



5. For each of the following fats, label them as saturated or unsaturated. (5 pts.)

a. Coconut oil

b. Butter

c. Olive oil

d. Avocado oil

e. Omega 3 & 6 oils

6. Match the organelles with their correct functions. (5 pts.)

a. Ribosome

i. Breaks down certain biological molecules

b. Smooth Endoplasmic Reticulum

ii. Provides structural support and aids in movement

c. Lysosome

iii. Provides tensile strength and resistance to osmotic stress

d. Cytoskeleton

iv. Synthesizes proteins from amino acids

e. Cell Wall

v. Folds proteins into functional forms

7. What are the five main classifications of bacterial plasmid based on function? (5 pts.)

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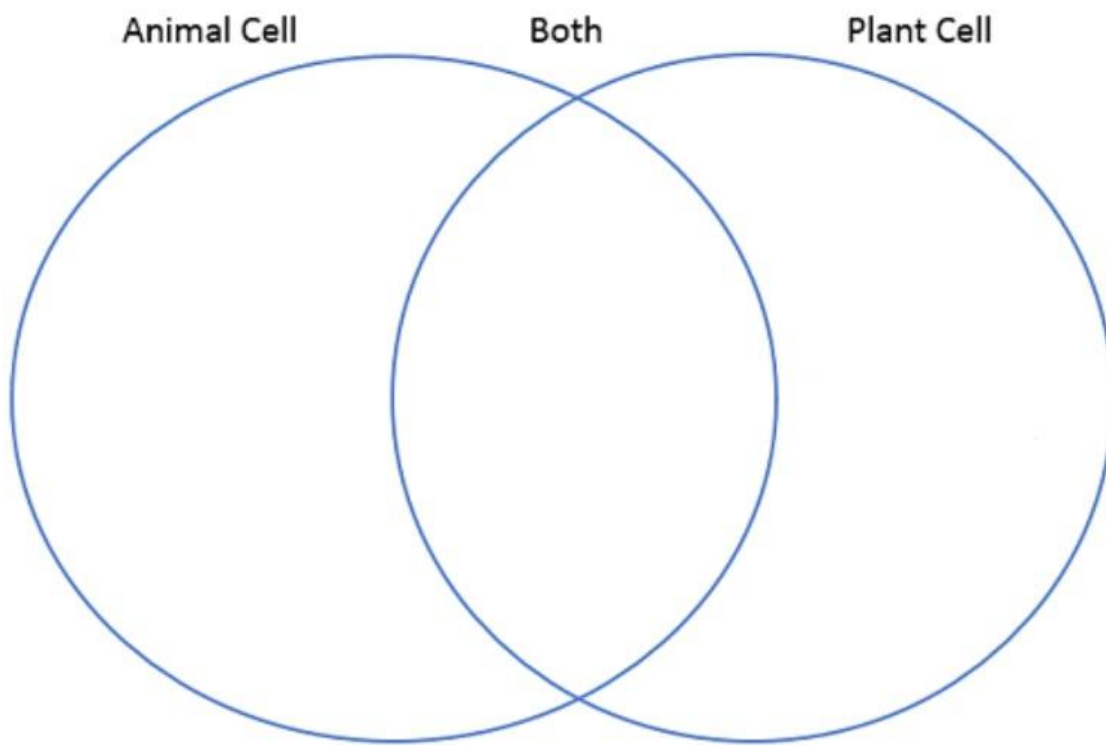
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8. Write the balanced net reaction for lactic acid fermentation. (2 pts.)



9. Fill you the Venn Diagram below using the word bank. (5 pts.)



Chloroplast	Flagella	Nucleus	Centriole
Cell Membrane	Lysosome	Large Central Vacuole	Cell Wall
Ribosomes	Mitochondria		

Multiple choice: Select the option that **BEST** answers the question. (1 pt. each)

10. A Biuret test is used to detect what type of macromolecule?

- a. Nucleic Acids
- b. Proteins
- c. Carbohydrates
- d. Lipids

11. The use of an electrical field to separate DNA or RNA molecules by size is best known as...

- a. Assay-separation
- b. High-Throughput Screening
- c. Gel-Electrophoresis
- d. Polymerase Chain Reaction (PCR)

12. Which of the following carbohydrates is **NOT** a monosaccharide?

- a. Galactose
- b. Mannose
- c. Ketohehexose
- d. Lactose

13. What process does ATP undergo to release energy used in the cell?

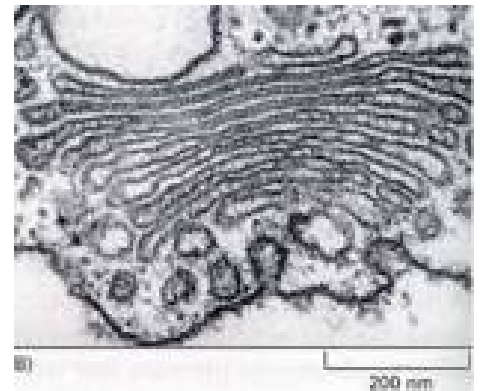
- a. Hydrolysis
- b. Glycolysis
- c. Hemolysis
- d. Cytolysis

14. Which of the following is **NOT** one of the organic compounds involved in the Krebs cycle?

- a. Lactate
- b. Oxaloacetate
- c. Succinyl-CoA
- d. Citrate

15. What organelle is pictured at right?

- a. Chloroplast
- b. Nucleus
- c. Golgi Apparatus
- d. Rough Endoplasmic Reticulum

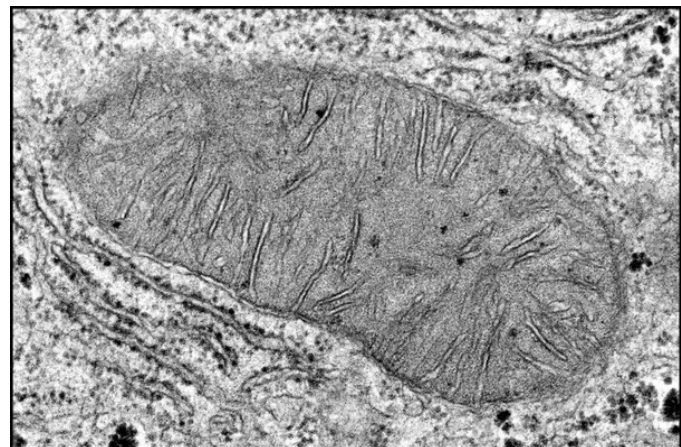


16. What is the purpose of a flagella in cells?

- a. Motility
- b. Cell Division
- c. Osmosis
- d. Structure & Support

17. What is the function of the organelle picture at right?

- a. Synthesize proteins
- b. Package and ship molecules
- c. Create ATP through respiration
- d. Break down certain molecules



18. Which of the following is a characteristic that both prokaryotes and eukaryotes share in common?

- a. Nucleus is present
- b. DNA resides in cytoplasm
- c. Ribosomes are present
- d. Capsule is present

19. The two major components of the ribosome are the...

- a. Large subunit & small subunit
- b. Ribosomal complex  $\alpha$  &  $\beta$
- c. Acetyl CoA & CoB
- d. cAMP & Ip3

20. Proteins are composed of amino acids held together by what type of bond?

- a. Peptide bonds
- b. Hydrogen bonds
- c. Ionic bonds
- d. Heteronuclear bonds

21. ATP synthase creates ATP by utilizing what phenomena?

- a. Osmotic pressure
- b. Static equilibrium
- c. Electrochemical gradients
- d. Van der Waals forces

22. What are the four major characteristics that **ALL** cells have in common? (2 pts.)

23. The purpose of cholesterol inherent in the plasma membrane of Eukaryotic cells is to...? (1 pt.)

24. How is energy released from ATP molecules and what is the resulting molecule left over? (1 pts.)

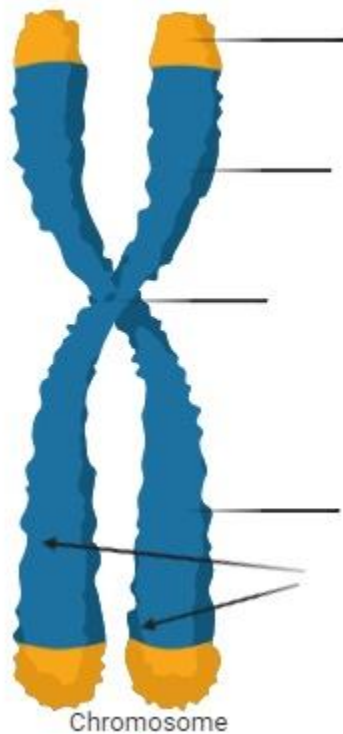
25. Write out the balanced reaction for photosynthesis below. (2 pts.)



26. Why are photosynthesis and cellular respiration said to be complementary processes? (2 pts.)

27. Label the diagram of a chromosome with the following terms: (5 pts.)

**Centromere, Telomere, q Arm, p Arm, Chromatids**



28. Endocytosis is the process of enveloping material in a fold of the cell membrane and pinching off a section to form a vesicle in order to move materials into the cell. What are the two general categories of endocytosis and how do they differ? (2 pts.)

29. What does Chargaff's rule state? (2 pts.)

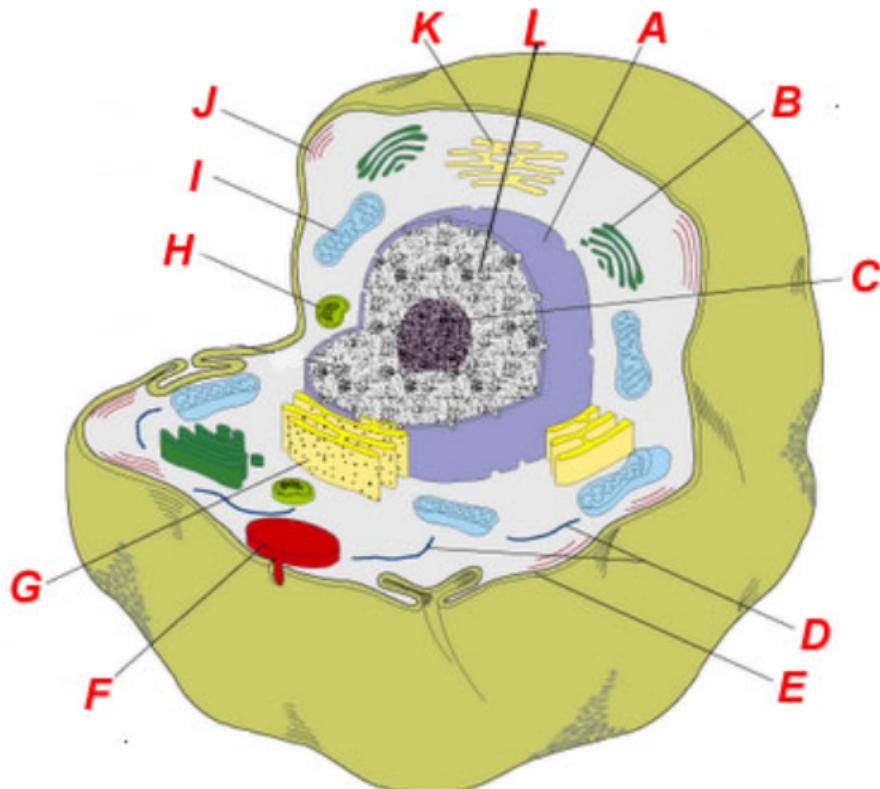
30. Transcribe the following DNA strand into the corresponding RNA Strand. (2 pts.)

5' TACAAGATGAGATTGGCTATCATTGACTGATCGTAC 3'

31. Using the chart below, translate your RNA strand from the previous question into a string of amino acids. (2 pts).

		Second letter				
		U	C	A	G	
First letter	U	UUU } Phe UUC } UUA } Leu UUG }	UCU } UCC } Ser UCA } UCG }	UAU } Tyr UAC } <b>UAA Stop</b> <b>UAG Stop</b>	UGU } Cys UGC } <b>UGA Stop</b> UGG Trp	U C A G
	C	CUU } CUC } Leu CUA } CUG }	CCU } CCC } Pro CCA } CCG }	CAU } His CAC } CAA } Gln CAG }	CGU } CGC } Arg CGA } CGG }	U C A G
	A	AUU } AUC } Ile AUA } <b>AUG Met</b>	ACU } ACC } Thr ACA } ACG }	AAU } Asn AAC } AAA } Lys AAG }	AGU } Ser AGC } AGA } Arg AGG }	U C A G
	G	GUU } GUC } Val GUA } GUG }	GCU } GCC } Ala GCA } GCG }	GAU } Asp GAC } GAA } Glu GAG }	GGU } GGC } Gly GGA } GGG }	U C A G
						Third letter

32. Label the diagram of the cell below. (5 pts.)



A		G	
B		H	
C		I	
D		J	
E		K	
F			