THE VILLAGE
INTERNATIONAL SCHOOL
"We Nurture Dreams"

Date:05/11/24 MONTHLY TEST-02 (2024-25) Max marks:20

Grade:XI BIOLOGY(044) Time:50min

General Instructions:

1. There are 9 questions in the question paper. All questions are compulsory.

Qn. No	SECTION A	Marks allocated
1	What will happen if the diameter of the afferent arteriole is less than efferent arteriole? c) No ultrafiltration	1
2	Which hormone regulates the reabsorption of water in the distal tubules and collecting ducts of the nephron? c. Antidiuretic hormone (ADH)	1
3	What will be the immediate effect if the chordae tendineae of the tricuspid valve of the human heart is partially non – functional due to some injury? (d) The flow of blood into the pulmonary artery will be reduced	1

4	1. Both *A* and *B* are true and the *B* is the correct explanation of *A*	1
	SECTION B	
5	What is the remedial measure advised for the correction of acute renal failure? Explain briefly. Is the ultimate method for the correction of acute /extreme renal failure (kidney failure). A functional kidney is used as a transplant from a donor, preferably a close relative, to minimise its chances of rejection by the immune system of the host. Modern clinical procedures have increased the success rate of such a complicated technique.	2
6	Give reason why aquatic animals ate mostly ammonotelic in nature whereas terrestrial forms are not. ● Ammonia is the most toxic form of nitrogenous waste, hence it cannot be stored in the body. ● It also requires a large amount of water to eliminate it. ● Since the aquatic animals have large availability of water it is disposed of as ammonia. ● Since terrestrial animals have less availability of water, they have evolved to conserve water. ● Ammonia is converted into urea, which is comparatively less toxic and requires less quantities of water to discharge.	3
7	State the functions of the following in blood. (a) Fibrinogens are inactive components of blood plasma. Under the actino of enzyme thrombin they form a clot or coagulum of a network of threads called fibrin in which dead and damaged elements of blood are trapped. (b) Globulins are primarily involved immunity, i.e., defence mechanisms of the body. (c) Neutrphils are phagocytic cells which destroy foreign organisms entering the body. (d) Lymphocytes are specialised cells which are responsible for the immune responses in the body. Two major types of lymphocytes,	3

	that are involved in this process are B and T-lymphocytes.	
8	a)What is the significance of the AV node and AV bundle in the functioning of the heart? The atrioventricular (AV) node is present in the right atrium, near the base of the septum that separates the right atrium from the ventricle. It gives rise to the bundle of His that conducts the cardiac impulses from the autrium to the ventricles. As the bundle of His passes the ventricle along the inter-ventricular septum, it divides into two branches – the right ventricle and the left ventricle b)Why do we call our heart myogenic? because it can generate its own electrical impulses, allowing it to beat independently of the nervous system c) Explain the consequences of a situation in which blood does not coagulate. it can lead to excessive bleeding, also known as hemorrhage, which can be fatal	3
9	SECTION C a)Describe the role of Renin-Angiotensin in the management of Kidney function Renin is released from the Juxta- Glomerular Apparatus (JGA) on activation by fall in the glomerular blood pressure/flow. Renin converts angiotensinogen in blood to angiotensin I and further to angiotensin II. Angiotensin II, being a powerful vasoconstrictor, increase the glomerular blood pressure and thereby Glomerular Filteration Rate (GFR). Angiotensin II also activates the adrenal cortex to release aldosterone. Aldosterone causes reabsorption of Na+ and water from the distal parts fo the tubule. This also leads to an increase in blood pressure and GFR. This complex mechanism is generally known as renin angiotensin aldosterone system or RAAS. b)Expand the following excretory functions: a) ANF b) ADH c) GFR d) DCT c)What is the role of tubular secretion in maintaining acid-base and ionic balance in the body fluids? In the process of urine formation, the tubular cells secrete substances like H+and ammonia into the filtrate. Tubular secretion performed by Proximal Convoluted Tubule (PCT), Distal Convoluted	5

	Tubule (DCT), and Collecting Ducthelps in the maintenance of the ionic and acid-base balance of body fluids. Proximal Convoluted Tubule(PCT): PCT maintains the pH and ionic balance of the body fluids by selective secretion of hydrogen ions, ammonia and potassium ions into the filtrate and by absorption of HCO_3^-	