SCIENCE LAB RUBRIC		1	2	3	4	5
Clarity of Purpose	Heading	①	②			
	Problem/ Question	①	②			
	Hypothesis	①	②	③		
	Theory	①	②	③	④	
Organization	Materials	①	②			
	Procedures		②	③	④	⑤
	Results: Data Table	①	②	③		
	Results: Graph	①	②	③	④	⑤
Support	Data Analysis		②	③	④	⑤
	Calculations	①	②	③		
	Conclusion	①	②	③	④	⑤
Mechanic		①	②	③		

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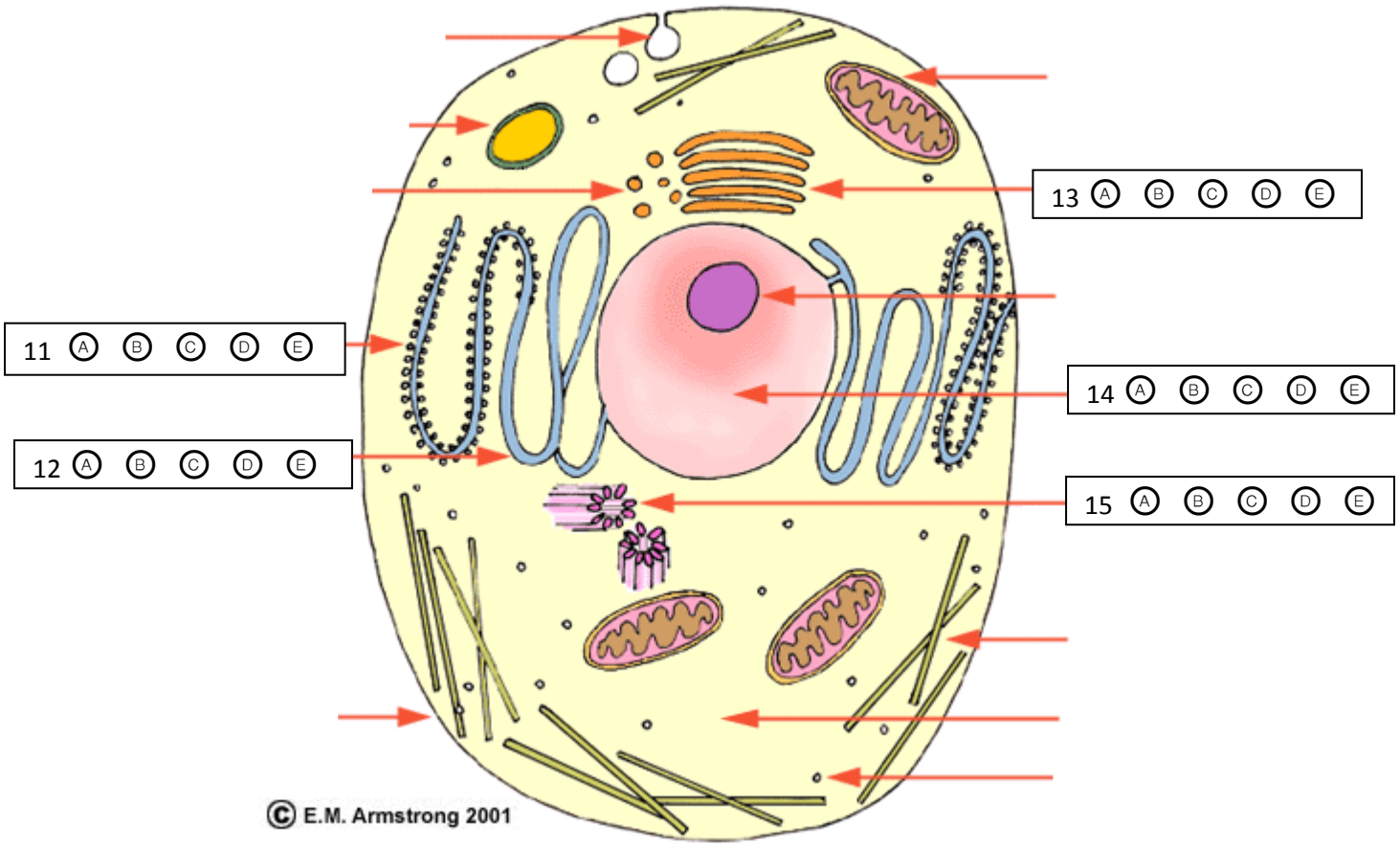
Cell Structures Common Assessment

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	1) Controls what enters and leaves the cell	a) Centriole
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	2) Stores water	b) Mitochondria
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	3) Only functions during cell reproduction	c) Cell Membrane
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	4) Site of photosynthesis	d) Vacuole
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	5) Converts sugar to energy	e) Chloroplast

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	6) Makes proteins, lipids and carbohydrates	a) Nucleus
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	7) Makes Proteins	b) Ribosome
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	8) Modifies, sorts and packages proteins	c) Golgi Body
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	9) Makes ribosomes	d) Endoplasmic Reticulum (ER)
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ	10) Stores genetic information (DNA)	e) Nucleolus



A) Centriole

B) Ribosome

C) Nucleus

D) Endoplasmic Reticulum

E) Golgi Body

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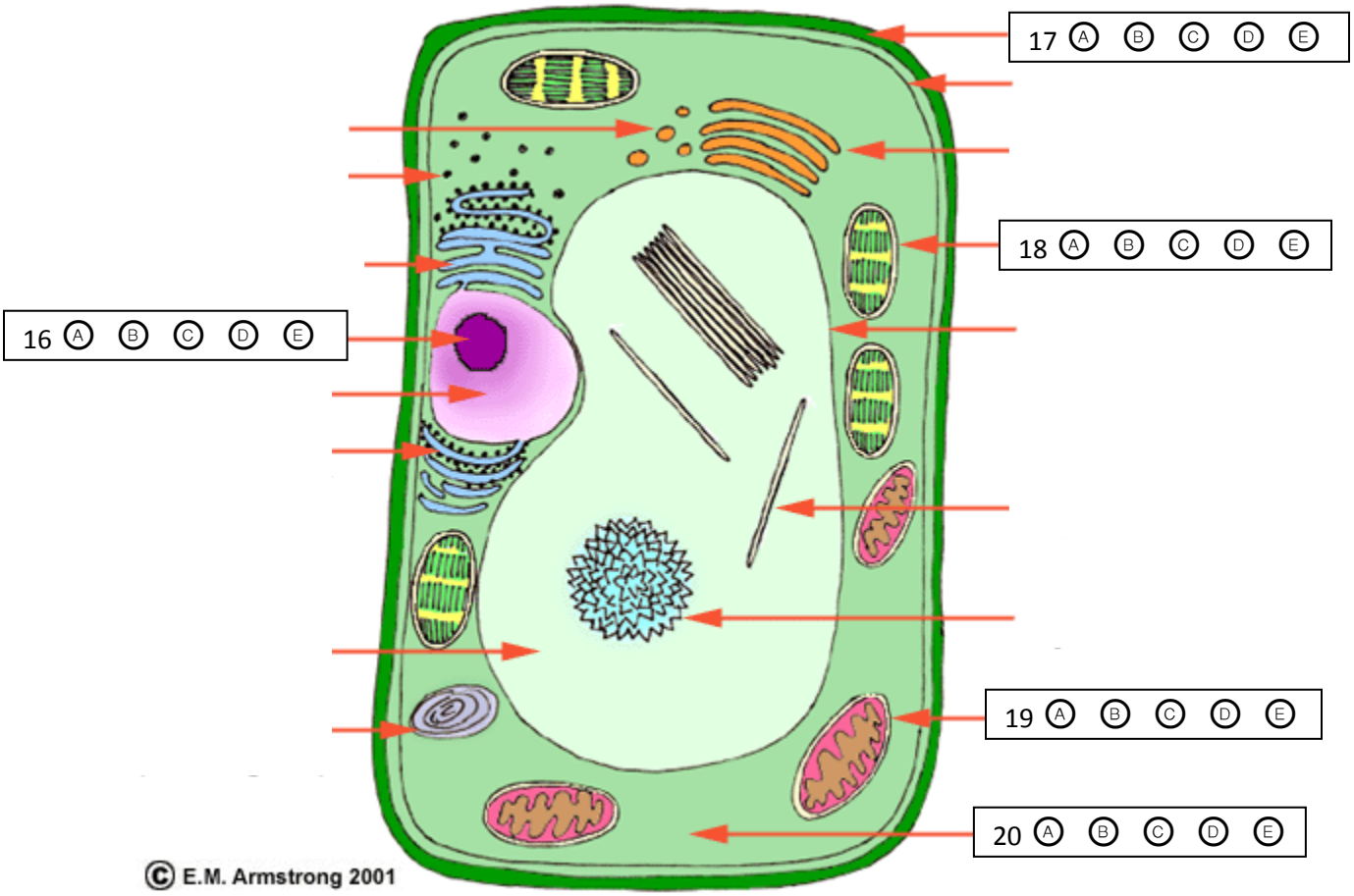

A) Cell Wall

B) Cytoplasm

C) Mitochondria

D) Nucleolus

E) Chloroplast

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DNA + Central Dogma Test

Multiple Choice

1) Which of the following sequences of processes correctly reflects the central dogma?
   - Ⓐ protein synthesis, translation, transcription
   - Ⓑ protein synthesis, transcription, translation
   - Ⓒ transcription, translation, protein synthesis
   - Ⓓ translation, transcription, protein synthesis
2) Transcription is the process of
   - Ⓐ converting the information in mRNA into a protein
   - Ⓑ making an RNA copy of DNA
   - Ⓒ converting the information in tRNA into a protein
   - Ⓓ making an exact copy of DNA
3) Translation is the process of
   - Ⓐ converting the information in mRNA into a protein
   - Ⓑ making an RNA copy of DNA
   - Ⓒ converting the information in tRNA into a protein
   - Ⓓ making an exact copy of DNA
4) Protein synthesis occurs on the
   - Ⓐ lysosome
   - Ⓑ golgi apparatus
   - Ⓒ endoplasmic reticulum
   - Ⓓ ribosomes
5) Each of the following is a type of RNA except
   - Ⓐ transfer RNA
   - Ⓑ carrier RNA
   - Ⓒ ribosomal RNA
   - Ⓓ messenger RNA

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6) The function of mRNA is to
   - Ⓐ carry amino acids to the ribosome
   - Ⓑ carry the DNA code from the nucleus to the ribosome
   - Ⓒ from a peptide bond between amino acids
   - Ⓓ signal the start of protein synthesis.

7) A sequence of three nucleotides of mRNA that codes for a specific amino acid in the synthesis of protein is called a(n)
   - Ⓐ operon
   - Ⓑ procodon
   - Ⓒ anticodon
   - Ⓓ codon

8) The function of tRNA is to
   - Ⓐ carry amino acids to the ribosome
   - Ⓑ carry the DNA code from the nucleus to the ribosome
   - Ⓒ from a peptide bond between amino acids
   - Ⓓ signal the start of protein synthesis.

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Short Answer

9) Transcribe the DNA sequence below into a molecule of mRNA. Then use the genetic code (Figure 12-4) to find the start codon in the mRNA sequence of amino acids the mRNA would translate into.

Non Template: GACTGCTACGAGTTGCCGTATATTGCGCTC

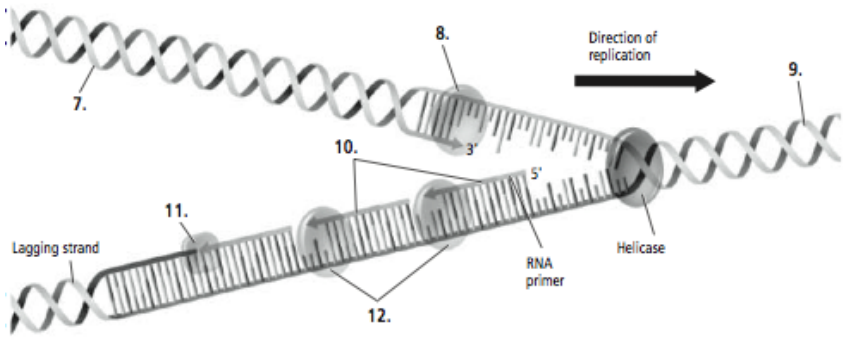
Template _____

mRNA _____

tRNA _____

Amino Acid _____

0 1 2 3 4



a) DNA ligase
b) DNA polymerase
c) leading strand
d) Okazaki Fragment
e) parent strand

10) Identify structure 7

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

11) Identify structure 8

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

12) Identify structure 9

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

13) Identify structure 10

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

14) Identify structure 11

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

15) Identify structure 12

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

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Evolution Common Assessment

Multiple Choice

1) According to Darwin's theory of natural selection, individuals who survive are most likely the ones best adapted to exist in their environment. Their survival is due to the

Ⓐ possession of structures developed through use

Ⓑ possession of adaptations that maximize fitness.

Ⓒ Lack of competition within a species

Ⓓ ability to change their genotype

2) When lions prey on a herd of antelope, some antelope are eliminated. Which part of Darwin's theory of evolution may be used to describe the situation?

Ⓐ acquired characteristics

Ⓑ reproduction isolation

Ⓒ survival of the fittest

Ⓓ speciation due to mutations

3) Natural selections I the process by which

Ⓐ the age of selected fossils is calculated

Ⓑ organisms with traits well suited to their environment survive and reproduce more successfully than organisms less suited to their environment

Ⓒ acquired traits are passes on from on generation to the next

Ⓓ All of the above

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4) How do fossils demonstrate evidence for evolution?

Ⓐ They show that ancient species share similarities with species now on Earth

Ⓑ They do not show evidence of species that are now extinct

Ⓒ They are the only source of evidence for natural selection

Ⓓ Fossils reveal that many species have remained unchanged for millions of years.

5) Which of the following is the explanation of why bird wings and reptile forelegs are evidence of evolution?

Ⓐ Similar functions point to a common ancestor

Ⓑ Analogous structures indicate a common ancestor

Ⓒ Vestigial structures point to a common ancestor

Ⓓ Homologous structures indicate a common ancestor

6) Which of the following is biochemical evidence for evolution?

Ⓐ embryonic human hemoglobin is different from adult human hemoglobin

Ⓑ Hemoglobin in humans can vary between different individuals

Ⓒ Human Hemoglobin is more similar to chimp hemoglobin than mouse hemoglobin

Ⓓ Human hemoglobin is different than mouse hemoglobin.

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7) Cytochrome c is a protein that is involved in cellular respiration in all eukaryotic organisms. Human cytochrome c contains 104 amino acids. The following table compares human cytochrome c with cytochrome c from a number of other organisms.

Organisms	Number of cytochrome c amino acids that differ from human cytochrome c amino acids
Chickens	18
Chimapanzees	0
Dogs	13
Rattlesnakes	20
Rhesus monkeys	1
Yeasts	56

Which of the following is NOT a valid inference from this data?

Ⓐ Chimpanzees are more closely related to humans than yeasts are.

Ⓑ The cytochrome c of chimpanzees differs from that of rhesus monkeys by only one amino acid

Ⓒ Dogs are more closely related to humans than chickens are

Ⓓ All of the proteins produced by chimpanzees and humans are identical

8) A(n) _____ structure is one organism can be defined as a reduced form of a functional structure in another organism.

Ⓐ homologous

Ⓑ analogous

Ⓒ vestigial

Ⓓ embryological

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9) What characteristics are common amongst all mammalian embryos?

Ⓐ Eyes

Ⓑ Gill slits

Ⓒ arms and legs

Ⓓ None of these

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Short Answer

10. Using Darwin's theory of natural selection, explain how Giraffes obtained their long necks.

0 1 2 3

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11. You are a biologist accompanying other scientists on an expedition in a region that has not been studied intensively. In your explorations, you come across a colony of small vertebrates that do not look familiar to you. After conducting electronic searches of worldwide databases, you arrive at the tentative conclusion that this organism has never been observed before. Now your job is to determine what kind of vertebrate it is by identifying its closest relatives. Identify three types of evidence that you would collect and describe how you would use the evidence to draw your conclusions.

Types of evidence:

Ⓒ 0 1 2 3

Evidence 1 explanation:

Ⓒ I

Evidence 2 explanation

Ⓒ I

Evidence 3 explanation

Ⓒ I

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