

Proforma for Scoring Key & Marking Scheme

SET C

BIOLOGY

ANSWER KEY - ENGLISH MEDIUM

Item/ Qn. No.	Score	Answer/Value Points	Further Information
1	1	Homo neanderthalensis	
2	1	i. Statement 1 is true and 2 is false.	
3	1	P-3, Q-5, R-2, S-1	
4		c) ii, iii	
5A	1	A. Circular muscles contract B. Radial muscles contract	
	1	- In Intense light circular muscles contract. - In dim light, Radial muscles contract	
5B	1	i. Glutamate	
	1	- When glutamate is produced continuously, Onbipolar neurons become inactive and offbipolar neurons get activated. - Signals indicating absence of light reach the brain	
6	1	DNA fingerprinting	
	1	ii. The sequence of nucleotides in each person vary. This uniqueness helps in identifying individuals.	
7		i. Malaria	
		ii. As the carriers of malarial parasites are mosquitoes, mosquito eradication	

		programmes and methods to control breeding of mosquitoes are to be practiced Tuberculosis, Rat fever	
8	1	Birds with beaks of suitable shape or size, depending on the availability of food resources in the environment, will survive..	
	1	They reproduce more effectively and create new generations. More variations accumulate over time leading to the creation of organisms that are unable to reproduce within the species. They evolve as new species.	
9	1	Translation	
	1	The inactive rRNA cannot add amino acids so protein synthesis stops, leading to metabolic disturbance	
10	1	Molecular biology	
	1	Humans are evolutionarily closest to chimpanzees. No difference is seen in the amino acid sequence of globulin in humans and chimpanzees. The next closest is gorilla (1 amino acid difference). The most distant relation is rat (31 amino acid differences).	
11A	1	Fungus	
	1	Wet marks on the leaves and stem. Leaves fall and the plant wilts quickly	
11B	1	Blood group and presence of Rh antigen is the primary factor in donor recipient matching	
	1	If the donor's blood contains an antigen that is naturally absent in the recipient's blood, the antibodies present in the recipient's	

		plasma may act against it, leading to agglutination of the blood	
12	1	CRISPR technology	
	2	The guide RNA precisely identifies the DNA segment that needs to be cut.	
	3	The sequence of nitrogen bases in DNA is edited so as to make changes in the characteristic of an organism. Through that, unwanted characteristics can be removed or new characteristics can be added.	
13	1	i. Cone cells	
	1	ii. There are three types of cone cells. S cone cells sensitivity at short wavelengths (blue light), M - cones at medium wavelengths (green light) and L - cones at longer wavelengths (red light). Shows higher sensitivity.	
	1	iii. Colour vision is made possible when the three types of cones get stimulated in varying proportions when exposed to coloured light depending upon the intensity and wavelength of light.	Expect open answers to this
14A	1	i. AIDS	
	1	ii. The virus attacks T lymphocytes. As a result, the body's ability to fight diseases is reduced	
	1	iii. - Avoid sexual contact with AIDS patients or take precautions - Avoid sharing of unsterilised needles and syringes, - Ensure proper testing while receiving blood and organs	

14B	2	i. When an injury occurs, the platelets and damaged tissues at the site produce an enzyme called thromboplastin. This converts a protein in the blood plasma called prothrombin into thrombin. Thrombin then converts an inactive protein called fibrinogen into fibrin. The fibrin forms a network of fibers that traps RBCs, forming a blood clot. This clot prevent further blood loss	
	1	ii. It blocks the entry of pathogens	
15		i. Tp,tP	
		ii. The trait dwarf purple (ttPp) is not a parental trait. When two or more different traits are combined, each trait is inherited independently to the next generation without mixing each other. (A pair of alleles in an organism does not influence the separation of another pair of alleles.)	
16.A	1	Thyroid gland.	
	1	▪ Parathormone ▪ Accelerates the reabsorption of calcium and phosphate to blood in kidneys. ▪ Stimulates the activity of mixing of calcium and phosphate from the bone into the blood. ▪ Accelerates the absorption of calcium from the intestine to blood	Any two points
16 B	1	i. Corticosteroids	
		Cortisol • Maintains glucose homeostasis • Suppresses the Immune responses	

		Resists inflammation and allergy of the body	
	1	Aldosterone - Helps in maintaining equilibrium of minerals in the body - Regulates blood pressure Androgens - Controls sexual development and sexual behaviour	Any two hormones and it's any one function
17	1	For redrawing	
	2	i. Hypothalamus- Maintains homeostasis ii. Cerebellum - By coordinating muscular activities.	
18 A	1	i Auxin, phototropism	
	3	ii. Auxins have a tendency to stay away from light, When light falls on the stem from only one direction, auxin moves to the opposite side of the stem. There, auxin combines with hormone receptors in the cells to form a hormone receptor complex and as a result, changes occur in cellular activities. The cells on the shaded side elongate and the part where cell elongation occurs bends towards the opposite side.	
18B	1	i. Somatotropin Releasing hormone/Inhibitory hormone	
	3	Dwarfism - Stunted growth Gigantism - Excessive body growth Acromegaly - Excessive growth of body parts such as palms, foot and jaws	