University of Sadat City	Final Exam:	May	Course Code:	(B1-40)	Percentage	60%	GFBRI
	Academic Year:	2018-2019	Academic Program:	Diploma-1	N. of Exam Paper	3p.	
	Level:	2nd Term	Department:	Molecular Biology			
	Course Name:	Molecular Biology	Total score:	60	Time allowed:	3h	

Instructions of Exam:

1. Answer the obligatory questions.
2. Use the blue pen and pencil in answer sheet
3. Allow one sheet answer for every student
4. Is not allowed to borrow the tools (pen, pencils, drawing tools, calculator …etc.)
5. Is not allowed to use the cell phone or any of its application during the time of exam

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Answer the following questions

First question

I) Tick right (√) or wrong (×) (Score 30)

1- Cell creates vesicle around fluid in Pinocytosis.
2- Some proteins in the plasma membrane can drift within the bilayer.
3-peripheral proteins loosely bound to surface of membrane.
4- Unsaturated fatty acids in phospholipids keep membrane less viscous.
5- At warm temperatures (such as 37°C), cholesterol restrains movement of phospholipids.
6-Diffusion of water occurs from hypotonic to hypertonic solution.
7- Plants, algae and bacteria typically have a tough outer structure known as a cell wall.
8- Selectively permeable allows some substances to cross more easily than others.
9- Phospholipids in the plasma membrane can move within the bilayer.
10- Membrane carbohydrates play a key role in cell-cell recognition.
11- Nonpolar, hydrophobic molecules diffuse directly through the lipid bilayer but polar, hydrophilic substances cannot pass directly through the lipid bilayer.
12- Membrane becomes semi-permeable with protein channels.
13- Three major pathways involved in ATP production (Glycolysis in cytoplasm , Krebs cycle in matrix and Electron transport system (ETS) in intermembrane space).
14-Ribosomes have two subunits 50S and 30S in prokaryotes, 60S and 40S in eukaryotes.
15- Smooth Endoplasmic Reticulum Has enzymes that help build molecules Carbohydrates and Lipids.
16- Golgi Apparatus adds modifications to unfinished proteins, makes lysosomes and involved in synthesis of plant cell wall.
17- Centrioles help coordinate cell division and found only in animal cells.
18- Microtubules move chromosomes during cell division and used to make cilia and flagella.
19- Phospholipids in the plasma membrane can drift laterally, rarely does a molecule flip-flop transversely across the membrane.
20- Membranes rich in unsaturated fatty acids are more fluid than those rich in saturated fatty acids.
21- Water, ions, carbohydrates cannot pass directly through the lipid bilayer.

22- Cell engulfs particle in a vacuole in Phagocytosis.
23- Receptor-mediated endocytosis: Binding of ligands to receptors triggers vesicle formation.
24- As temperatures cool, membranes switch from a fluid state to a solid state.
25- Phospholipids consists of Fatty acid tails (hydrophilic) and Phosphate group head (hydrophobic).
26-In Facilitated Diffusion Molecules move through protein "pump".
27- Uniporters – move two molecules in the same direction.
28-Microfilaments present only in animal cells of certain tissues provide internal structure.
29-The example for symporters is sodium-potassium pump.
30- The nucleus separated from cytoplasm by nuclear envelope, which consists of one bilayer.

Second question Tick right (√) or wrong (×) with correct the wrong. Score (20)

1- G protein receptor is receptor with a multi-integrated membrane domain. ( )
2- Tyrosine kinase receptor function as a single membrane domain. (dimer) ( )
3- Autophosphorylation is a process mediated by a G protein receptor. ( )
4- cAMP is considered as a second message that activates protein kinase. ( )
5- Hydrolysis of Phospholipid membrane PIP lead to release calcium ion outside the endoplasmic reticulum. ( )
6- Increase of intracellular Ca++ concentration mediates activation of calmodulin protein kinase. ( )
7- For each cell cycle stage there is specific MPF. ( )
8- Neurotransmitters are amino acid derivatives. ( )
9- Eicosanoids are considered as signaling molecules. ( )
10- Proto-oncogene could be Cdk . ( )

Third question Circle the correct answer. (Total score (10)

1. Each phase of cell cycle has its own.
   a) Protein regulation
   b) Cyclin
   c) Sialing molecules.
2. The progression of cell cycle emphasize phase transition through
   a) Inactivation of cyclin/cyclin dependent kinase.
   b) Ending mitotic division.
   c) Promotion of G0 phase.

3- Prostaglandin is considered as
   a) Hormonal signal.
   b) Amino acid derivatives.

c) Lipid signal molecule.

4- cAMP is degraded by the action of

a) Adenylyl cyclase.
b) Phosphodiestrase.
c) Calmodulin.

5- How does Acetylcholine increase blood flow in vessels?

a) Nerves in blood vessel wall release Ach.
b) activate NO synthase.
c) increases cGMP.

Good Luck & Best wishes.....

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