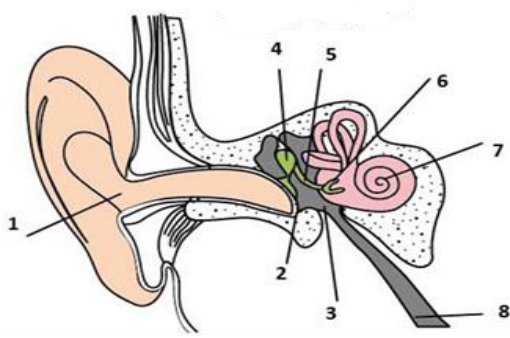
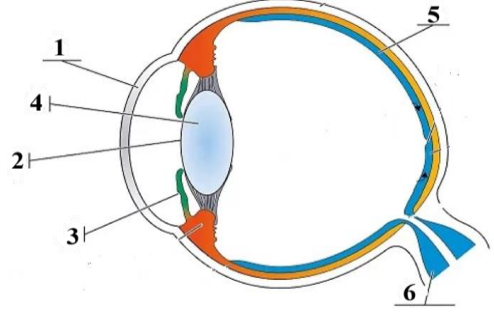
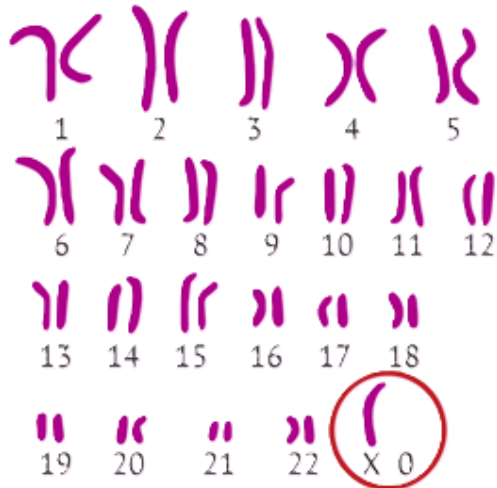


№		ITEMS		Score		
Diversity in the living world						
1.		Life on Earth is characterized by a remarkable diversity of forms, which confers a high degree of complexity on the biosphere. Representatives of the animal kingdom occupy an essential place within the biosphere. Complete the table with the <i>taxonomic names</i> and <i>distinctive features</i> of the organisms shown in the images.			L	L
					0	0
					1	1
					2	2
					3	3
					4	4
					5	5
					6	6
		Species Criteria				
			<i>Domestic rooster</i> (<i>Gallus gallus</i> L.)	<i>Honey bee</i> (<i>Apis mellifera</i> L.)		
		<i>Name of the phylum</i>		<i>Arthropoda</i>		
		<i>Name of the class</i>				
Distinctive features	<i>Skeleton type</i>	<i>Endoskeleton</i>				
	<i>Circulatory system type</i>					

2.	The image below illustrates the stages of development of the honey bee. a) Write down the type of metamorphosis found in the honey bee. b) Circle, on the image, the developmental stage of the honey bee’s life cycle to support your answer.  c) Name the sensory organs that are best developed in insects. 1. _____ 2. _____ d) Indicate the process involving bees that ensures the productivity of agroecosystems. _____ _____	L	L															
		0	0															
		1	1															
		2	2															
		3	3															
		4	4															
		5	5															
3.	I. The images below illustrate species of plants that belong to two different classes of angiosperms. State the biological characteristics of these representatives of these two classes (<i>complete the table</i>).  Potato <i>(Solanum tuberosum L.)</i> Onion <i>(Allium cepa L.)</i> <table><tr><th>Class</th><th>Monocotyledons</th><th>Dicotyledons</th></tr><tr><th>Criteria</th><td></td><td></td></tr><tr><td>Type of leaf venation</td><td></td><td></td></tr><tr><td>Type of root system</td><td></td><td></td></tr><tr><td>Type of flower</td><td>trimerous</td><td></td></tr></table> II. Plants present underground modified stems. a) Name the underground modified stem of: Potato Onion b) Indicate the reserve substance that accumulates in the underground stem of the potato. c) Name the double-membrane cell organelle that stores this substance. III. <i>Plant cultivation represents an opportunity for entrepreneurs in the Republic of Moldova.</i> Specify two abiotic factors that enable farmers in the Republic of Moldova to obtain high-quality plant products. 1. _____ 2. _____	Class	Monocotyledons	Dicotyledons	Criteria			Type of leaf venation			Type of root system			Type of flower	trimerous		L	L
Class	Monocotyledons	Dicotyledons																
Criteria																		
Type of leaf venation																		
Type of root system																		
Type of flower	trimerous																	
		0	0															
		1	1															
		2	2															
		3	3															
		4	4															
		5	5															
		6	6															
		7	7															
		8	8															
		9	9															
		10	10															
		11	11															

Vital systems and processes													
4.	Write the essence of the definitions for the following biological terms: Cell - _____ _____ Organ - _____ _____	L	L										
		0	0										
		1	1										
		2	2										
		3	3										
		4	4										
5.	The diagrams below illustrate the peripheral segments of the auditory analyser and the visual analyser.  a) Name any 4 structures of the auditory analyser of your choice (in the empty boxes write the corresponding numbers): b) State the function of the ossicles in the middle ear.  c) Enter in the empty boxes the numbers corresponding to the <i>pupil</i>, <i>lens</i>, <i>retina</i> and state their functions. <i>pupil</i> Function: <i>lens</i> Function: <i>retina</i> Function:	L	L										
		0	0										
		1	1										
		2	2										
		3	3										
		4	4										
		5	5										
		6	6										
		7	7										
		8	8										
		9	9										
		10	10										
		11	11										
6.	a) Column A lists the cerebral lobes, while column B – their characteristics. Write in the space provided in column A the corresponding numbers from column B. Each number can be used only once. <table><tr><th>A</th><th>B</th></tr><tr><td>Occipital -----</td><td>1. generates the pain, thermal and tactile sensations;</td></tr><tr><td>Parietal -----</td><td>2. produces the visual sensation;</td></tr><tr><td>Frontal -----</td><td>3. contributes to the cognitive functions: decision-making, thinking;</td></tr><tr><td>Temporal -----</td><td>4. converts nerve impulses into auditory sensations.</td></tr></table> b) Explain why damage to the optic nerve can lead to loss of vision.	A	B	Occipital -----	1. generates the pain, thermal and tactile sensations;	Parietal -----	2. produces the visual sensation;	Frontal -----	3. contributes to the cognitive functions: decision-making, thinking;	Temporal -----	4. converts nerve impulses into auditory sensations.	L	L
A	B												
Occipital -----	1. generates the pain, thermal and tactile sensations;												
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Frontal -----	3. contributes to the cognitive functions: decision-making, thinking;												
Temporal -----	4. converts nerve impulses into auditory sensations.												
		0	0										
		1	1										
		2	2										
		3	3										
		4	4										
		5	5										
		6	6										

7.	I. Analyse the information in the text below. Solve the proposed tasks. <i>Sunburn and frostbite are skin injuries resulting from exposure of the body to extreme temperatures.</i> Name the sensory receptors of the skin that: <i>detect temperature variations of 15–35°C</i> <i>are responsible for the sensation of pain caused by extreme temperatures</i> II. The diagram below illustrates the structure of the reflex arc. a) Write down the names of the anatomical segments of the reflex arc. 1 – <i>receptors</i> 2 – 3 – 4 – 5 – b) Name the pigment, synthesised by melanocytes, that provides skin protection against ultraviolet radiation. c) Name the medical specialist who diagnoses, treats, and monitors the evolution of disorders and diseases of the auditory system. III. A teenager wants to purchase a pair of headphones. The seller gives them a choice between in-ear headphones and over-ear headphones. The teenager decided to purchase over-ear headphones. a) Circle the letter (T) if you consider the adolescent’s decision correct, and the letter (F) if you consider it incorrect: T F b) Support your answer. 	L	L
		0	0
		1	1
		2	2
		3	3
		4	4
		5	5
		6	6
		7	7
		8	8
		9	9
		10	10
		11	11

8.	Myopia and hypermetropia represent two disorders of the visual analyser. Complete the table, providing the differences between myopia and hypermetropia.	L	L
		0	0
		1	1
		2	2
		3	3
		4	4
		5	5
		6	6
Basis of genetics and organism improvement/genetic engineering			
9.	Write the essence of the definitions for the following biological terms:	L	L
	Variability- _____	0	0
	_____	1	1
	Phenotype - _____	2	2
	_____	3	3
10.	Analyse the karyogram of a person suffering from a hereditary disease.	L	L
		0	0
		1	1
		2	2
		3	3
		4	4
		5	5
			
a) Name the chromosomal disorder presented in the image. b) Indicate the sex of the person in whom the disease may occur. c) State the number of chromosomes characteristic of the identified syndrome. d) Write one clinical feature of this disease. e) Name the method of study used in human genetics that enables the monitoring of foetal development during pregnancy using sound waves. 			

11.	Solve the problem: In humans, the wavy hair type is dominant over the straight hair type. A woman with wavy hair (<i>heterozygous</i>) marries a man with straight hair. Determine the probability of children with wavy hair being born in this family. Given: ↓ Genotypes and gametes: PP ♀ X ♂ G ♀ ♂ Pennet grid ↓ F₁ Calculations: ↓ Answer: _____ _____ _____	L 0 1 2 3 4 5 6 7 8 9 10 11	L 0 1 2 3 4 5 6 7 8 9 10 11
Ecology and environmental protection			
12.	Write the essence of the definitions for the following biological terms: Biosphere - _____ _____ Biotope - _____ _____	L 0 1 2 3 4	L 0 1 2 3 4

13.	Ecosystem diversity represents the expression of nature’s creativity, reminding us that the beauty of the world lies in its variety. The list below contains names of ecosystems: Lake Beleu, Lavender plantation, Atlantic Ocean, Emil Racoviță Cave, Stephen the Great’s Oak, Plaiul Fagului Reserve. Classify the ecosystems from the list according to the following criteria: <i>size, habitat, origin</i>. Note! The names of the ecosystem may be written only once per box and <u>must not repeat</u> in the table! <table><tr><th colspan="2">Ecosystem type</th><th rowspan="2">Names of ecosystems</th></tr><tr><th>Criteria</th><th></th></tr><tr><td rowspan="2">Size</td><td>Microecosystem</td><td></td></tr><tr><td>Macroecosystem</td><td></td></tr><tr><td rowspan="2">Habitat</td><td>Aquatic</td><td></td></tr><tr><td>Cavernicolous</td><td></td></tr><tr><td rowspan="2">Origin</td><td>Semi-natural</td><td></td></tr><tr><td>Artificial</td><td></td></tr></table>	Ecosystem type		Names of ecosystems	Criteria		Size	Microecosystem		Macroecosystem		Habitat	Aquatic		Cavernicolous		Origin	Semi-natural		Artificial		L	L
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		2	2																				
		3	3																				
		4	4																				
		5	5																				
		6	6																				
14.	Analyse the information in the text. <i>Dominating its surroundings with its imposing stature, Stephen the Great’s Oak has a rich history and was first mentioned in documents in 1456. The tree has a height of over 17 m, trunk diameter – 244 cm, crown diameter – 31 m. Besides its historical and cultural value, Stephen the Great’s Oak also has an important ecological role.</i>  <i>Stephen the Great’s Oak from Cobâlea, Șoldănești</i> a) State the ecological role of the Stephen the Great’s Oak in the biosphere. 1..... 2..... b) Complete the diagram with the names of 3 consumers (of <i>different trophic levels</i>) to form a food chain. Oak acorn (Ghindă de stejar) → → → c) Name the group of <u>prokaryotic</u> organisms part of the structure of the biocenosis that ensures the transformation of organic remains of plants into inorganic substances. d) Indicate a <u>biological</u> feature of the oak (<i>described in the text</i>) that ensures long term storage of a large amount of carbon, to persuade a group of young people to plant oak (<i>stejar</i>) rather than acacia (<i>salcâm</i>). Support your answer. e) The protection of ancient trees is essential for biodiversity conservation. Explain the role of the Red List in biodiversity conservation. 	L	L																				
		0	0																				
		1	1																				
		2	2																				
		3	3																				
		4	4																				
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