University of Sadat City	Final Exam:	January	Course Code:	(B1-95)	Percentage	80%	GEBRI
	Academic Year:	2018-2019	Academic Program:	Master	N. of Exam Paper	2p.	
	Level:	1st Term	Department:	Molecular Biology			
	Course Name:	Discussions	Total score:	80	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

---

1st question: Write a definition of each of the following term: score (30)

1-Somaclonal variation 2-Gametoclonal variation
3-Callus induction 4-Micropropagation 5-Protoplast fusion 6-Genetic engineering.

2nd question: Compare between the following markers in table: score (30)

(Morphological marker- Protein marker- RFLP marker –RAPD marker – SSR marker)

3rd question: Choose the correct answer: score (20)

1. Some alleles are dominant while others are recessive, an organism with at least one dominant allele will display the effect of the dominant allele. This definition follows any Mendel's laws of inheritance?
A) Law of segregation B) Law of independent assortment C) Law of dominance
2. Mutations which occur in body cells which do not go on to form gametes can be classified as:
A) Auxotrophic mutations B) somatic mutations C) morphological mutations
3. Which component of transcribed RNA in eukaryotes is present in the initial transcript but is removed before translation occurs:
A) Intron B) 3' Poly A tail C) 5' cap
4. Choose the correct statement about the genetic code.
A) Includes 61 codons for amino acids and 3 stop codons
B) Three bases per codon C) A and B
5. DNA ligase is:
A) An enzyme that joins fragments in normal DNA replication
B) An enzyme involved in protein synthesis
C) An enzyme that facilitates transcription of specific genes
6. Replication of DNA:
A) Takes place in a "conservative" manner
B) Takes place in a "dispersive" manner
C) Takes place in a "semi-conservative" manner
7. Arabidopsis is advantageous for plant genetic research because:
A) It is commercially important as a food crop
B) It is the closest to humans of any existing plant
C) It is a small plant with a small genome size which can be raised inexpensively
8. RFLP analysis is a technique that
A) Uses hybridization to detect specific DNA restriction fragments in genomic DNA
B) Is used to detect genetic variation at the protein level.
C) Is used to amplify genes for producing useful products

9. Plasmid vectors for cloning
A) Can generally accommodate larger inserts than phage vectors
B) Plasmid is found in bacteria, and are present in bacterial colonies on an agar plate
C) Include centromeres to allow propagation in yeast
10. The polymerase chain reaction or PCR is a technique that
A) Was used to demonstrate DNA as the genetic material
B) Uses short DNA primers and a thermo stable DNA polymerase to replicate specific DNA sequences in vitro.
C) Measures the ribosome transfer rate during translation
11. Large quantities of useful products can be produced through genetic engineering involving:
A) Bacteria containing recombinant plasmids B) transgenic plants
C) Yeast carrying foreign genes D) all of the above
12. The "sticky ends" generated by restriction enzymes allow:
A) Selection for plasmids lacking antibiotic resistance
B) Replication of transfer RNA within the bacterial cell
C) Pieces of DNA from different sources to hybridize to each other and to be joined together
13. Mitochondrial DNA is advantageous for evolutionary studies because:
A) It is inherited only through the female parent and thus evolves in a way that allows trees of relationship to be easily constructed
B) It is inserted into the X chromosome
C) It first appeared in humans and is not found in other animals
14. Unlike animal cells, plant cells have _____ and _____.
A) Chloroplasts. . Cell walls. B) Chloroplasts. Mitochondria C) Centrioles. . Vacuoles.
15. Adenine and guanine are examples of what class of nitrogen base?
A) Large B) Pyrimidines C) Small D) Purines
16. Which of the following is not a component of a nucleotide?
A) Phosphate group B) Anti-codon C) Ribose sugar D) Nitrogen base
17. Which of the following deoxy oligonucleotides will hybridize with a DNA Containing the sequence (5') TGACTGGTG (3')?
A) (3') ACTGACCAC (5') B) (5') GACCAGTCT (3') C) (5') CTCATTGAG (3')
D) (5') TCTGACCAG (3')
18. Cells without a membrane-bound nucleus and membrane systems in the cytoplasm are ___ cells. A) Prokaryotic B) eukaryotic C) fungal D) more than one answer is correct.
19. DNA replication occurs in which direction for new strand?
A) 5' ⇒ 3' B) 3' ⇒ 5' C) Both a & b D) Neither a or b
20. RNA molecules differ from DNA in the following ways except -------
A) Its smaller B) It is single stranded C) It contains no adenine
D) It has ribose, not deoxyribose sugar E) none of the above

Good Luck & Best wishes.....

Professor of Course	*Prof. Awatef Badr-Elden*	**Course coordinator**	
Staff Course	*Prof. Awatef Badr Elden ,Dr. Aysam Fayed & Dr.Salwa El-Sayed M.Mohamed*	**Department Head**	*Prof.Samer el Masry*
Exam group	*Prof. Awatef Badr Elden ,Dr. Aysam Fayed & Dr.Salwa El-Sayed M.Mohamed*		