Bio12-Q2W4-5- Test2-Molecular Genetics

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- 1. A mutation in which a single base is added to or deleted from DNA is called a. a point mutation.
 - c. a frame shift mutation.
 - b. translocation.
- d. nondisjunction.
- 2. Which series is arranged in order from largest to smallest in size?
 - a. cell, nucleotide, nucleus, DNA, chromosome
 - b. cell, nucleus, chromosome, DNA, nucleotide
 - c. chromosome, nucleus, cell, DNA, nucleotide
 - d. nucleotide, chromosome, cell, DNA, nucleus



Figure 11-1

_			
 3.	Structure III in Figure 11-1 represents a(n)	·	
	a. codon	c.	DNA molecule
	b. amino acid	d.	gene
 4.	The process illustrated in Figure 11-1 is called		
	a. replication	c.	monoploidy
	b. transcription	d.	translation
 5.	In which part of the cell does this process show	n in	Figure 11-1 take place?
	a. at the ribosomes	c.	in food vacuoles
	b. in the nucleus	d.	on the chromosome
 6.	Which of the structures in Figure 11-1 are com	pose	ed of RNA?
	a. III and IV	c.	I and V
	b. II and IV	d.	III and V
 7.	X rays, ultraviolet light, and radioactive substant	nces	that can change the chemical nature of DNA are classified
	as		
	a. metamorphic molecules	c.	growth regulators
	b. mutagens	d.	hydrolytic enzymes





8. What will be the result of the mutation in Figure 11-4? a. the organism will die b. nearly every amino acid in the protein will be changed c. only one amino acid will change d. it will have no affect on protein function 9. What type of mutation has occurred in Figure 11-4? a. protein c. lethal b. frame shift d. point mutation 10. What is the complementary mRNA sequence to the DNA sequence A-T-T-G-C-A? a. U-A-A-C-G-T c. T-A-A-G-C-U b. U-A-A-C-G-U d. T-A-A-C-G-T 11. Which of the following do DNA and RNA have in common? a. Both contain thymine. c. Both contain ribose molecules. b. Both are double-stranded. d. Both contain phosphate groups. 12. A DNA segment is changed from-AATTAG- to -AAATAG-. This is a a. deletion c. point mutation b. inversion d. frameshift mutation 13. An RNA molecule is a polymer composed of subunits known as _ a. ribose molecules c. uracil molecules b. nucleotides d. polysaccharides 14. An agent that can cause a change in DNA is called a(n) inversion. a. c. zygote. mutation. d. mutagen. b.

Help Wanted

Positions Available in the genetics industry. Hundreds of entry-level openings for tireless workers. No previous experience necessary. Must be able to transcribe code in a nuclear environment. The ability to work in close association with ribosomes is a must.

Accuracy and Speed vital for this job in the field of translation. Applicants must demonstrate skills in transporting and positioning amino acids. Salary commensurate with experience.

Executive Position available. Must be able to maintain genetic continuity through replication and control cellular activity by regulation of enzyme production. Limited number of openings. All benefits.

Supervisor of production of proteins—all shifts. Must be able to follow exact directions from double-stranded template. Travel from nucleus to the cytoplasm is additional job benefit.

Table 11-1

15. Applicants for the second job of the Help Wanted ad in Table 11-1, "Accuracy and Speed," could qualify if they were _____.

a.	tRNA	с.	rRNA
b.	DNA	d.	mRNA

16. Applicants for the fourth job of the Help Wanted ad in Table 11-1, "Supervisor," could qualify if they were

a.	mRNA	c.	tRNA
b.	rRNA	d.	DNA

17. Applicants for the third job of the Help Wanted ad in Table 11-1, "Executive Position," could qualify if they were _____.

a.	rRNA	c.	mRNA
b.	DNA	d.	tRNA



- _____ 18. Which structure shown in Figure 11-3 does not contain a nitrogenous base? a. B c. C
 - b. D d. A
- _____ 19. Which structure shown in Figure 11-3 is a pyrimidine? a. C c. D
 - a. c. D b. B d. A

20. Which structure shown in Figure 11-3 would attract a free cytosine nucleotide?

- a. D c. B b. C d. A
- 21. Mutations in body cells can sometimes result in a. new species. c. hybrids. sterile offspring. d. cancer. b. 22. Ribosomes are made of _____. protein and tRNA rRNA and mRNA a. c. b. rRNA and protein tRNA and mRNA d. The backbone of a DNA molecule is made of which two components? 23. deoxyphosphate molecules and ribose sugars a. phosphate molecules and ribose sugars b. deoxyphosphate molecules and deoxyribose sugars c. phosphate molecules and deoxyribose sugars d. 24. Mutations that occur at random are called spontaneous mutations. nonrandom mutations. a. c. nonspontaneous mutations. d. environmental mutations. b. 25. Many chromosome mutations result when chromosomes fail to separate properly during a. mitosis. c. crossing over.
 - b. linkage.
- d. meiosis.

 26.	DNA is composed of nucleotide subunits, each a. uracil base.	of v c.	which contains a — ribose molecule.
	b. phosphate group.	d.	All of the above
 27.	Watson and Crick were the first to suggest that	DN	A is
	a. the shape of a double helix	c.	the genetic material
	b. a short molecule	d.	a protein molecule
 28.	A mutation is any mistake or change in the		
	a. ribosomes.	c.	cell.
	b. nucleus.	d.	DNA sequence.
 29.	In most organisms, the start of translation is sig	nale	ed by an AUG codon. What is the first amino acid in most
	proteins?		Dualina
	a. Methomne b. Isoleucine	с. d	
20	A point mutation is a shance in	u.	Leucine
 50.	A point inutation is a change in	0	soveral bases in mDNA
	a. a single base pair in DNA. b. several base pairs in DNA	c. d	several bases in IRNA .
21	Easy abromosome mutations are passed on to the	u.	several bases in trivia.
 51.	the mature organism is often incapable of r	rod	ucing offspring
	b the mature organism is sterile	nou	deing onspring.
	c. the zygote usually dies.		
	d. all of the above.		
32.	A DNA segment is changed from -AATTAGA	AA	TAG- to -ATTAGAAATAG This is a .
	a. point mutation	c.	translation
	b. inversion	d.	frameshift mutation
 33.	There are 64 different mRNA codons in the gen	netic	c code. How many possible codons would there be if a
	codon consisted of only two nucleotides?		
	a. 16	c.	8
	b. 64	d.	32
 34.	When part of one chromosome breaks off and i	s ad	ded to a different chromosome, the result is a(n)
	a. translocation.	c.	deletion.
	b. insertion.	d.	inversion.
 35.	A DNA nucleotide may be made up of a phosp	hate	group, along with
	a. ribose sugar and adenine	C.	deoxyribose sugar and thymine
	b. ribose sugar and cytosine	d.	deoxyribose sugar and uracil
 36.	The two strands of DNA in the double helix str	uctu	ire are held together by which of the following
	interactions?	0	Jonia handa
	a. Covalent bolids b. Hydrogen bonds	C. d	Van der Waals forces
27	Translation is the process of suppliciting prote	u. in fi	van der Waars forces
 57.	amino acids from the cytoplasm to the ribosom	nn n e fo	r translation?
	a mRNA	с 10. С	tRNA
	b. rRNA	d.	All of the above
38	Some mutagens, such as the sun's UV radiation	1. ca	use mutations in somatic cells, such as dermal cells.
 20.	Which of the following is NOT likely to occur	as a	result of such a mutation?
	a. Exposed skin cells may function improperl	y.	
	b. Skin cancer may develop in the exposed in	divi	dual.
	c. Skin cancer may develop in the offspring o	f the	e exposed individual.
	d. All of the above consequences are likely.		

39.	Chromosomal mutations are especially commo	n in	
	a. animals.	c.	plants.
	b. humans.	d.	bacteria.
40.	The process of cell division requires the parent	cell	to synthesize more DNA molecules. These molecules are
	produced by which of the following mechanism	ns?	
	a. Transcription	c.	Mitosis
	b. Replication	d.	Translation
41.	The chromosome abnormality that occurs when	ı pai	rt of one chromosome breaks off and is added to a different
	chromosome is	-	
	a. translocation	c.	nondisjunction
	b. deletion	d.	inversion
42.	The process by which a DNA molecule is copie	ed is	called
	a. replication	c.	mitosis
	b. translation	d.	binary fission
43.	Which one of the following nucleotide pair bon	nds v	would be found in a DNA molecule?
	a. cytosine-uracil	c.	adenine-guanine
	b. adenine-cytosine	d.	guanine-cytosine
44.	The pairing of in DNA is the key feature	e tha	t allows DNA to be copied.
	a. nucleotides	c.	chromosomes
	b. codons	d.	nitrogen bases
45.	The failure of homologous chromosomes to se	oara	te properly is called
	a. deletion.	c.	nondisjunction.
	b. disjunction.	d.	translocation.