

نموذج رقم (١)

الأزهر الشريف
قطاع المعاهد الأزهرية

نموذج إجابة

لامتحان الشهادة الثانوية الأزهرية

للعام الدراسي

١٤٤١/١٤٤٢هـ - ٢٠١٩/٢٠٢٠م

الدور الثاني

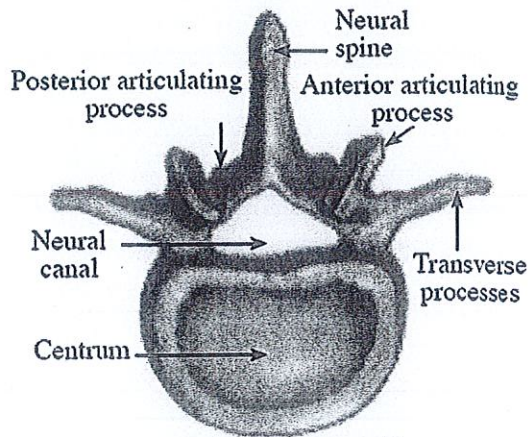
القسم : العلمي

مادة: الأحياء (مترجم)

علماً بأن النموذج استرشادياً

Question (1)		
NO	Answer	Mark
(A)	1- (b) restriction <i>or ligase or both of them.</i>	1
	2- (b) ADH	1
	3- (a) viruses	1
	4- (d) 40	1
	5- (b) bacteria	1
	6- (d) HCl acid	1
(B)	1- The DNA molecule wraps in the chromosome around groups of histone, forming string of nucleosomes, which shorten the length of the DNA molecule to tenfold,. However, it must contain a molecule and shorten it approximately 100.000 more tightly to fit into the nucleus.	1
	2- The string of nucleosomes is coiled so as to pack the nucleosomes together, However, even this is not sufficient to shorten a DNA molecule to the length actually observed.	1
	3- The tightly coiled strings of nucleosomes are arranged in large loops, believed to be held in place by structural non histone proteins of the chromatin. Chromatin packed up as tightly as possible is said to be condensed.	1
(C)	1- a- plant breeding or genetic engineering. b- DNA hybridization. c- recombinant DNA.	1/2 1/2 1/2
	2- a- formation of tyloses. b- inflammatory response. c- cellular or cell mediated immunity.	1/2 1/2 1/2

Question (2)		
NO	Answer	Mark
(A)	1- Detoxifying enzymes	1
	2- TSH	1
	3- Tendons	1
	4- Auxins	1
	5- non-virulent bacteria	1
	6- (ATT, ACT, ATC)	1
(B)	1- Complementary DNA /3 TAC TCG CTA GAC GGC TCA AGA ATC/5	1
	2- mRNA /5 AUG AGC GAU CUG CCG AGU UCU UAG/3	1
	3- 7 amino acids	1
(C)	One mark for figure, 2 marks for data	3



Question (3)		
NO	Answer	Mark
(A)	1- Due to slow growth on the side in contact with the support, and accelerated growth on the side of the tendril away from the support, this leads to elongation of the far side and so the tendril twines around the support.	1
	2- Due to a cut decreasing of thyroid secretion (hypothyroidism) in childhood.	1
	3- Because the myosin filament in zone A is fixed and the pulling-with the help of energy stored in ATP molecules contiguous groups of actin filaments towards each other, the 2 filaments converge to each other, and this the muscle contracts and when the stimulus disappears, the transverse links move away from the action filaments and the z-strings are separated muscle the muscle segment returns to its.	1
	4- A until the hydrogen bonds form between the opposite bases properly.	1
	5- Because it needs to go through the process of maturation and differentiation in the bone marrow to turn into mature cell with immune ability.	1
	6- Because all tRNA molecules have the same general shape in all living organisms, and each type of them is concerned with transferring the same type of amino acid from the cytoplasm to the ribosome in all living organisms.	1
(B)	1- Recombinant DNA the introduction of DNA from one organism into cells of another.	1
	2- Chemokines: they recruit (guide migration) of large circulating phagocyte cells which are found in blood with large number to sites of existence of microbes or foreign particles to prevent their reproduction and spreading.	1
	3- Immunity: the ability of the body through the immune system to resist the pathogens of disease, whether by preventing the entry of pathogens into the body of the organism or by attacking the pathogens and foreign bodies and eliminating them when entering the body of the organism.	1
(C)	1- DNA single strand.	1
	2- 30% because the sum of guanine in the two bands = $60 \div 200 \times 100 = 30\%$	1
	3- 25% because uracil on mRNA corresponds to adenine on DNA	1

Question (4)			
NO		Answer	Mark
(A)	1-	MHC	1/2
	2-	forearm	1/2
	3-	insulator	1/2
	4-	52	1/2
	5-	polyploidy	1/2
	6-	induced	1/2
(B)	1-	Production of ribosomes in which several hundred thousands of ribosomes are produced per hour, such rapid production is possible only because a eukaryotic cell's DNA contains up to 600 copies of the ribosomal - RNA genes from which mRNA is transcribed.	1
	2-	The full function is unknown, but they play a role in the immune response against pathogenic microorganisms that enter the intestine	1
	3-	Stimulating the innate immune system in the plant.	1
	4-	Bacteria maintain their own DNA added methyl groups (-CH ₃) to the nucleotides on the bacterial DNA which are similar to the recognition sites of virus which make the bacterial DNA more resistant to the action of these enzymes.	1
(C)	1-	$336 / 3 - 1 = 111$	1
	2-	$400 \times 30 / 100 = 1200$	1
	3-	more than 30%	1
	4-	20 enzymes	1
	5-	up to 6000 gene (DNA contains up to 600 copies of the ribosomal RNA genes) Or (7 or 8 genes)	1

Question (5)			
NO	Answer		Mark
(A)	1-	The muscle fibre membrane becomes impermeable to sodium ions and is not affected by neurotransmitters because there is no potential difference (polarization state disappears) from the fibre membrane and thus the muscle contraction and relations stops.	1
	2-	Friction occurs between the bones of the synovial joints, their erosion and a feeling of sharp pain.	1
	3-	Structural chromosomal mutations.	1
(B)	1-	with c	1/2
	2-	with e	1/2
	3-	with d	1/2
	4-	with a	1/2
	5-	with f	1/2
	6-	with b	1/2
(C)	a)	1- disulfide bond. 2- constant region. 3- heavy chain. 4- complement binding	2
	1-	b) Help to binding between an antigen and its specific antibody at these sites resembles the lock and its key.	1
		c) Because its shape is different from an antibody to another, which determined by the conformation of amino acids (their sequence, types and spatial shape etc)	1
	2-	DNA in prokaryotes	DNA in eukaryotes
(C)	1- double helix of DNA with its end joined to each other to form circle. 2- not surrounded by a nuclear membrane. 3- attached to plasma membrane at one or more points. 4- the multiplication begins at its point of attached to plasma membrane. 5- there are several much smaller circular called plasmids. 6- not complexed with proteins.		2
	1- double helix of DNA with its end not joined to each other to form circle. 2- surrounded by a nuclear membrane. 3- doesn't attached to plasma membrane at one or more points. 4- the multiplication begins at any point along it. 6- complexed with proteins.		