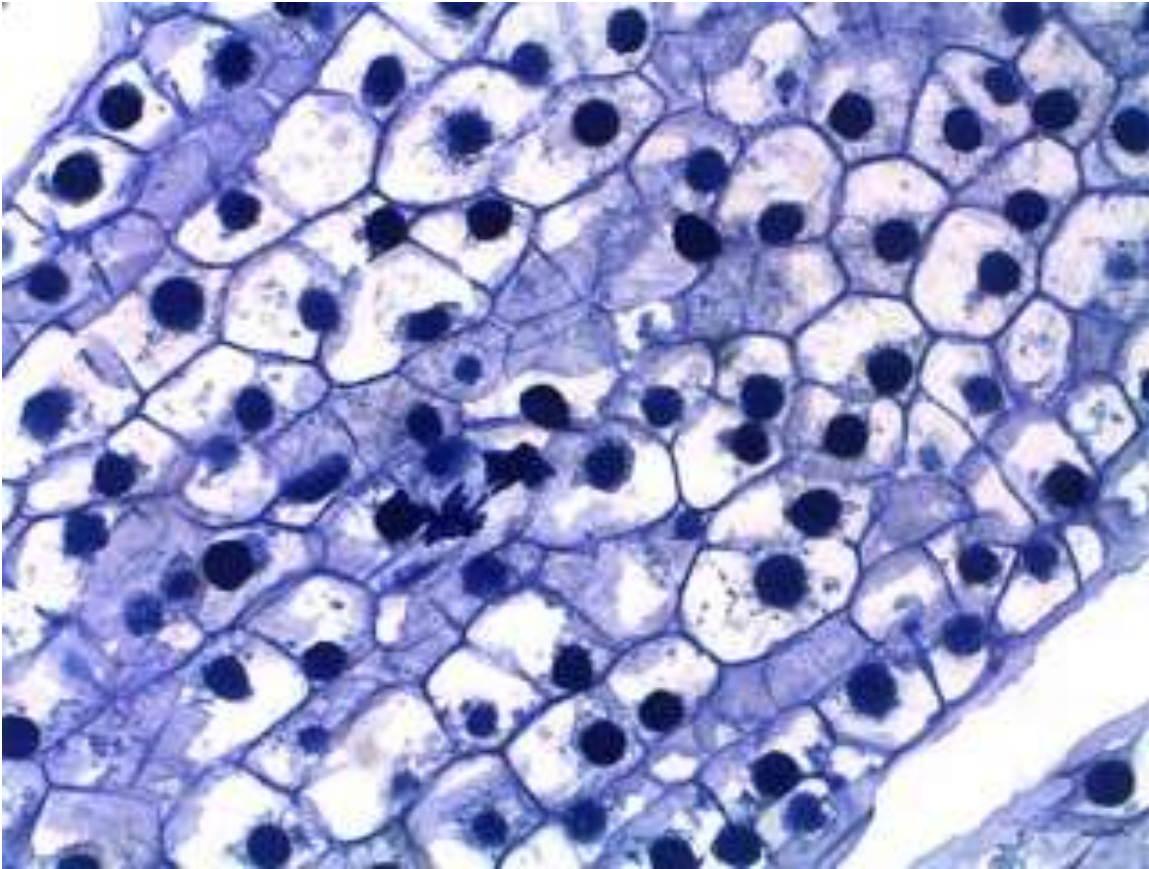
72) Name this organism \_\_\_\_\_

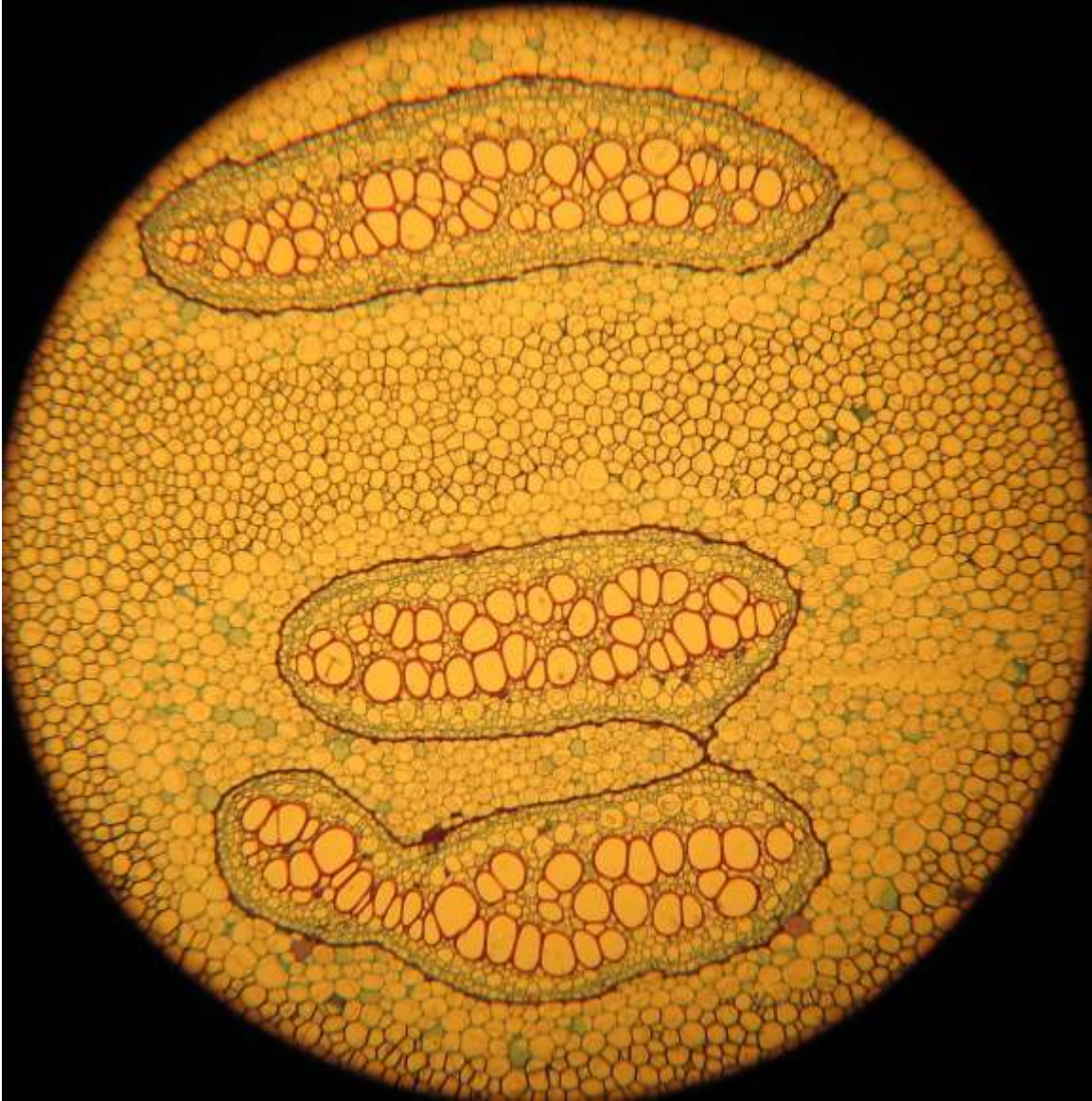


73) What is the defining characteristic of angiosperms?

ANSWER:

74) In this light micrograph taken at 400X we see meristematic tissue. Please circle the cell in late mitosis (anaphase)?





75-80) Please label xylem, phloem, and the pericycle. Also label three different areas of parenchymal cells



81 - 90) Transcribe the following DNA sequence into an RNA sequence, then translate the mRNA into a protein using the genetic code:

TAC-GCA-CGC-TGT-CCC-CGC

		2nd base			
		U	C	A	G
1st base	U	UUU (Phe/F) Phenylalanine	UCU (Ser/S) Serine	UAU (Tyr/Y) Tyrosine	UGU (Cys/C) Cysteine
		UUC (Phe/F) Phenylalanine	UCC (Ser/S) Serine	UAC (Tyr/Y) Tyrosine	UGC (Cys/C) Cysteine
		UUA (Leu/L) Leucine	UCA (Ser/S) Serine	UAA Ochre (Stop)	UGA Opal (Stop)
		UUG (Leu/L) Leucine	UCG (Ser/S) Serine	UAG Amber (Stop)	UGG (Trp/W) Tryptophan
	C	CUU (Leu/L) Leucine	CCU (Pro/P) Proline	CAU (His/H) Histidine	CGU (Arg/R) Arginine
		CUC (Leu/L) Leucine	CCC (Pro/P) Proline	CAC (His/H) Histidine	CGC (Arg/R) Arginine
		CUA (Leu/L) Leucine	CCA (Pro/P) Proline	CAA (Gln/Q) Glutamine	CGA (Arg/R) Arginine
		CUG (Leu/L) Leucine	CCG (Pro/P) Proline	CAG (Gln/Q) Glutamine	CGG (Arg/R) Arginine
	A	AUU (Ile/I) Isoleucine	ACU (Thr/T) Threonine	AAU (Asn/N) Asparagine	AGU (Ser/S) Serine
		AUC (Ile/I) Isoleucine	ACC (Thr/T) Threonine	AAC (Asn/N) Asparagine	AGC (Ser/S) Serine
		AUA (Ile/I) Isoleucine	ACA (Thr/T) Threonine	AAA (Lys/K) Lysine	AGA (Arg/R) Arginine
		AUG <sup>[A]</sup> (Met/M) Methionine	ACG (Thr/T) Threonine	AAG (Lys/K) Lysine	AGG (Arg/R) Arginine
G	GUU (Val/V) Valine	GCU (Ala/A) Alanine	GAU (Asp/D) Aspartic acid	GGU (Gly/G) Glycine	
	GUC (Val/V) Valine	GCC (Ala/A) Alanine	GAC (Asp/D) Aspartic acid	GGC (Gly/G) Glycine	
	GUA (Val/V) Valine	GCA (Ala/A) Alanine	GAA (Glu/E) Glutamic acid	GGA (Gly/G) Glycine	
	GUG (Val/V) Valine	GCG (Ala/A) Alanine	GAG (Glu/E) Glutamic acid	GGG (Gly/G) Glycine	

91) Translation is the process of converting the sequence of nitrogen bases into a sequence of \_\_\_\_\_

92-94) Fill in the names for the different stages of the Central Dogma:

Central Dogma  
**DNA** → **DNA** \_\_\_\_\_ (the word for this is often used in sci-fi movies)  
**DNA** → **RNA** \_\_\_\_\_  
**RNA** → **protein** \_\_\_\_\_

95) What is the term coined by Robert Hooke that is given to a single unit of life:

ANSWER:

96) Which of the following is the best term that describes a random change in the base sequence of DNA:

- W) genetic pressure
- X) mutation
- Y) genetic pool
- Z) genetic coding

97) What term is most commonly used by biologists to describe the process in which chromosomes are divided and properly allocated into sex cells?

ANSWER:

98) Which of the following is NOT true about cells:

- W) all cells have a plasma membrane
- X) all living things are composed of cells
- Y) animal cells are on average smaller than plant cells
- Z) plant cells usually have a cell wall just inside the plasma membrane

ANSWER:

99) Chlorophyll absorbs what color of light the least?

ANSWER:

100)  $\text{BaNa}_2$  is the chemical formula for what common substance \_\_\_\_\_?