

Q.3. Complete the following (7 marks):

1. The type of nitrogenous base "guanine" is purine.

2. Function of K element in human body is important in nerve function.

3. Comment: About two third of any organism's body is composed of water.

the water has a high specific heat and enables organisms to maintain a relatively constant internal temperature.

4. Glycogen, starch, and cellulose are all polymers of glucose, while

chitin is polymer of N-acetylglucosamine.

5. Lactose consists of glucose and galactose.

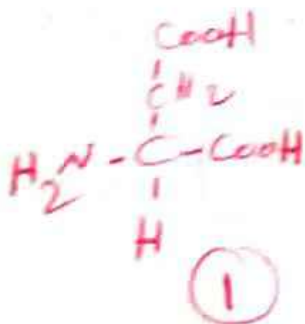
6. Botany is study of plants, while the study of fungi is known as mycology.

7. The as face of Golgi apparatus is usually located near endoplasmic reticulum.

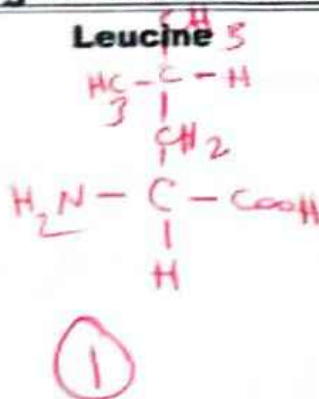
8. Function of glyoxysomes is conversion of stored lipid molecules into the molecules of carbohydrates.

Q.4. With drawing illustrate the following (8 Marks)

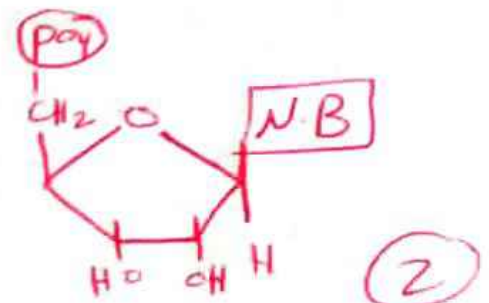
Aspartic acid



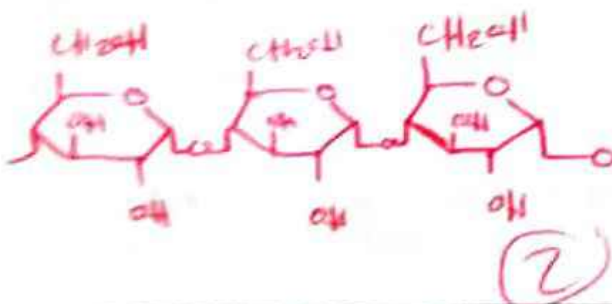
Leucine



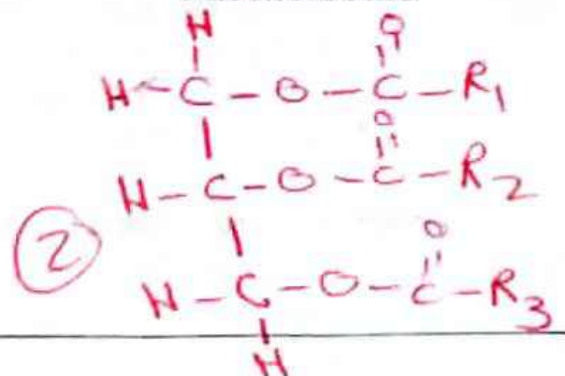
Nucleotide of RNA



Amylose



Fat molecule



Good Luck ☺

17	When the level of sugar in the blood is too high, the excess sugar is stored in the muscle to be used later as needed. Which characteristic of life is described here?	
	A. sensitivity	B. development
	☒ C. homeostasis	D. coordination
18	Which of the following statements is false about water?	
	A. Oxygen atoms in a water molecule are partial negatively charged and hydrogen atoms are partial positively charged.	B. Hydrogen bonds link hydrogen atoms in one water molecule to oxygen atoms in another molecule.
	☒ C. Water takes very little heat to change its temperature.	D. Transmission of water from a liquid to gas requires large amount of energy.
	E. Water molecule is not linear	F. None of these.
19	Which of the following is the correct order of elements in human body?	
	A. oxygen, carbon, nitrogen and hydrogen	C. oxygen, nitrogen, hydrogen and carbon.
	B. oxygen, hydrogen, nitrogen and carbon.	☒ D. oxygen, carbon, hydrogen and nitrogen.
20	Which of the following statements is FALSE?	
	A. Chromosomes are composed of chromatin, a mixture of DNA (40%) and histone proteins (60%)	B. It is surrounded by a nuclear envelope that is continuous with the endoplasmic reticulum
	C. Centromere is an attachment site for fibers that assist in cell division	D. The nucleus is not an organelle.
	E. DNA is organized into chromosomes when a cell prepares to divide	☒ F. None of these
21	Which organelle makes the enzymes?	
	A. lysosomes	B. Golgi apparatus
	☒ C. endoplasmic reticulum	D. peroxisomes
22	Which of the microscopes below is usually good for unstained specimens?	
	☒ A. phase-contrast	B. fluorescence
	C. bright-field	D. scanning electron
	E. transmission electron	
23	The Golgi apparatus is involved in	
	A. transporting proteins that are to be released from the cell	B. packaging proteins into vesicles
	C. altering or modifying proteins	D. producing lysosomes
	☒ E. all of these	
24	The term "homologous chromosomes"	
	A. must be haploid	B. is another name for sister chromatids
	C. refers to replications of the same chromosome	☒ D. means a pair of chromosomes of the same kind
25	The class of lipids that does not contain fatty acids is	
	A. triglycerides	☒ B. steroid
	C. phospholipids	D. waxes

9	Keratin is	
	A. transport protein C. contractile protein	☒ B. structural protein D. regulatory protein
10	The polysaccharide that is the major structural material of plants is	
	A. amylopectin B. starch E. amylose	☒ B. glycogen ☒ D. cellulose F. A, B and E
11	All of the following are correct about the DNA replication EXCEPT	
	A. On the lagging strand, one RNA primer is required for the beginning of every Okazaki fragment. C. One DNA molecule becomes two identical molecules as a result of this process.	☒ B. There is one replication fork in one replication bubble. D. DNA strand only grows in 5' to 3' direction because DNA polymerases can only add nucleotides to the 3' end of the growing strand.
12	Using the given information, determine the correct order of the following events during the replication of the lagging strand. a. The DNA double helix unwinds. b. The Okazaki fragments are joined. c. The RNA primase builds an RNA primer. d. Nucleotides are added.	
	☒ A. a, c, d, b C. d, a, b, c	B. a, b, c, d D. c, a, d, b
13	The α helix and β sheet are found in many different proteins because they are formed by	
	☒ A. Hydrogen bonding between atoms of the polypeptide backbone. C. Ionic interactions between charged amino acid side chains. E. Hydrophobic interactions between the many nonpolar amino acids.	B. Non covalent interactions between amino acid side chains. D. Hydrogen bonding between the amino acid side chains. F. None of the above
14	Altering which of the following levels of structural organization could change the function of a protein?	
	A. primary C. tertiary E. B, C and D	B. secondary D. quaternary ☒ F. all of these
15	If one strand of a DNA molecule has the sequence of bases 5'-ATTGCA-3', the other strand would have the sequence	
	☒ A. 3'-TAACGT -5' C. 5'-TAACGT -3'	B. 3'-UAACGU -5' D. 5'-UAACGU -3'
16	What do phase-contrast and dark-field microscopes have in common?	
	☒ A. They increase contrast between the specimens and their surroundings without staining C. They make specimens fluoresce	B. They make specimens appear bright on a dark background D. They make specimens appear dark on a bright background

Q.2. True (✓) or False (x)? (10 marks)

1	The cholesterol molecules or unsaturated hydrocarbon chains of the biological membranes prevent them from the increased fluidity at high temperature.	FX
2	The leading strand that formed after DNA replication is an exact copy of its parent strand.	FX
3	The prokaryotic 70S ribosome composed of 3 molecules of rRNA bound with complex of several different proteins.	T✓
4	Autolysis can be a normal event during cell growth and repair, and in this process, the heterophagosomes maintains the health of organism.	FX
5	Red blood cell has a biconcave shape because a spectrin protein links proteins in the plasma membrane with intermediate filaments in the cell's cytoskeleton.	FX
6	Fungi have several linear chromosomes and their cell wall composed of chitin.	T✓
7	An ionic bond can be formed between side groups of aspartic acid and lysine, while a hydrogen bond can be formed between side groups of valine and leucine.	FX
8	The digestion of the carbohydrates needs energy and water.	FX
9	When the cell grows and becomes very larger, the ratio of volume to surface area becomes much larger. Therefore, the cell cannot exchange materials easily to meet its needs.	T✓
10	Essential amino acids can be synthesized by an organism so they must not be obtained from the dietary proteins.	FX

ملاحظة: يجب نقل إجابات اختر على الجدول الآتي

No.	A	B	C	D	E	F
1				X		
2			X			
3			X			
4	X					
5					X	
6			X			
7		X				
8		X				
9		X				
10				X		
11		X				
12	X					
13	X					
14						X
15	X					
16	X					
17			X			
18			X			
19				X		
20						X
21			X			
22	X					
23	X				X	
24				X		
25		X				

ملاحظة: يجب كتابة الاسم رباعي وباللغة العربية

اسم الطالب/ة:

Q.1. Choose the correct answer (25 marks):

1	A strong covalent bond between amino acids that functions in maintaining a polypeptide's specific three-dimensional shape is	
	A. ionic bond	B. hydrophobic interaction
	C. van der Waals interaction	☒ D. disulfide bond
	E. hydrogen bond	F. peptide bond
2	Which molecules in the cell membrane are mostly glycoproteins?	
	A. carrier molecules	B. channel proteins
	☒ C. marker molecules	D. receptor molecules
	E. enzymes	F. transport proteins
3	Denaturation of proteins results in	
	A. disruption of primary structure	B. breakdown of peptide bonds
	☒ C. destruction of hydrogen bonds	D. none of these
4	The chromosome that looks like I during anaphase is called	
	☒ A. telocentric chromosome	B. acrocentric chromosome
	C. submetacentric chromosome	D. metacentric chromosome
5	Which structure protects bacteria from being phagocytized?	
	A. pili	B. capsule
	C. cell wall	D. glycocalyx
	☒ E. B and D	
6	A group of organisms of the same kind is called a	
	A. biosphere	B. community
	☒ C. population	D. ecosystem
7	Which of the following is NOT true of smooth ER?	
	A. makes testosterone	☒ B. makes proteins
	C. detoxifies drugs	D. pumps calcium ions
	E. makes lipids	
8	Where would you expect to find serine and alanine in a globular protein in aqueous solution?	
	A. Serine would be in the inside, and alanine would be on the surface of the globular protein.	☒ B. Alanine would be in the inside, and serine would be on the surface of globular protein.
	C. Both serine and alanine would be in the inside of the globular protein	D. Both serine and alanine would be on the surface of the globular protein.
	E. Both serine and alanine would be in the inside and on the surface of the globular protein.	

ملاحظة: يجب كتابة الاسم رباعي وباللغة العربية

اسم الطالب/ة:



Answer all the following questions

Q.1. Choose the correct answer (25 marks):

1	_____ anchor the nucleus and some organelles to their places in the cell.	A. Intermediate filaments	B. Microtubules
		C. Microfilaments	D. Centrioles
2	Which molecules in the cell membrane are mostly glycoproteins?	A. carrier molecules	B. channel proteins
		C. transport proteins	D. receptor molecules
		E. enzymes	F. marker molecules
3	All the following processes need energy EXCEPT:	A. synthesis of fats	B. conduction of nerve impulse
		C. photosynthesis	D. muscle contraction
		E. formation of peptide bonds	F. all of above
4	The chromosome that looks like L during anaphase is called	A. telocentric chromosome	B. acrocentric chromosome
		C. submetacentric chromosome	D. metacentric chromosome
5	The process by which the bacteria enter the cell is called	A. pinocytosis	B. phagocytosis
		C. exocytosis	D. receptor mediated endocytosis
6	The class of lipids that does not contain fatty acids is	A. triglycerides	B. steroids
		C. phospholipids	D. waxes
7	A polysome contains	A. mRNA	B. tRNA
		C. rRNA	D. all of the above
8	All of the following are synthesized on free ribosomes and released in the cytosol EXCEPT:	A. nuclear matrix protein	B. cytoskeletal protein
		C. peroxisome protein	D. mitochondria protein
		E. chloroplast protein	F. plasma membrane protein

18	Arrange the following in correct sequence: 1. Vesicles are pinched off from Golgi apparatus carrying newly formed proteins to plasma membrane. 2. Polypeptide chains move through rough ER and then carried in vesicles to Golgi apparatus. 3. Golgi apparatus modifies many of proteins and then packages them into vesicles. 4. Polypeptide chains are made by ribosomes on rough ER.	
	A. 2, 4, 3, 1	B. 4, 2, 3, 1
	C. 4, 2, 1, 3	D. 2, 4, 1, 3
19	Tissues that subject to mechanical stress such as muscle and skin epithelium are characterized by	
	A. tight junctions	B. desmosomes
	C. plasmodesmata	D. gap junctions
20	The major components of extracellular matrix of animal cells are	
	A. glycolipids	B. lipoproteins
	C. glycoproteins	D. All of the above
21	Microtubules grow from the poles of the cell to kinetochores of each chromatid during	
	A. metaphase	B. interphase
	C. anaphase	D. prophase
	E. telophase	F. cytokinesis
22	Fluidity of plant cell membrane is increased by	
	A. unsaturated phospholipids	B. saturated phospholipids
	C. cholesterol	D. all of the above
23	_____ has peptidyl transferase activity	
	A. 40S ribosomal subunit	B. 60S ribosomal subunit
	C. Aminoacyl tRNA	D. all of the above
24	Which of the following statements is true about DNA replication?	
	A. One DNA molecule becomes two identical ones as a result of this process.	B. It occurs during mitosis but not meiosis
	C. It is part of the protein synthesis process	D. All of the above
25	The primary structure of a protein refers to	
	A. interactions among the side chains or R-groups of the amino acids	B. coiling due to hydrogen bonding between amino acids
	C. the number and sequence of amino acids	D. the interaction of two or more polypeptides





9	The junctions in plant cells that are between adjacent cells are	B. gap junctions D. tight junctions
	A. anchoring junctions C. plasmodesmata	
10	Which of the following structure-function pairs is incorrect?	B. Golgi apparatus - protein synthesis D. chloroplast - photosynthesis F. glyoxysome - lipid metabolism
	A. nucleolus - ribosome production C. peroxisome - detoxification of poisons E. lysosome - extracellular digestion	
11	During which stage of meiosis do the homologous chromosomes begin to separate?	B. telophase I D. anaphase I F. telophase II
	A. prophase I C. anaphase II E. prophase II	
12	Which of the following does NOT involve microfilaments?	B. cellular extension D. formation of cytokinesis
	A. muscle contraction C. movement of chromosomes in cell division	
13	Which of the following statements about water is false?	B. Hydrogen bonds link water molecules in one water molecule to another molecule. D. Water takes very little heat to change the temperature of water
	A. Oxygen atoms in a water molecule are partial negatively charged and hydrogen atoms are partial positively charged. C. Ice is less dense than liquid water	
14	Location where mRNA and ribosomal subunits associate	B. cytoplasm D. rough ER
	A. nucleus C. nucleolus	
15	The structures that digest extracellular substances which enter the cell by endocytosis are called	B. autophagosomes D. residual bodies
	A. primary lysosomes C. heterophagosomes	
16	Chlorophyll pigment is	
	A. steroid C. fat	
17	If one strand of a DNA molecule has the sequence of bases 5'-ATTG-3' the other strand would have the sequence	B. terpene D. phospholipid
	A. 3'-TAACGT-5' C. 5'-TAACGT-3'	
		B. 3'-UAACGU-5' D. 5'-UAACGU-3'

Q.3. True or False? (8 marks)

- 1.() Prophase I is characterized by one-sided attachment of kinetochores but prophase II is characterized by two-sided attachment of kinetochores
- 2.() Glycogen and cellulose are polymers of α -glucose, glycogen is branched while cellulose is non branched.
- 3.() In eukaryotes, RNA polymerase II synthesizes mRNA while RNA polymerase III synthesizes tRNA.
- 4.() Spermatogonia, primary oocytes, and somatic cells are diploid ($2n$).
- 5.() Synapsis, crossing over, and reduction of number of chromosomes occur during prophase I.
- 6.() Insulin is made up of two polypeptide chains that are synthesized separately.
- 7.() The P site is the site on the large subunit of ribosome where the tRNA adds its amino acid to the growing polypeptide chain.
- 8.() In counter transport, Na^+ enters the cell against its concentration gradient while Ca^{++} leaves the cell down its concentration gradient.
- 9.() Interleukin is a protein that stimulates the production of red blood cells.
- 10.() The aim of mitosis in unicellular and multicellular organisms is reproduction.
- 11.() Collagen is structural protein but myoglobin is transport protein.
- 12.() Oxidation of proteins needs water and releases energy and this reaction is called hydrolysis
- 13.() Alanine is polar amino acid while serine is non polar amino acids.
- 14.() When a muscle is stimulated by nerve impulse, smooth ER pumps calcium ions from the cytosol into the cisternal space.
- 15.() Phosphorylation of sodium-potassium pump carrier causes sodium to leave the carrier while its dephosphorylation causes sodium to bind with it.
- 16.() During G_0 , cells are not considered to be in the cycle of division but become specialized in their function.

16	Replication results in:	A. 2 completely new DNA molecules	B. 2 DNA molecules that each contain a strand of the original molecule
		C. 1 new DNA molecule, 1 old molecule is conserved	D. a single strand of DNA is copied to make two single strands of DNA
17	Which of the following represents the correct order of the phases of the cell cycle?	A. G ₁ - G ₂ - S - M	B. G ₁ - S - G ₂ - M
		C. G ₁ - G ₂ - M - S	D. G ₁ - S - M - G ₂
		E. G ₁ - M - G ₂ - S	F. S - G ₁ - G ₂ - M
18	The permeability of most membranes is reduced by the presence of _____ in the membrane.	A. lipoproteins	B. proteins
		C. cholesterol	D. glycolipids
19	A protein that is composed of more than one polypeptide chain has	A. primary structure	B. secondary structure
		C. quaternary structure	D. tertiary structure
20	Which molecule serves to destabilize the DNA helix in order to open it up, creating a replication fork?	A. DNA polymerase III	B. DNA helicase
		C. DNA ligase	D. single strand binding proteins
		E. DNA polymerase I	F. primase

Q.2. Define the following (5 marks):

1. Nucleosome:

2. Primer:

3. Acrocentric chromosome:

4. Hemidesmosome:

5. Osmosis:



- (7) _____ polymerase binds and initiates transcription.
- (8) Water forms an abundance of hydrogen bonds, which are responsible for many of its physical properties such as:
- A. _____,
 - B. _____,
 - C. _____ and
 - D. _____.
- (9) If a protein's environment is altered, the protein may change its shape or unfold, and this process is called _____.
- (10) The bonds that join nucleotides with each other called _____.
- (11) The requirements which are needed to pass the cell G₁ checkpoint:
- A. _____,
 - B. _____,
 - C. _____ and
 - D. _____.
- (12) The intermediate filaments that occur in all types of muscle fibers composed of protein called _____.
- (13) Lactose consists of _____ and _____ that joined by a bond called _____.
- (14) Plasmolysis occurs when a plant cell is immersed in a _____ solution.
- (15) _____ is the microscope that uses ultraviolet to illuminate specimens.
- (16) When DNA replication occurs, the enzyme which separates the two sides of the helix is called _____.
- (17) During RNA processing, the cap is attached to _____ end of pre-mRNA and the function of this cap is _____ and _____.
- (18) Comment: The offspring of sexual reproduction vary genetically from both parents and from each other?
- _____

Answer all the following questions

Q.1. Choose the correct answer (20 marks):

1	All of the following are synthesized on free ribosomes and released in the cytosol EXCEPT:	
	A. nuclear proteins	B. mitochondrial proteins
	C. peroxisomal proteins	D. lysosomal proteins
	E. cytoskeletal proteins	F. chloroplast proteins
2	The role of the oligosaccharides on the cell membrane is?	
	A. transport	B. cell recognition
	C. catalysis	D. adhesion
	E. receptor molecules	F. none of the above
3	In translation, The sequence of anticodon of the last charged tRNA is	
	A. UAG	B. UAC
	C. AUC	D. AUG
	E. ATC	F. TAC
4	Arrange the following in correct sequence:	
	1. Vesicles are pinched off from Golgi apparatus carrying newly formed proteins to plasma membrane.	
	2. Polypeptide chains move through rough ER and then carried in vesicles to Golgi apparatus.	
	3. Golgi Apparatus separates and modifies varieties of proteins and then packages them into vesicles.	
	4. Initiated by RNA, polypeptide chains are made by ribosomes on rough ER.	
	A. 2, 4, 3, 1	B. 2, 4, 1, 3
	C. 4, 2, 1, 3	D. 4, 2, 3, 1
5	The sequence of nucleotides in a messenger RNA molecule is needed to determine the sequence of	
	A. nucleotides in a gene	B. amino acids in a protein
	C. nucleotides in the anticodons of t-RNA	D. codons in DNA
6	Which of the following is a non membranous organelle?	
	A. a mitochondrion	B. the rough ER
	C. a centriole	D. a lysosome

7	A polysome contains	D. all of the above
	A. mRNA	
	C. rRNA	
8	What is the complementary strand of the following mRNA 5' GCACGUUUACCGA 3'	B. 5' CGUGCAA AUGGCU 3'
	A. 3' CGUGCAA AUGGCU 5'	D. 5' CGTGCAAATGGCT 5'
9	The α helix and β sheet are found in many different proteins because they are formed by	
	A. hydrogen bonding between the amino acid side chains	B. non covalent interactions between amino acid side chains and the polypeptide backbone
	C. ionic interactions between charged amino acid side chains	D. hydrophobic interactions between the many nonpolar amino acid side chains
	E. hydrogen bonding between atoms of the polypeptide backbone	F. none of the above
10	What enzyme catalyzes the formation of peptide bonds during translation?	
	A. transferase A	B. aminoacyl tRNA synthetase
	C. ribosomal ATPase	D. peptidyl transferase
	E. protease	F. none of the above
11	Which of the following structure-function pairs is mismatched?	
	A. nucleolus - ribosome production	B. lysosome - extracellular digestion
	C. ribosome - protein synthesis	D. Golgi apparatus - ATP production
	E. chloroplast - photosynthesis	F. Glyoxysome - storage of lipids
12	During which stage of meiosis do homologous chromosomes begin to move toward the poles?	
	A. prophase I	B. telophase I
	C. anaphase II	D. anaphase I
	E. prophase II	F. telophase II
13	Facilitated transport and active transport are similar in that both:	
	A. require ATP	B. move substances down the concentration gradient
	C. move substances against the concentration gradient	D. are passive processes
	E. require carrier proteins	F. require receptor proteins
14	Which of the following does NOT involve microtubules?	
	A. contraction of spindle	B. pinching during division
	C. movement of chromosomes during division	D. flagella motion
15	Location where mRNA and ribosomal subunits associate	
	A. nucleus	C. cytoplasm
	C. nucleolus	D. rough ER

Q.2

1. N

2. P

3. A

4. I

Q.4. With drawing illustrate

1. ADP

2. Valine

3. Fructose (straight chain)

4. Formation of peptide bond

5. Nucleotide of DNA

ing (12 marks):

1. During mitosis, a parent cell having four chromosomes will produce two daughter cells, each containing _____ chromosomes.
2. The requirements which are needed to pass the cell G₁ checkpoint _____, _____ and _____, and _____.
3. Meiosis is reduction division because _____.
4. Water forms an abundance of hydrogen bonds, which are responsible for many of its physical properties such as: _____, _____, _____ and _____.
5. If a protein's environment is altered, the protein may change its shape or unfold, and this process is called _____.
6. Maltose consists of _____ and _____.
7. Phospholipid molecule consists of _____, _____ and _____.
8. The intermediate filaments that line the inner nuclear membrane is called _____.
9. Desmosomes are _____ junctions but plasmodesmata are _____ junctions.
10. Decreasing the cholesterol level in human blood is carried out by a process called _____.

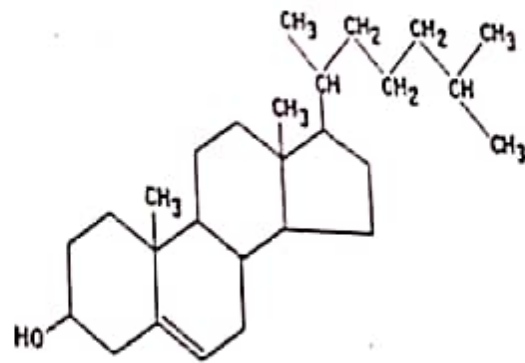
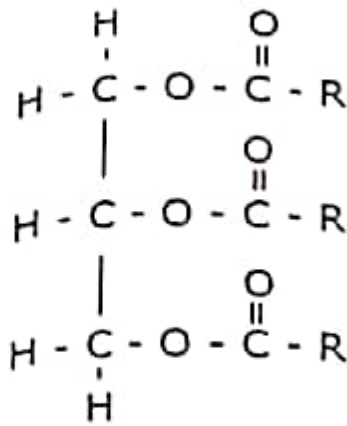
Q.2. True (✓) or False (x)? (10)

1. () In human body, germ line cells and somatic cells are diploid (2n).
2. () The smooth endoplasmic reticulum has a role in blood glucose homeostasis and detoxification of drugs.
3. () The aim of mitosis in unicellular and multicellular organisms is reproduction.
4. () Cilia exhibit an undulatory motion, while the flagella have a sweeping motion.
5. () Insulin is made up of two polypeptide chains that are synthesized separately and connected by disulfide bonds.
6. () Phosphorylation of sodium-potassium pump carrier causes sodium to leave the carrier while its dephosphorylation causes potassium to bind with it.
7. () Dark field microscope is ideal for observing colorless living microorganisms.
8. () Alanine is polar amino acid while serine is nonpolar amino acids.
9. () According to the fluid-mosaic model, the hydrophilic heads of the phospholipids face the intra and extracellular fluids.
10. () In counter transport, Ca^{++} leaves the cell against its concentration gradient while Na^{+} enters the cell down its concentration gradient.

Q.3. Complete the following (15 marks) :

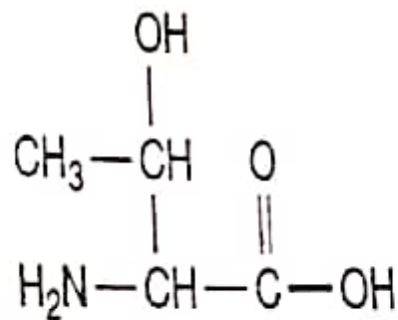
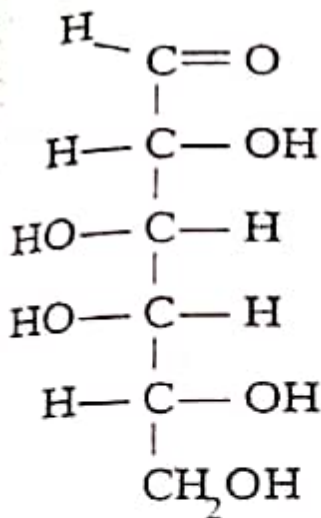
- (1) Non-coding sequences in a gene are known as _____.
- (2) _____ is a protein released by certain body cells that stimulates other cells to divide.
- (3) _____ are substances that maintain a relatively constant pH in living cells.
- (4) The phospholipid molecule consists of
A. _____,
B. _____ and
C. _____.
- (5) Gametogenesis is defined as _____.
- (6) The arrangement of microtubules of basal body is _____.

Q.5. Identify the following: (5 marks)



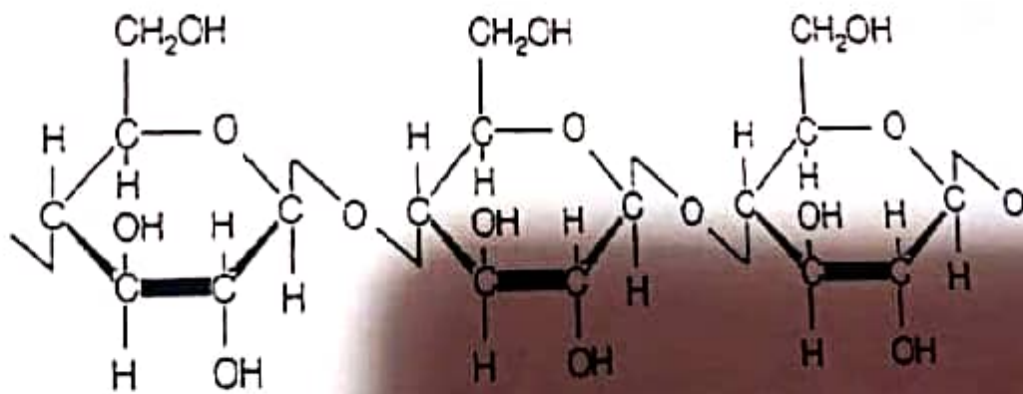
1. _____

2. _____



3. _____

4. _____



5. _____



Good Luck ☺



pharmacy team

11. Comment: Winter wheat tolerates extreme cold by increasing the percentage of unsaturated phospholipids in autumn.

12. What happens when plant cell is placed in hypotonic solution?

Q.5. With drawing illustrate the following (5 Marks)

Lysine	β -glucose	Nucleotide of DNA
ATP	Cholesterol	



Al-Ahar University – Gaza

Faculty of Science / Biology Dept



General Biology Final exam 1st semester 2020/2021

Answer all of the following questions

Q1. Define and give an example of the following

1. Nucleosides
2. Phosphodiester linkage
3. Nucleotide polymers
4. Isomers
5. Monomers molecules
6. Peptide bond
7. cytokinesis
8. chromatid
9. prometaphase
10. Microtubules

Q2. Short Answer

1. Just mention the components of Nucleic Acids
2. The main differences between RNA and DNA
3. What is the Sugar-phosphate backbone?

4. **Hydrocarbons are not prevalent in most living organisms**
5. **Acidic and basic condition affect living organism**

Q3. Explain the importance of the following

1. **Proteins are considered very essential of most cells, (Give example)**
2. **The formation and function of molecules depend on chemical bonding between atoms**
3. **Cilia and Flagella**
4. **The cytoskeleton is a network of fibers that organizes structures and activities in the cell**

Q4. What are the four main classes of large biological molecules? Which class does not consist of polymers?

Q5. Why are human sex hormones considered lipids?

Q6. What parts of a polypeptide participate in the bonds that hold together secondary structure? Tertiary structure?

Q7.

1. **What role do ribosomes play in carrying out genetic instructions?**
2. **Describe the structural and functional distinctions between rough and smooth ER.**
3. **Describe how transport vesicles integrate the endomembrane system.**

Q8. Do plant cells have mitochondria? Explain

Q9. Describe the following

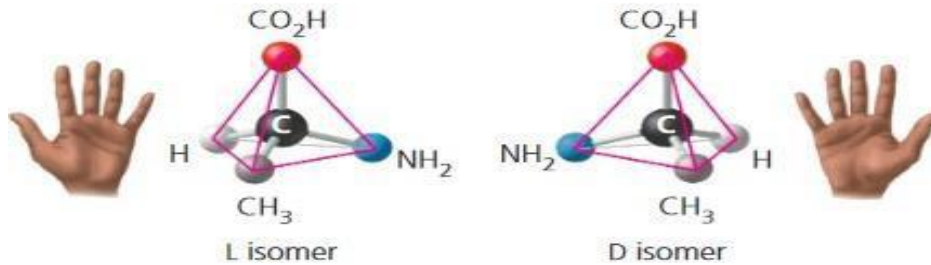
1. **The evidence that DNA can transform bacteria**
2. **Additional evidence that DNA is the Genetic material**

Q10.

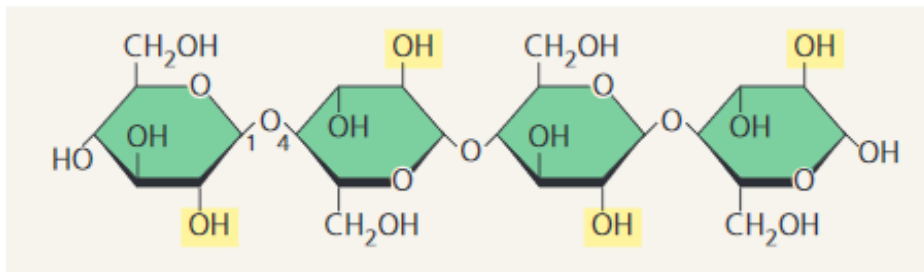
1. **Explain nucleotide excision repair of DNA damage.**
2. **Identify two major functions of DNA pol III in DNA replication.**

Bonus Question

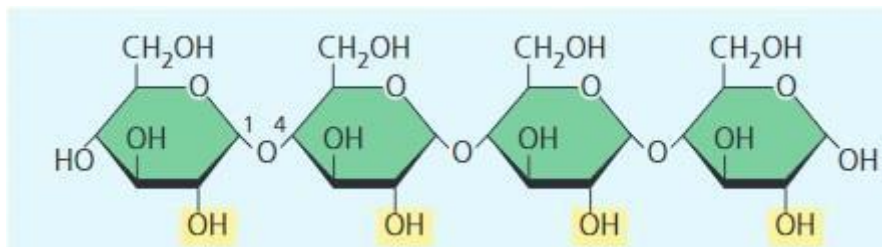
1. Show the linear and ring forms of glucose
2. Illustrate examples of disaccharide synthesis.
3. Names the following structure



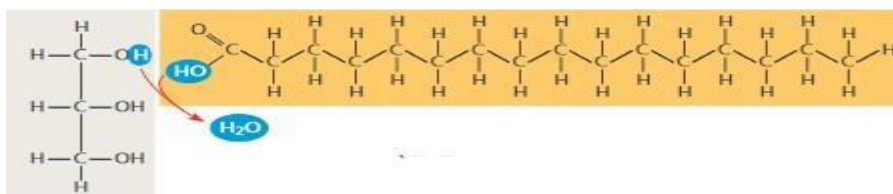
1.-----



2. -----

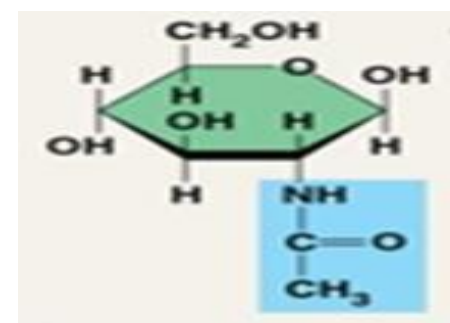


3-----



4-----

5.-----



نماذج إمتحانات

المستوى الدراسي : الأول

المادة الدراسية : علم الخلية
"Cell Biology"



الاتحاد الفلسطيني لطلاب الصيدلة - جامعة الأزهر - غزة
Al Azhar Scientific Pharmaceutical Students' Association

لجنة التعليم المستمر

Answer all the following questions

Q.1. True or False? And correct the false. (15 marks)

1. () Germ line cells and somatic cells are diploid ($2n$).
2. (X) Synapsis, crossing over, and reduction of number of chromosomes occur during prophase I.
3. (✓) Translocation results when a segment of DNA breaks off, moves from one chromosome, and is inserted into its homologous chromosome.
4. (X) In Na / K pump, three Na^+ pumping in the cell and two K^+ out.
5. () Insulin is made up of two polypeptide chains that are synthesized separately.
6. (✓) Microfilaments are about $7\text{ }\mu\text{m}$ in diameter, while microtubules are about $25\text{ }\mu\text{m}$ in diameter.
7. () Dyneins move organelles toward the nucleation center.
8. (✓) The E site is the site on the small subunit of ribosome from where the tRNA leave the ribosome.
9. (X) In counter transport, Na^+ enters the cell against its concentration gradient while Ca^{++} leaves the cell down its concentration gradient.
10. (✓) Somatic mutations are passed on to the daughter cells after mitosis.

11. (✓) The proteins which are sent to nucleus, mitochondria, and lysosomes are synthesized on free ribosomes and released to the cytoplasm.
12. () Interleukin is a protein that stimulates the production of red blood cells.
13. (✓) The aim of mitosis in unicellular and multicellular organisms is reproduction.
14. () The smooth endoplasmic reticulum is responsible has a role in blood glucose homeostasis.
15. () Water contracts (get smaller) when it freezes, so it floats on the surface of liquid water.

Q.2. Choose the correct answer: (45 marks)

1. The chromosome that has only one arm is called

- a. telocentric chromosome
- b. acrocentric chromosome
- c. submetacentric chromosome
- d. metacentric chromosome

2. The action of helicase creates _____.

- a. primers and DNA fragments
- b. primers and replication bubbles
- c. DNA fragments and replication forks
- d. replication forks and replication bubbles
- e. DNA fragments and replication bubbles

3. The antiparallel nature of double-stranded DNA means that

- a. the two strands run from 5' to 3' in opposite direction.
- b. the 5' ends of the two strands are on the opposite ends of the DNA molecule.
- c. the two DNA strand twist around each other in a helical pattern.
- d. (a and b)
- e. (a and c)

4. A protein that is composed of more than one polypeptide has
- primary structure
 - secondary structure
 - tertiary structure
 - quaternary structure
5. How is water's high heat of evaporation beneficial to us?
- It allows us to cool by sweating
 - It allows better temperature control inside cells
 - It keeps cells from becoming hydrophobic
 - It protects enzymes from rises in temperature which would deactivate them
6. Bacteria do not have
- ribosome
 - a plasma membrane
 - a true nucleus
 - a genome.
7. Which of these does not require energy?
- simple diffusion
 - osmosis
 - facilitated diffusion
 - all of the above
8. Decreasing of the cholesterol level in human blood is carried out by
- pinocytosis
 - phagocytosis
 - exocytosis
 - receptor mediated endocytosis
9. Chromosomes replicate in
- prophase
 - G₁ phase
 - G₂ phase
 - S phase

10. ----- anchor the nucleus and some organelles to their places in the cell.
- Intermediate filaments
 - Microtubules
 - Microfilaments
 - Centrioles
11. The process by which the bacteria enter the cell is called
- pinocytosis
 - phagocytosis
 - exocytosis
 - none of the above
12. Which of the following types of transport does NOT require the use of a transport protein?
- both simple diffusion and facilitated diffusion
 - facilitated diffusion
 - active transport
 - simple diffusion
13. What organelle processes and packages proteins before sending them through the cell
- Endoplasmic reticulum
 - Ribosome
 - Vesicle
 - Golgi apparatus
14. Where are ribosomes produced?
- nucleus
 - nucleolus
 - nuclear envelope
 - nucleoplasm
15. ----- move the chromosomes in cell division.
- Microtubules
 - Intermediate filaments
 - Microfilaments
 - Centrioles
16. Insulin is
- transport protein
 - structural protein
 - contractile protein
 - regulatory protein
 - none of the above

17. ----- is non branched polymer of β -glucose.
- Chitin
 - Cellulose
 - Amylose
 - Amylopectin
 - Glycogen
18. ----- is base substitution that result in change in amino acid.
- Silent mutation
 - Nonsense mutation
 - Missense mutation
 - Frame-shift mutation
19. Which of the following statements concerning membrane proteins is incorrect?
- They act as a channel, allowing the transport of ions across the membrane.
 - They may be receptor proteins.
 - They often require ATP to actively transport materials across the membrane
 - They are not specific.
20. Which of the following processes uses a difference in concentration (or concentration gradient) to transport molecules across the cell membrane?
- osmosis
 - simple diffusion
 - facilitated diffusion
 - all of the above
21. An essential amino acid is an amino acid that
- must be provided in the diet
 - is missing from the diet
 - is synthesized in the body
 - all of the above
22. In the tertiary structure of hair, cross links between the R groups of cysteine are known as
- disulfide bonds
 - hydrophilic attractions
 - ionic bonds
 - hydrogen bonds

23. The primary structure of a protein is determined by
- a. the hydrogen bonding in the molecule
 - b. The sequence of amino acids in the protein
 - c. The way amino acids coil around themselves
 - d. All of the above
24. The class of lipids that does not contain fatty acids is
- a. triglycerides
 - b. steroids
 - c. phospholipids
 - d. waxes
25. Triglycerides are formed from their building units by
- a. dehydration reactions
 - b. hydrolysis reactions
 - c. hydration reactions
 - d. oxidation reactions
26. In addition to their role as energy storage compounds, lipids are used to:
- a. make steroid hormones
 - b. make cell membrane components
 - c. support organs
 - d. make organs warm
 - e. all the above
27. What is the principal carbohydrate storage product in plants?
- a. Starch
 - b. Glycogen
 - c. Cellulose
 - d. Glucose

28. In amylopectin, the glucose molecules are connected by

- a. beta-1,4-glycosidic bonds
- b. alpha-1,6-glycosidic bonds
- c. alpha-1,4-glycosidic bonds
- d. alpha-1,4-glycosidic bonds and alpha-1,6-glycosidic bonds

29. The mRNA in the cell

- a. carries the genetic code from DNA to the ribosomes
- b. carries amino acids to the ribosome for protein synthesis
- c. combines with protein to form the ribosomes
- d. all of the above

30. In a nucleotide, the nitrogenous base is attached to the sugar's _____ carbon and the phosphate group is attached to the sugar's _____ carbon.

- a. 1' ... 2'
- b. 1' ... 5'
- c. 2' ... 3'
- d. 1' ... 3'
- e. 2' ... 1'

31. RNA molecule differs from a DNA molecule because

- a. RNA is a single strand of nucleotides
- b. RNA contains uracil
- c. RNA contains ribose
- d. All of the above

32. Why is the new DNA strand which is complementary to the 3' to 5' strands assembled in Okazaki fragments?

- a. the replication forks prevent the formation of longer strands
- b. DNA polymerase can assemble DNA only in the 3' to 5' direction
- c. DNA polymerase can assemble DNA only in the 5' to 3' direction
- d. All of the above

33. The cilia and flagella of eukaryotic cells are composed of _____.

- a. microtubules
- b. intermediate filaments
- c. microfilaments
- d. pili

34. The cell junctions in plant cells that provide channels between adjacent cells are generally _____.

- a. anchoring junctions
- b. gap junctions
- c. plasmodesmata
- d. tight junctions
- e. synapses

35. The human body is composed mostly of

- a. oxygen, hydrogen, phosphorus, and calcium
- b. oxygen, hydrogen, calcium, and iron
- c. oxygen, nitrogen, hydrogen, and carbon
- d. oxygen, nitrogen, calcium, and phosphorus

36. Which of the following statements is true about DNA replication?

- a. One DNA molecule becomes two identical ones as a result of this process.
- b. It occurs during meiosis but not mitosis
- c. It is part of the protein synthesis process
- d. All of the above

37. Portions of DNA molecules that do not contain the codes for proteins are called:

- a. introns
- b. exons
- c. mutagens
- d. non of the above

38. The DNA code is

- a. specific to humans
- b. found only in mammals
- c. shared by all living things
- d. All of the above

39. In eukaryotes, transcription takes place in

- a. Nucleus
- b. Nucleolus
- c. Cytoplasm
- d. Endoplasmic reticulum

40. RNA is synthesized on a DNA template in a process called _____, which utilizes the enzyme _____

- a. translation, RNA polymerase
- b. transcription, DNA polymerase
- c. transcription, RNA polymerase
- d. replication, DNA polymerase

41. DNA is found in which of the following organelles?

- a. Mitochondria
- b. Chloroplast
- c. Nucleus
- d. All of the above

42. If a plant cell loses water, it is said to undergo which of the following processes.

- a. Hydrolysis
- b. Plasmolysis
- c. Photosynthesis
- d. Turgor pressure

43. The major components of extracellular matrix in animal cells are

- a. glycolipids
- b. lipoproteins
- c. glycoproteins
- d. lipids
- e. sugars

44. The role of the oligosaccharides on the cell membrane is?

- a. To make ATP**
- b. Cell recognition**
- c. Allow substances into the cell**
- d. Food**

45. Our intestine is lined with individual cells. No fluids leak between these cells from the gut into your body. Why?

- a. The intestinal cells are fused together into one giant cell.**
- b. The intestinal cells are bound together by plasmodesmata.**
- c. The intestinal cells are bound together by tight junctions.**
- d. The intestinal cells are bound together by gap junctions.**
- e. The intestinal cells are bound together by anchoring junctions**

Q.3. Complete the following: (10 marks)

1. Lactose consists of and that joined by covalent bond called
2. The intermediate filaments that occur in all types of muscle fibers composed of protein called
3. Meiosis is reduction division because
4. is a specific nucleotide sequence of DNA where RNA polymerase binds and initiates transcription.
5. The first step in protein synthesis is the activation of amino acids by enzymes called, and its function is
6. The type of animal ribosomes is 80S ribosomes. The S refers to and it is defined as
7. The ATP consists of, and
8. DNA replication is semi-conservative, and this means
9. During S phase, the centromere is bound to a disk of protein called This disk functions as
10. is the microscope that uses ultraviolet to illuminate specimens.

Q.4. What are the differences between the following: (10 m)

1. Fat and oil

2. Desmosomes and hemidesmosomes

3. Heterophagosomes and autophagosomes

4. Intermediate filaments and microfilaments

Q.6. Write about the following:(10 marks)

1. The three checkpoints that control the cell cycle in eukaryotes.

2. Spermatogenesis

Lectura

7	A polysome contains	
	A. mRNA	B. tRNA
	C. rRNA	D. all of the above
8	What is the complementary strand of the following RNA 5' GCACGUUUACCGA 3'	
	A. 3' CGUGCAAAUGGCU 5'	B. 5' CGUGCAAAUGGCU 3'
	C. 3' CGTGCAAATGGCT 5'	D. 5' CGTGCAAATGGCT 3'
9	The α helix and β sheet are found in many different proteins because they are formed by	
	A. hydrogen bonding between the amino acid side chains	B. non covalent interactions between amino acid side chains and polypeptide backbone
	C. ionic interactions between charged amino acid side chains	D. hydrophobic interactions between the many nonpolar amino acid side chains
	E. hydrogen bonding between atoms of the polypeptide backbone	F. none of the above
10	What enzyme catalyzes the formation of peptide bonds during translation?	
	A. transferase A	B. aminoacyl tRNA synthetase
	C. ribosomal ATPase	D. peptidyl transferase
	E. protease	F. none of the above
11	Which of the following structure-function pairs is mismatched?	
	A. nucleolus - ribosome production	B. lysosome - extracellular digestion
	C. ribosome - protein synthesis	D. Golgi apparatus - ATP generation
	E. chloroplast - photosynthesis	F. glycoxysome - storage of lipids
12	During which stage of meiosis do homologous chromosomes begin to move toward the poles?	
	A. prophase I	B. telophase I
	C. anaphase II	D. anaphase I
	E. prophase II	F. telophase II
13	Facilitated transport and active transport are similar in that both:	
	A. require ATP	B. move substances down concentration gradients
	C. move substances against the concentration gradient	D. are passive processes
	E. require carrier proteins	F. require receptors
14	Which of the following does NOT involve microtubules?	
	A. contraction of spindle	B. pinching during cytokinesis
	C. movement of chromosomes during division	D. flagella motion
15	Location where mRNA and ribosomal subunits assemble to form a functional ribosome is	
	A. nucleus	C. cytoplasm
	C. nucleolus	D. rough ER

9	The junctions in plant cells that provide channels between adjacent cells are A. anchoring junctions C. plasmodesmata	B. gap junctions D. tight junctions
10	Which of the following structure-function pairs is incorrect? A. nucleolus – ribosome production C. peroxisome – detoxification of poisons E. lysosome – extracellular digestion	B. Golgi apparatus – ATP production D. chloroplast – photosynthesis F. glyoxysome – store fats
11	During which stage of meiosis do the homologous chromosomes begin to move toward the poles? A. prophase I C. anaphase II E. prophase II	B. telophase I D. anaphase I F. telophase II
12	Which of the following does NOT involve microfilaments? A. muscle contraction C. movement of chromosomes in cell division	B. cellular extensions D. formation of cleavage furrow during cytokinesis
13	Which of the following statements about water is false? A. Oxygen atoms in a water molecule are partial negatively charged and hydrogen atoms are partial positively charged. C. Ice is less dense than liquid water	B. Hydrogen bonds link hydrogen in one water molecule to oxygen in another molecule. D. Water takes very little heat to raise the temperature of water
14	Location where mRNA and ribosomal subunits associate A. nucleus C. nucleolus	B. cytoplasm D. rough ER
15	The structures that digest extracellular substances which enter the cell by endocytosis are called A. primary lysosomes C. heterophagosomes	B. autophagosomes D. residual bodies
16	Chlorophyll pigment is A. steroid C. fat	B. terpene D. phospholipid
17	If one strand of a DNA molecule has the sequence of bases 5'-ATTG... other strand would have the sequence A. 3'-TAACGT-5' C. 5'-TAACGT-3'	B. 3'-UAACGU-5' D. 5'-UAACGU-3'

I. Choose the correct answer (20 minutes)

_____ anchor the nucleus and some organelles to their places in the cell.	
A. Intermediate filaments	B. Microtubules
C. Microfilaments	D. Centrioles
Which molecules in the cell membrane are mostly glycoproteins?	
A. carrier molecules	B. channel proteins
C. transport proteins	D. receptor molecules
E. enzymes	F. marker molecules
All the following processes need energy EXCEPT:	
A. synthesis of fats	B. conduction of nerve impulse
C. photosynthesis	D. muscle contraction
E. formation of peptide bonds	F. all of above
The chromosome that looks like L during anaphase is called	
A. telocentric chromosome	B. acrocentric chromosome
C. submetacentric chromosome	D. metacentric chromosome
The process by which the bacteria enter the cell is called	
A. pinocytosis	B. phagocytosis
C. exocytosis	D. receptor mediated endocytosis
The class of lipids that does not contain fatty acids is	
A. triglycerides	B. steroids
C. phospholipids	D. waxes
A polysome contains	
A. mRNA	B. tRNA
C. rRNA	D. all of the above
All of the following are synthesized on free ribosomes and released in the cytosol EXCEPT:	
A. nuclear matrix protein	B. cytoskeletal protein
C. peroxisome protein	D. mitochondria protein
E. chloroplast protein	F. plasma membrane protein

The junctions in plant cells that provide channels between adjacent cells are	
A. anchoring junctions	B. gap junctions
	D. tight junctions

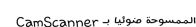
1. ADP

2. Valine

3. Fructose (straight chain)

4. Formation of peptide bond

5. Nucleotide of DNA



Q.6. With drawing illustrate the following (10 Marks)

Serine	RNA	Chitin
ATP		Cholesterol

Q.7. Answer the following (25 marks):

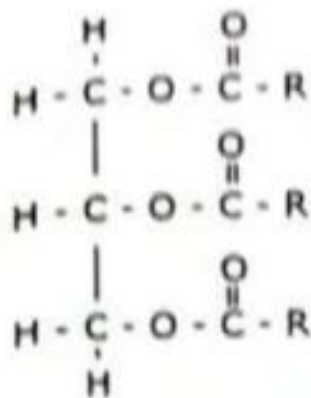
1. What are the functions of the following?

A. Capsule

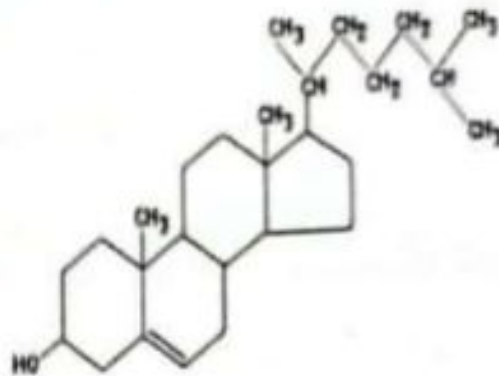
B. Microtubules

C. Golgi apparatus

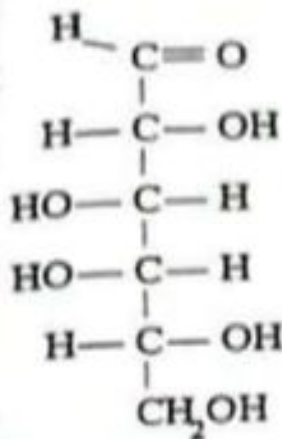
Q.5. Identify the following: (5 marks)



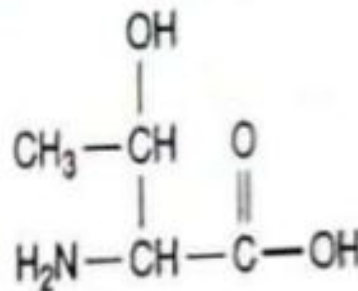
1. _____



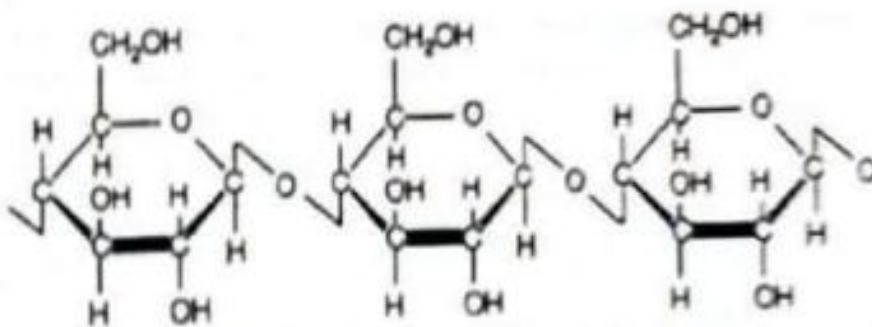
2. _____



3. _____



4. _____



5. _____

Q.6. With drawing illustrate the following (10 Marks)

Serine

RNA

Chitin

Q.4. Complete the following (12 marks) :

1. During mitosis, a parent cell having four chromosomes will produce two daughter cells, each containing _____ chromosomes.
2. The requirements which are needed to pass the cell G₁ checkpoint _____, _____ and _____, and _____.
3. Meiosis is reduction division because _____.
4. Water forms an abundance of hydrogen bonds, which are responsible for many of its physical properties such as: _____, _____ and _____.
5. If a protein's environment is altered, the protein may change its shape or unfold, and this process is called _____.
6. Maltose consists of _____ and _____.
7. Phospholipid molecule consists of _____ and _____.
8. The intermediate filaments that line the inner nuclear membrane is called _____.
9. Desmosomes are _____ junctions but plasmodesmata are _____ junctions.



28. In amylopectin, the glucose molecules are connected by
- a. beta-1,4- glycosidic bonds
 - ☒ b. alpha-1,6-glycosidic bonds
 - c. alpha-1,4-glycosidic bonds
 - ☒ d. alpha-1,4-glycosidic bonds and alpha-1,6-glycosidic bonds
29. The mRNA in the cell
- a. carries the genetic code from DNA to the ribosomes
 - b. carries amino acids to the ribosome for protein synthesis
 - c. combines with protein to form the ribosomes
 - d. all of the above
30. In a nucleotide, the nitrogenous base is attached to the sugar's _____ carbon and the phosphate group is attached to the sugar's _____ carbon.
- a. 1' ... 2'
 - b. 1' ... 5'
 - c. 2' ... 3'
 - d. 1' ... 3'
 - e. 2' ... 1'
31. RNA molecule differs from a DNA molecule because
- a. RNA is a single strand of nucleotides
 - b. RNA contains uracil
 - c. RNA contains ribose
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32. Why is the new DNA strand which is complementary to the 3' to 5' strands assembled in Okazaki fragments?
- a. the replication forks prevent the formation of longer strands
 - b. DNA polymerase can assemble DNA only in the 3' to 5' direction
 - c. DNA polymerase can assemble DNA only in the 5' to 3' direction
 - d. All of the above
33. The cilia and flagella of eukaryotic cells are composed of _____.
- a. microtubules
 - b. intermediate filaments
 - c. microfilaments
 - d. pili

23	When a plant cell is placed in a hypotonic solution which of the following will occur?	
	A. The cell will swell and burst.	B. The central vacuole gains water.
	C. The cell will shrink or shrivel.	D. Nothing
24	A 9+2 array refers to	
	A. microtubules	B. centrioles
	C. basal body	D. cilia
	E. both a and d, but not b or c	
25	Where is a partially synthesized protein bound to tRNA found?	
	A. always in the A site	B. always in the P site
	C. sometimes in the A site, sometimes in the P site	D. always in the A site, except at the final step, it is found in the P site
26	A sequence of 3 bases in DNA has the sequence CGT. What is the corresponding tRNA anticodon for this sequence?	
	A. CGT	B. GCA
	C. CGU	D. GUC
27	Ribosomal proteins are synthesized in association with the	
	A. nucleolus	B. nuclear envelope
	C. rough endoplasmic reticulum	D. free polyribosomes
	E. nuclear matrix	F. bound ribosomes
28	Which event occurs at the termination of translation?	
	A. mRNA binds to a ribosome	B. tRNA binds to an amino acid
	C. rRNA dissociates from a ribosome.	D. tRNA dissociates from a ribosome
29	Organs with tissues that get stretched a lot like the heart and bladder are characterized by	
	A. tight junctions	B. Desmosomes
	C. plasmodesmata	D. gap junctions
30	Which molecule serves to destabilize the DNA helix in order to open it up, creating a replication fork?	
	A. DNA polymerase III	B. DNA helicase
	C. DNA ligase	D. single strand binding proteins
	E. DNA polymerase I	F. primase

Quiz 4 of cell biology pharmacy 2020-2021 /

سؤال 6

غير مجاب عليه بعد

الدرجة من 1.00

علم هذا السؤال

**All the following processes need energy
EXCEPT**

oxidation of proteins

muscle contraction

synthesis of carbohydrates

conduction of nerve impulse

.b ☐

.c ☐

.d ☐

الصفحة التالية



دفة القيادة / مقرراتي الدراسية / الفصل الأول 20_21 / العلوم

/ بيولوجي / بيولوجي الخلية / 12 ديسمبر - 18 ديسمبر

/ Quiz 4 of cell biology pharmacy 2020-2021 /

سؤال 3

غير مجاب عليه بعد

الدرجة من 1.00

علم هذا السؤال

Which of the following functions is carried out by intermediate filaments?

Pinching during cell division .a ☐

Providing flagella structure .b ☐

Movement of structures within the cell .c ☐

Maintaining nucleus shape .d ☒

الصفحة التالية



00



٣ علم هذا السؤال

Where can ribosomes be found in the cell?

In the cytoplasm and attached to ER .a 

In the cytoplasm .b ☐

Attached to ER .c ☐

In the nucleus .d ☐

In the cytoplasm, in the nucleus and attached to ER .e ☐





00



علم هذا السؤال

The ribosomal subunits are assembled into a ribosome in

cytoplasm

~~a~~

nucleolus

b ☐

nucleus

c ☐

rough ER

d ☐



الصفحة التاليه



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بيولوجي / بيولوجي الخلية / 12 ديسمبر - 18 ديسمبر

Quiz 4 of cell biology pharmacy 2020-2021 /

سؤال 5

غير مجاب عليه بعد

الدرجة من 1.00

علم هذا السؤال

The Golgi apparatus is involved in

producing ribosomes .a ☐

producing lipids .b ☐

producing lysosomes .c ☒

producing proteins .d ☐

الصفحة التالية

تنقل الاختبار



عليه



الدرجة من 1.00

علم هذا السؤال

The chromosome that looks like "L" during anaphase is called

metacentric chromosome .a ☐

acrocentric chromosome .b ☐

submetacentric chromosome .c ☒

telocentric chromosome .d ☐



الصفحة التالية



All the following are true about chromosomes EXCEPT

kinetochore is a specific DNA sequence that assists in cell division



Each eukaryotic chromosome contains a single linear DNA double helix

The bacterial cell has one circular .c ☐ chromosome

Nucleosome is composed of .d ☐ DNA around histone proteins





الدرجة من 1.00

علم هذا السؤال

Intermediate filaments are made of a protein present in the muscle fibers

Desmin

.a ☒

Keratin

.b ☐

Lamin

.c ☐

Tubulin

.d ☐

Question 7

Not yet answered

Marked out of 1.00

Flag question

Which of the following is a correct match?

- ☐ a. Microfilaments and ciliary motion
- ☐ b. Microtubules and formation of cellular extensions
- ☐ c. Microfilaments and the nuclear lamina
- ☒ d. Microtubules and chromosome movement





00



٣ علم هذا السؤال

Which structure-function pair is mismatched?

a. ☐ Peroxisome; detoxification

b. ☒ Microtubule; muscle contraction

c. ☐ Lysosome; digestion

d. ☐ Golgi; protein transport





٣ محادثات من ٥ رسائل جديدة

١٠:٠٩ ص تيليجرام

٥



رد

سؤال 5

غير مجاب عليه بعد

الدرجة من 1.00

٣ علّم هذا السؤال

Where are the ribosome's proteins synthesized?

Endoplasmic reticulum

.a ☐

Golgi bodies

.b ☐

Cytoplasm

.c ☒

Nucleolus

.d ☐





/ Quiz 4 of cell biology pharmacy 2020-2021

Question **10**

Not yet answered

Marked out of 1.00

Flag question

Which organelle makes the enzymes?



- ☒ a. Lysosomes
- ☐ b. Endoplasmic reticulum
- ☐ c. Golgi apparatus
- ☐ d. Peroxisomes



Finish attempt ...



courses / 21_20 الأول

بيولوجي الخلية / بيولوجي

/ 12 December - 18 December

/ Quiz 4 of cell biology pharmacy 2020-2021

Question **5**

Not yet answered

Marked out of 1.00

Flag question

Which of the following produces and modifies polysaccharides that will be secreted?

- ☒ a. Golgi apparatus
- ☐ b. peroxisome
- ☐ c. mitochondrion
- ☐ d. lysosome
- ☐ e. vacuole



غير مجاب عليه بعد

الدرجة من 1.00

علم هذا السؤال

**Which molecules in the cell membrane are
mostly glycoproteins**

receptor molecules

.a ☐

transport proteins

.b ☐

channel proteins

.c ☐

marker molecules

.d ☒

carrier molecules

.e ☐



.. إنهاء المحاولة



سؤال 10

غير مجاب عليه بعد

الدرجة من 1.00

علم هذا السؤال

Which of the following functions is carried out by intermediate filaments?

Movement of structures within the cell .a ☐

Maintaining nucleus shape .b ☒

Providing flagella structure .c ☐

Pinching during cell division .d ☒

أخِل اختياري



..إنهاء المحاولة



Dashboard / My courses / الفصل الأول 21_20 / العلوم
/ بيولوجي الخلية / بيولوجي
/ 12 December - 18 December
/ Quiz 4 of cell biology pharmacy 2020-2021

Question **1**

Not yet answered

Marked out of 1.00

🚩 Flag question

The term "homologous chromosomes"

- ☐ a. refers to duplicated chromosomes
- ☐ b. must be haploid
- ☐ c. is another name for sister chromatids
- ☒ d. means a pair of chromosomes of the same kind

Clear my choice



/ العلوم / بيولوجي / بيولوجي الخلية

/ 12 ديسمبر - 18 ديسمبر

/ Quiz 4 of cell biology pharmacy 2020-2021

سؤال 4

غير مجاب عليه بعد

الدرجة من 1.00

علم هذا السؤال

Which of the following is false about chromatin?

Stained chromatin can be seen by light microscope .a ☐

Chromatin is the same structure of chromosome (DNA with proteins) .b ☒

Chromatin is uncoil and highly extended molecule .c ☐

Chromatin appears as diffuse mass when a cell prepares to divide .d ☐



Question

Not yet answered

Marked out of 1.00

Flag question

All of the following statements are true about intermediate filaments EXCEPT

- ☐ a. They are made of fibrous proteins
- ☐ b. They are composed from a variety of proteins
- ☒ c. They are involved in cellular movement
- ☐ d. They anchor organelles in place

Next page



العربية

الإنجليزية





سؤال 1

غير مجاب عليه بعد

الدرجة من 1.00

علم هذا السؤال

All the following are true about autophagolysosome EXCEPT

It digests damaged mitochondria .a ☐

It digests stored proteins .b ☐

It has acidic conditions .c ☐

It digests bacteria .d ☒



Not yet answered

Marked out of 1.00

Flag question

Which of the following is NOT true of smooth ER?

- ☐ a. makes testosterone
- ☐ b. makes proteins
- ☐ c. pumps calcium ions
- ☐ d. detoxifies drugs



العربية

الإنجليزية



Redmi



الدرجة من 1.00

علم هذا السؤال

**Which of the following is the largest single
membrane-bound intracellular
?compartment**

Ribosome

.a ☐

Golgi apparatus

.b ☐

Endoplasmic reticulum

~~.c ☒~~

Nucleus

.d ☐

الصفحة

**A human zygote should have -----
chromosomes**

23

.a ☐

92

.b ☐

46

.c ☒

44

.d ☐

During which stage of meiosis do homologous chromosomes separate?

Anaphase I .a ☒

Telophase I .b ☐

Anaphase II .c ☐

Telophase II .d ☐

الإجابة الصحيحة هي:

Anaphase I

**Which of the following represents the
correct order of the phases of the
?cell cycle**

$G_1 - M - G_2 - S$

.a ☐

$G_1 - G_2 - M - S$

.b ☐

$G_1 - S - G_2 - M$

.c ☒

$G_1 - G_2 - S - M$

.d ☐

$G_1 - S - M - G_2$

.e ☐

This is the cell cycle checkpoint that makes sure that all chromosomes attached to .spindle microtubules

G₁ checkpoint .a ☐

G₁ and G₂ checkpoints .b ☐

M checkpoint .c ☒

G₂ checkpoint .d ☐

Chromosomes become visible under the light microscope during

S phase

.a ☐

Prophase .b ☒

G₂ phase .c ☐

G₁ phase

.d ☐

During which stage of meiosis do the sister chromatids separate?

Telophase I .a ☐

Anaphase I .b ☐

Anaphase II .c ☒

Telophase II .d ☐

الإجابة الصحيحة هي:

Anaphase II

The role of bacterial division is

development .a ☐

production of gametes .b ☐

repairing .c ☐

reproduction .d ☒

الإجابة الصحيحة هي:

reproduction

This is the cell cycle checkpoint that makes sure DNA has been replicated correctly.

G₂ checkpoint .a ☒

G₁ checkpoint .b ☐

G₁, G₂ and metaphase checkpoints .c ☐

Metaphase checkpoint .d ☐

الإجابة الصحيحة هي:

G₂ checkpoint

Meiosis II is similar to mitosis in that

homologous chromosomes synapse .a ☐

sister chromatids separate during .b ☒
anaphase

the chromosome number is reduced .c ☐

the daughter cells are diploid .d ☐

DNA replicates before the division .e ☐

الإجابة الصحيحة هي:

sister chromatids separate during anaphase

Cells that rarely divide will spend most of their time in what phase of the cell cycle

S .a ☐

G₀

.b ☒

G₁ .c ☐

G₂

.d ☐

الإجابة الصحيحة هي:

G₀

Crossing over of genetic material occur during

zygotene .a ☐

diakinesis .b ☐

leptotene .c ☐

pachytene .d ☒

diplotene .e ☐

الإجابة الصحيحة هي:

pachytene

The synaptonemal complex breaks down during

zygotene .a ☐

leptotene .b ☐

diakinesis .c ☐

pachytene .d ☐

diplotene .e ☒

الإجابة الصحيحة هي:

diplotene

Crossing-over occurs during

prophase 2 .a ☐

anaphase 2 .b ☐

metaphase 1 .c ☐

prophase 1 .d ☒

anaphase 1 .e ☐

الإجابة الصحيحة هي:

prophase 1

During which stage does the number of chromosomes become half?

telophase I .a ☒

anaphase II .b ☐

prophase I .c ☐

telophase II .d ☐

الإجابة الصحيحة هي:

telophase I

The chromosomes begin to uncoil into the more extended form during

prophase .a ☐

prometaphase .b ☐

telophase .c ☒

metaphase .d ☐

anaphase .e ☐

الإجابة الصحيحة هي:

telophase

If a guinea pig contains 64 chromosomes in each body cell, how many chromosomes would be produced in each cell as a result of ?meiosis

-
- 64 .a ☐
- 32 .b ☒
- 128 .c ☐
- 23 .d ☐

الإجابة الصحيحة هي:

32

**During which stage of the following does
the nuclear envelope begin to disappear**

Telophase I .a ☐

Metaphase II .b ☐

Metaphase I .c ☐

Prophase I .d ☒

Anaphase II .e ☐

الإجابة الصحيحة هي:

Prophase I

Chromosomes replicate in

prophase .a ☐

S phase .b ☒

G₂ phase .c ☐

G₁ phase .d ☐

الإجابة الصحيحة هي:

S phase

Centrosomes replicate in

G₂ phase .a ☒

G₁ phase .b ☐

S phase .c ☐

prophase .d ☐

الإجابة الصحيحة هي:

G₂ phase



What do phase-contrast and dark-field microscopes have in common?

- a ☐ They make specimen visible because the scattered light from specimen goes away from the objective lens
- b ☐ They increase contrast between the specimens and their surroundings without staining
- c ☐ They make specimens appear bright on a dark background
- d ☐ They make specimens appear dark on a bright background



الإجابة الصحيحة هي:

They increase contrast between the specimens and their surroundings

without staining





درجة 0.00 من 1.00

علم هذا السؤال

Altering which of the following levels of proteins could disrupt their activities?

a. primary, secondary and tertiary ☐

b. secondary and tertiary ☐

c. secondary ☒

d. primary ☐

e. tertiary ☐



الإجابة الصحيحة هي:

primary, secondary and tertiary





Which of the following levels of protein structure is often stabilized by hydrogen bonds

a. secondary and tertiary structures ☐

b. secondary structure ☒

c. primary structure ☐

d. primary, secondary and tertiary structures ☐

e. tertiary structure ☐



الإجابة الصحيحة هي:

secondary and tertiary structures





سؤال 7

تم/كامل

درجة 0.00 من 1.00

علم هذا السؤال

Which of the following is NOT true about fungi?

- a. 70S ribosomes ☐
- b. Mitochondria ☐
- c. Multiple chromosomes ☐
- d. Eukaryotes ☒



الإجابة الصحيحة هي:

70S ribosomes



Buffer

- a ☐ accepts hydrogen ions from the solution when base is added
- b ☐ causes an increase in pH of the solution when base is added
- c ☐ accepts hydrogen ions from the solution when acid is added
- d ☒ donates hydrogen ions to the solution when acid is added

الإجابة الصحيحة هي:

accepts hydrogen ions from the solution when acid is added





Which of the following concerning unsaturated fatty acids is true?

They pack together tightly .a ☐

They are more common in animals than in plants .b ☐

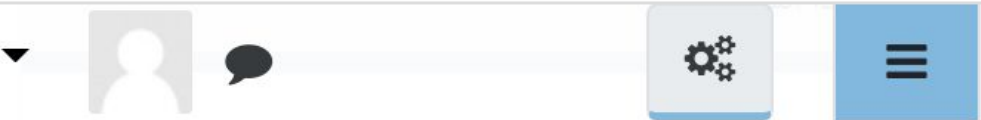
They don't pack together tightly .c ☒

They are generally solid at room temperature .d ☐

الإجابة الصحيحة هي:

They don't pack together tightly





Where would you expect to find serine and alanine in a globular protein in aqueous solution?

a. ☒ Alanine would be in the inside, and serine would be on the surface of globular protein.

b. ☐ Both serine and alanine would be on the surface of the globular protein

c. ☐ Both serine and alanine would be in the inside of the globular protein

d. ☐ Serine would be in the inside, and alanine would be on the surface of the globular protein



الإجابة الصحيحة هي:

Alanine would be in the inside, and



علم هذا السؤال

The polysaccharide that is the major storage material of plants is

- a. chitin ☐
- b. starch ☒
- c. cellulose ☐
- d. glycogen ☐

الإجابة الصحيحة هي:

starch



سؤال 20

لم تتم الاجابة عليه





Which of the following is NOT characteristic of viruses?

Viruses have ribosomes .a ☒

Viruses cannot reproduce outside the host cell .b ☐

Viruses contain genome .c ☐

Viruses are submicroscopic particles .d ☐



الإجابة الصحيحة هي:

Viruses have ribosomes

تم/كامل

درجة 1.00 من 1.00

علم هذا السؤال

Keratin can be classified as — protein

- a. structural ☒
- b. contractile ☐
- c. transport ☐
- d. catalytic ☐

الإجابة الصحيحة هي:

structural



سؤال 5



علم هذا السؤال

All of the following statements are true about lipids EXCEPT

a. Chlorophyll is a type of terpenes ☐

b. Triglyceride is amphipathic molecule ☐

c. Triglycerides store energy in plant and animal tissues ☒

d. Hydrolysis of one molecule of a triglyceride to glycerol and fatty acids yields three molecules of water. ☐



الإجابة الصحيحة هي:

Triglyceride is amphipathic molecule





Which of the following statements about water is FALSE

Transmission of water from a liquid to gas requires large amount of energy .a ☐

Hydrogen bonds act as an attractive force between water molecules .b ☒

Oxygen atoms in a water molecule are partial negatively charged and hydrogen atoms are partial positively charged .c ☐

Hydrogen bonds hold ice molecules closer than they do in liquid water molecules .d ☐





Cell size is an important factor in causing a cell to divide because

- a. ☐ Cell's surface area grow faster than its volume
- b. ☐ Cell's need for materials to be moved across its membrane is reduced
- c. ☒ When the cell becomes very large, the ratio of surface area to volume becomes small
- d. ☐ When the cell becomes very large, the ratio of surface area to volume becomes large

الإجابة الصحيحة هي:



When the cell becomes very large, the ratio of surface area to volume becomes small





سؤال 8

تم/كامل

درجة 1.00 من 1.00

علم هذا السؤال

What causes a membrane to be held together?

Covalent bonds .a ☐

Ionic attractions .b ☐

Hydrogen bonds .c ☐

Hydrophobic interactions .d ☒



الإجابة الصحيحة هي:

Hydrophobic interactions





تم/كامل

درجة 1.00 من 1.00

علم هذا السؤال

Which is false about bacteria?

a. Cell wall of bacteria is composed of peptidoglycan ☐

b. Pili can connect bacteria with host cell ☐

c. Many bacteria have a polysaccharide capsule ☐

d. Plasmids are found in the nucleoid ☒



الإجابة الصحيحة هي:

Plasmids are found in the nucleoid



about microscopes EXCEPT

a. Bright field microscope can be used to examine lived and dead specimens

b. In the fluorescence microscope, the specimens absorb ultraviolet and give off visible light

c. Phase contrast microscope can be used to examine stained specimens

d. Dissection microscope is used to examine insects parts



الإجابة الصحيحة هي:

Phase contrast microscope can be used to examine stained specimens





سؤال 5

تم/كامل

درجة 1.00 من 1.00

علم هذا السؤال

The polysaccharide found in insects and fungi is

- amylopectin .a ☐
- cellulose .b ☐
- amylose .c ☐
- chitin .d ☒



الإجابة الصحيحة هي:

chitin



and non-essential amino acids is

Non-essential amino acid must .a ☐
be provided in the diet

An essential amino acid is .b ☐
synthesized by an organism

Non-essential amino acid is not .c ☐
necessary for our body

An essential amino acid must be .d ☒
provided in the diet

الإجابة الصحيحة هي:



essential amino acid must be
provided in the diet





What best describes amylopectin?

- a ☐ unbranched linear polymer with beta 1-4 glycosidic linkages
- b ☐ unbranched linear polymer with alpha 1-4 glycosidic linkages
- c ☒ highly branched, branched sites contain beta 1-6 glycosidic linkages
- d ☐ highly branched, branched sites contain alpha 1-6 glycosidic linkages



الإجابة الصحيحة هي:

highly branched, branched sites contain alpha 1-6 glycosidic linkages





درجة 0.00 من 1.00

علم هذا السؤال

Which is branched polymer of α -glucose?

- Chitin .a ☐
- Glycogen .b ☐
- Cellulose .c ☐
- Amylose .d ☒

الإجابة الصحيحة هي:

Glycogen



سؤال 4

تم/كامل



Tissues subject to mechanical stress such as muscle and skin epithelium are characterized by

desmosomes

.a ☒

plasmodesmata .b ☐

gap junctions

.c ☐

tight junctions

.d ☐

الإجابة الصحيحة هي:

desmosomes

**All the following require ATP energy
EXCEPT**

Na/K pump .a ☐

pinocytosis .b ☐

exocytosis .c ☐

facilitated diffusion .d ☒

الإجابة الصحيحة هي:

facilitated diffusion

Plasmolysis occurs when a plant cell is immersed in

isotonic solution .a ☐

hypotonic solution .b ☐

distilled water .c ☐

hypertonic solution .d ☒

الإجابة الصحيحة هي:

hypertonic solution

سؤال 7

تم/كامل

درجة 1.00 من 1.00

علم هذا السؤال

Which of the following does not need transport proteins?

Secondary active transport .a ☐

Primary active transport .b ☐

Facilitated diffusion .c ☐

Simple diffusion .d ☒

الإجابة الصحيحة هي:

Simple diffusion

**What is likely to happen to a plant cell that
is placed in hypotonic solution**

it undergoes plasmolysis .a ☐

it bursts .b ☐

it becomes flaccid .c ☐

it becomes turgid .d ☒

الإجابة الصحيحة هي:

it becomes turgid



سؤال 5

تم/كامل

درجة 1.00 من 1.00

علم هذا السؤال

Na /glucose transport is an example of

facilitated diffusion

.a ☐smport .b ☒

simple diffusion

.c ☐antiport .d ☐

الإجابة الصحيحة هي:



smport

The process by which the bacteria enter the cell is called

exocytosis .a ☐

pinocytosis .b ☐

phagocytosis .c ☒

receptor mediated endocytosis .d ☐

الإجابة الصحيحة هي:

phagocytosis

All the following are true about cell transport EXCEPT

a ☐ Polar molecules will cross cell membranes effectively with help of membrane proteins

b ☐ Osmosis does not need energy

c ☒ Channels are specific and physically bind to transported materials.

d ☐ Phosphorylation of Na/K carrier allows 3Na^+ to go out the cell

الإجابة الصحيحة هي:

Channels are specific and physically bind to transported materials.

Which of these is NOT a type of passive transport?

Endocytosis

.a ☒

Osmosis

.b ☐

Facilitated diffusion

.c ☐

Simple diffusion

.d ☐

الإجابة الصحيحة هي:

Endocytosis

**Which of the following structures generates
?the movement of cilia and flagella**

Nexin links .a ☐

Central microtubules .b ☐

Radial spokes .c ☐

Dynein arms .d ☒

الإجابة الصحيحة هي:

Dynein arms

**Which of the following contain the 9 + 2
?arrangement of microtubules**

centrioles .a ☐

centrioles and basal body .b ☐

cilia .c ☒

basal body .d ☐

cilia, centrioles and basal body .e ☐

Due to the higher concentration of oxygen in the air than your blood, oxygen goes from the lungs into the red blood cells by

Active transport .a ☐

Facilitated diffusion .b ☐

Osmosis .c ☐

Simple diffusion .d ☒

الإجابة الصحيحة هي:

Simple diffusion



**Which structure is common to plant and
?animal cells**

central vacuole .a ☐

chloroplast .b ☐

cell wall .c ☐

mitochondrion .d ☒

الإجابة الصحيحة هي:

mitochondrion

Junctions that prevent the movement of substances through the spaces between cells that line the lumen of intestine

Gap junctions

.a ☐

Tight junctions .b ☒

Desmosomes .c ☐

Plasmodesmata .d ☐

الإجابة الصحيحة هي: Tight junctions



**Which of the following statements
?regarding membrane transport is false**

Glucose is transported only by facilitated diffusion .a ☒

Each protein carrier will only bind and transport one type of solute. .b ☐

Ions can transported by special channels .c ☐

Dephosphorylating of Na/K carrier allows $2K^+$ to go in the cell .d ☐



الإجابة الصحيحة هي:

Glucose is transported only by facilitated diffusion

سؤال 5

تم/كامل

درجة 1.00 من 1.00

علم هذا السؤال

Which of the following features is the same in cilia and flagella?

Help in locomotion .a ☒

Undulatory motion .b ☐

The length is 150 μm .c ☐

Occurring throughout the surface of the cell .d ☐

All the following statements about counter-transport protein are true EXCEPT

It transports Ca^{++} against its concentration gradient .a ☐

It transports Ca^{++} down its concentration gradient .b ☒

It transports Ca^{++} out the cell .c ☐

It transports sodium down its concentration gradient .d ☐

الإجابة الصحيحة هي:

It transports Ca^{++} down its concentration gradient

All the following statements about co-transport protein are true EXCEPT

It transports sodium and glucose into the cell .a ☐

It transports sodium down its concentration gradient .b ☐

It transports glucose down its concentration gradient .c ☒

It transports glucose against its concentration gradient .d ☐

الإجابة الصحيحة هي:

It transports glucose down its concentration gradient

Ions can travel directly from the cytoplasm of one animal cell to the cytoplasm of an adjacent cell through

plasmodesmata .a ☐

desmosomes .b ☐

gap junctions .c ☒

tight junctions .d ☐

الإجابة الصحيحة هي:

gap junctions

Facilitated transport and active transport are similar in that both

require ATP .a ☐

require receptor proteins .b ☐

move substances down the concentration gradient .c ☐

move substances against the concentration gradient .d ☐

require carrier proteins .e ☒

الإجابة الصحيحة هي:

require carrier proteins

**Collagen can be classified as -----
---- protein**

structural



transport

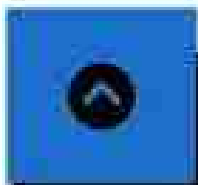
.b ☐

catalytic

.c ☐

contractile

.d ☐



Denaturation of protein results in

- breakdown of peptide bonds .a ☐
- destruction of hydrogen bonds .b ☐
- folded protein .c ☐
- disruption of primary structure .d ☒



الصفحة

In the tertiary structure of hair, cross links between the R groups of cysteine are known as

- disulfide bonds .a ☐
- hydrophilic attractions .b ☐
- hydrogen bonds ~~☒~~
- ionic bonds .d ☐



إنهاء المحاولة ...

**the following statements concerning
glucose and fructose are true EXCEPT**

glucose and fructose are hexoses .a ☐

glucose has hydroxyl group attached to .b ☐
which is lying below the plane of the
|

fructose has hydroxyl group attached to .c ☒
on the right side of straight-chain
n

glucose is aldose but fructose is ketose .d ☐

Which is non- branched polymer of β -glucose?

Amylopectin .a ☐

Cellulose .b ☒

Chitin .c ☐

Glycogen .d ☐

The class of lipids that does not contain fatty acids is

triglycerides .a ☐

waxes .b ☐

steroids

phospholipids .d ☐



All of following amino acids can participate in hydrogen bonding EXCEPT

serine

.a ☐

aspartic acid

.b ☐

valine

~~.c ☒~~

threonine

.d ☐

الصفحة التالية



تنقل الاختبار

Which of the following concerning unsaturated fatty acids is true

They do not have double bonds .a ☐

They are generally solid at room temperature .b ☐

They have double bonds

They are more common in animals than in plants .d ☐

The difference between an essential and non-essential amino acids is

Non-essential amino acid is not necessary for our body .a ☐

An essential amino acid is synthesized by an organism .b ☐

An essential amino acid must be provided in the diet .c ☒

Non-essential amino acid must be provided in the diet .d ☐



The primary structure of a protein refers to

interactions among R-groups of the amino acids .a ☐

the alpha-helix or pleated sheets .b ☐

coiling due to hydrogen bonding between amino acids .c ☐

the number and sequence of amino acids .d ☒

**Collagen can be classified as -----
---- protein**

structural

☒

transport

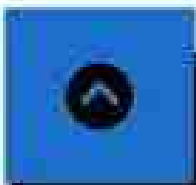
.b ☐

catalytic

.c ☐

contractile

.d ☐



Denaturation of protein results in

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- folded protein .c ☐
- disruption of primary structure .d ☒



In the tertiary structure of hair, cross links between the R groups of cysteine are known as

- disulfide bonds .a ☐
- hydrophilic attractions .b ☐
- hydrogen bonds ~~☒~~
- ionic bonds .d ☐



إنهاء المحاولة ...

**the following statements concerning
glucose and fructose are true EXCEPT**

glucose and fructose are hexoses .a ☐

glucose has hydroxyl group attached to .b ☐
which is lying below the plane of the
|

fructose has hydroxyl group attached to .c ☒
on the right side of straight-chain
n

glucose is aldose but fructose is ketose .d ☐

Which is non- branched polymer of β -glucose?

Amylopectin .a ☐

Cellulose .b ☒

Chitin .c ☐

Glycogen .d ☐

The class of lipids that does not contain fatty acids is

triglycerides .a ☐

waxes .b ☐

steroids

phospholipids .d ☐



All of following amino acids can participate in hydrogen bonding EXCEPT

serine .a ☐

aspartic acid .b ☐

valine .c ☒

threonine .d ☐

الصفحة التالية



تنقل الاختبار

10

9

8

7

6

5

4

3

2

1

Which of the following concerning unsaturated fatty acids is true

They do not have double bonds .a ☐

They are generally solid at room temperature .b ☐

They have double bonds

They are more common in animals than in plants .d ☐

The difference between an essential and non-essential amino acids is

Non-essential amino acid is not necessary for our body .a ☐

An essential amino acid is synthesized by an organism .b ☐

An essential amino acid must be provided in the diet .c ☒

Non-essential amino acid must be provided in the diet .d ☐



The primary structure of a protein refers to

interactions among R-groups of the amino acids .a ☐

the alpha-helix or pleated sheets .b ☐

coiling due to hydrogen bonding between amino acids .c ☐

the number and sequence of amino acids .d ☒