
 University of Sadat City	Final Exam:	First semester	Course Code:	A-29	Percentage	60%	 GEBRI
	Academic Year:	2018/2019	Academic Program:	Diploma Animal tissue culture	N. of Exam Paper	2	
	Level:	Diploma	Department:	Molecular Biology			
	Course Name:	Human cell biology	Total score:	60	Time allowed:	3hours	

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

1st question: Give short notes with drawing on each of the following processes: (20 Marks)

- 1- Krebs's Cycle
- 2- Receptor mediated Endocytosis
- 3- Passive transport
- 4- Endocrine, Paracrine and Autocrine signals
- 5- Characteristic morphology of apoptosis

2nd question: Explain with drawing each of the following items: (20 Marks)

1. Plasma membrane structure
2. Autophagosome formation
3. Fas-ligand activated pathway
4. Active transport
5. Cellular communication stimulates intracellular signaling

3rd question: Put (✓) or (x) and correct the wrong statement: (15 Marks)

- 1-Cytokinesis doesn't occur in some cells such as brain cells.
- 2-Homologs separate in meiosis II and therefore different alleles separate.
- 3-Both replication and transcription use DNA as the template and need primer.
- 4-Ribosomes found only in eukaryotic cells.
- 5- Characteristics of mtDNA are circular, double stranded, super coiled, has histones and no introns.
- 6-The antisense strand is the strand from which the RNA is actually transcribed.
- 7-The direction of ribosome movement on the mRNA is 5'--> 3'direction
- 8-A correct match between a tRNA and an amino acid, done by Guanyl transferase
- 9-The Lagging strand is synthesized against overall direction of replication
- 10- CBC – cap binding complex proteins also associate and protect the cap
- 11- Enzyme Helicase unwinds and separates the 2 DNA strands by breaking the weak Phosphodiester bonds.
- 12-Covalent bond occur between OH group on the 2 or 3 carbon atom number in a sugar of adenine in the 3' end of tRNA with carboxylic end of the amino acid.
- 13- Flexible pairing at the third base of a codon is called wobble and allows some tRNAs to bind to more than one codon.
- 14- Termination occurs when a stop codon in the mRNA reaches the E site of the ribosome

15-Three stop codons that do not code for any amino acid therefore making the process stop: UAA, UAU, UGA.

4th question: Choose the correct answer

(5 Marks)

1-The 5' CAP on a mRNA has a guanine ribonucleotide that is connected in a

- A) 5' to 5' phosphodiester bond to the second nucleotide to be transcribed.
- B) 5' to 3' phosphodiester bond to the first nucleotide to be transcribed.
- C) 5' to 5' triphosphate bond to the first nucleotide to be transcribed.
- D) 5' to 3' triphosphate bond to the first nucleotide to be transcribed.

2- Which pair is correct?

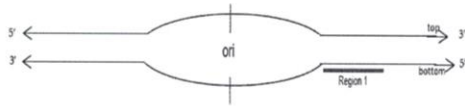
- A) G1 phase, DNA replication
- B) G2 phase, preparation for mitosis
- C) S phase, cell division
- D) M phase, DNA repair

3-Gametes have

- A) Homologous chromosomes.
- B) Twice the number of chromosomes found in body cells.
- C) Two sets of chromosomes.
- D) One allele for each gene.

4-Consider the following origin of replication that is found on a chromosome.

The sequence of region 1 is shown below.



Region 1: 5'...CTGACTGACA...3'
3'...GACTGACTGT...5'

4-1) within Region 1, which strand will be the template for leading strand synthesis?

- A) The top 5'...CTGACTGACA...3'
- B) The bottom 3'...GACTGACTGT...5'

4-2) if we assume that a lagging strand fragment is made from region 1, what will be its sequence?

- A) 5'...CTGACTGACA...3'
- B) 5'...TGTCAGTCAG...3'
- C) 3'...GACTGACTGT...5'
- D) 3'...TGTCAGTCAC...5'

With best wishes

Professor of Course	Prof. Shaden Muaia		Course coordinator	Dr. Hany Khalil
Staff Course	Dr. Hany Khalil Dr. Salwy Morsy	<i>Handwritten signature</i>	Department Head	Prof. Samir El-Masry
Exam group	(Three members accredited by the institute committee)			

نموذج رقم: SQ0000000F101002
الإصدار (0/2) 2018/01/14