MAHESH TUTORIALS I.C.S.E.

ICSE X

SUBJECT : **BIOLOGY**

Marks : 80

Exam No. : MT/ICSE/PRELIM-I SET A -007

Time : 2 hrs.

Model Answer Paper

SECTION – I (40 Marks)

*Attempt **all** questions from this section.*

A.1

(a)	(i) Ciliary muscles.	**1**
	(ii) Monohybrid cross.	**1**
	(iii) Prophase	**1**
	(iv) Anti - transpirant.	**1**
	(v) Plasmolysis	**1**
(b)	(i) True	**1**
	(ii) False - Myopia is a defect of the eyeball being elongated.	**1**
	(iii) False - Deafness is caused due to the rupturing of eardrum.	**1**
	(iv) False - Ureter carries urine from kidney to the urinary bladder.	**1**
	(v) True	**1**
(c)	(i) Lacrimal glands and secretion of tears.	**1**
	(ii) Guard cells and opening and closing of stomata.	**1**
	(iii) Pupil and regulation of light that enters into the eye.	**1**
	(iv) Chromosomes and transmission of hereditary characters.	**1**
	(v) Eustachian tube and equalising the atmosphere air pressure and internal pressure of ear.	**1**
(d)	(i) Gestation is the period of the development of an embryo in the uterus.	**1**
	(ii) Photolysis is the splitting of water molecules into H^+ ions and OH^- ions in the presence of sunlight.	**1**
	(iii) Hormones are the secretions of endocrine glands which affect a target organ.	**1**
	(iv) The serum containing antibodies is called antiserum.	**1**
	(v) The ability of organism to resist an attack of disease causing microbes is called immunity.	**1**
(e)	(i) NADP - Nicotinamide Adenine Dinucleotide Phosphate	**1**
	(ii) ICSH - Interstitial Cell Stimulating Hormone	**1**
	(iii) NMEP - National Malaria Eradication Programme	**1**
	(iv) ACTH - Adrenocortico Tropic Hormone	**1**
	(v) LH - Luteinizing Hormone	**1**

(f)

(i) Cochlea - Location: It is located in the membranous labyrinth connected to the oval window.
Function : It is associated with the hearing function of the ear. **1**

(ii) Palisade cells - Location : They are located between the upper epidermis amd spongy mesophyll cells.
Function : To take in water from the xylem. **1**

(iii) Lenticel - Location : They are minute openings located on the surface of woody stems.
Function : To carry out diffusion of gases and letting out water vapour (transpiration). **1**

(iv) Corpus luteum - Location : It is formed on the peripheral walls of the ovaries.
Function :- To secrete progesterone. **1**

(v) Sclera - Location : It is the outermost tough layer surrounding the eyeball.
Function : To provide protection and maintain the shape of the eyeball. **1**

(g)

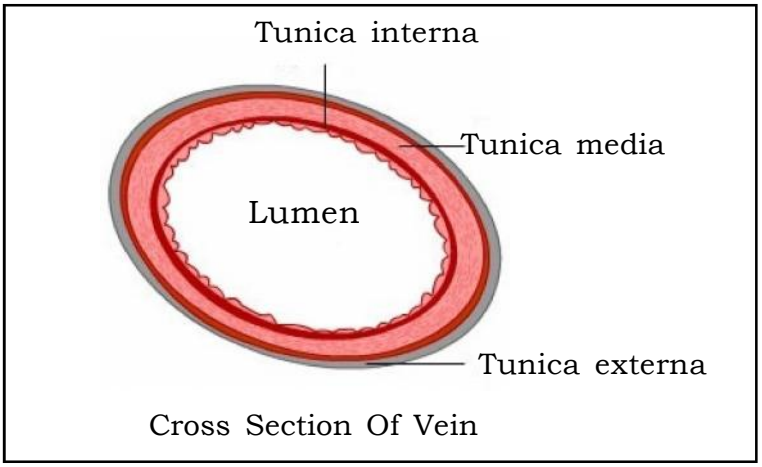
(i) Thin pocket - shaped valves. **1**

(ii) Open **1**

(iii) It is located in the veins. **1**

(iv) These valves prevent the backflow of the blood. **1**

(v)



Cross Section Of Vein **1**

(h)

(i) The production of sperm is called **spermatogenesis.** **1**

(ii) The disease caused by the hyposecretion of thyroxine is **exophthalmic goitre.** **1**

(iii) Mendel used **pea** plant for his experiments. **1**

(iv) The defect of the eye in which the lens become opaque is **cataract.** **1**

(v) The blood group which is called universal recipient is **AB.** **1**

SECTION – II (40 Marks)

*Attempt **any four** questions from this section.*

A.2

(A)

(i) Ganong's Potometer **1**

(ii) Any changes in the outside air or temperature may effect the position of the air bubble in the capillary tube. **1**

(iii) The rate of water intake by a plant, is almost equal to the water lost through transpiration. **1**

(iv) The bubble moves along in the capillary tube shows the pull of water, the time taken for the bubble to move between two fixed points marked on the horizontal tube should be recorded. **1**

(v) Reservoir stores water. When the air tube reaches the end of the bent tube, the stopcock is opened and water runs back and the experiment can be restarted. **1**

(B)

(i) **1**

Lymphocytes	**Neutrophils**
Nucleus large with a dent-like depression.	3 - 4 lobed nucleus.

(ii) **1**

LUBB	**DUP**
Beginning of the ventricular systole	End of the ventricular systole

(iii) **1**

Prostate gland	**Cowper's gland**
It secretes a white alkaline fluid.	It secretes a lubricant/ mucus fluid

(iv) **1**

Rod cells	**Cone cells**
Rhodopsin (visual purple.)	Iodopsin (visual violet).

(v) **1**

Simple goitre	**Exophthalmic goitre**
Undersecretion of thyroxine (hypothyroidism)	Oversecretion of thyroxine (hyperthyroidism)

A.3

(A)

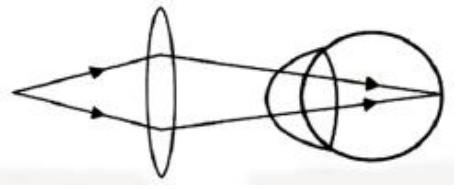
(i) The gland highlighted in the diagram is Adrenal gland. **1**

(ii) Outer adrenal cortex and inner adrenal medulla. **1**

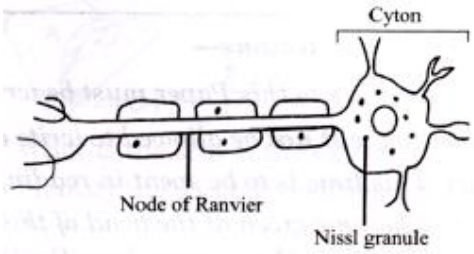
(iii) Adrenaline is produced by adrenal medulla. **1**

(iv) Hyposecretion of adrenal cortex causes Addison's disease. **1**

(v) If there is an overgrowth of adrenal cortex in a mature woman, she develops certain male characteristics, such as, a beard, moustaches and deep male voice. The condition is known as Adrenal Virilism. **1**

(B)	(i)	Pancreas produces both digestive enzyme and hormone insulin. The enzyme is produced from the exocrine part while insulin is produced from endocrine part of pancreas (Islets of Langerhans.)	**1**
	(ii)	To destarch the leaves of the plant it is necessary to keep it in the dark.	**1**
	(iii)	Green plants only can produce food by the process of photosynthesis to all other organisms, so green plants are called as producers.	**1**
	(iv)	Thick cuticle reduces the loss of water by transpiration.	**1**
	(v)	At high temperature the water evaporates faster so the air outside is unsaturated so transpiration is also high.	**1**
A.4			
(A)	(i)	1. Afferent arteriole 2. Efferent arteriole 3. Glomerulus 4. Bowman's capsule	**2**
	(ii)	Afferent arteriole - Its diameter is more Efferent arteriole - Its diameter is less.	**1**
	(iii)	Ultrafiltration	**1**
	(iv)	Glomerular filtrate.	**1**
(B)	(i)	1. Nucleus controls the metabolic activities of cell and controls cell division. 2. It helps in the transfer of hereditary characters.	**1**
	(ii)	It is the minimum pressure that must be exerted to prevent the passage of solvent molecules into the solution when the two are separated by a semipermeable membrane.	**1**
	(iii)	The movement of water out of cell when it is placed in a hypertonic solution is called exosmosis.	**1**
	(iv)	Transpiration creates a suction force, which helps in the ascent of sap.	**1**
	(v)	The point where crossing over between two (non-sister) chromatids belonging to homologous chromosomes takes place are called chiasmata.	**1**
A.5			
(A)	(i)	Hypermetropia / long - sightedness / Hyperopia	**1**
	(ii)	Reasons for Hypermetropia are : 1. Lens is too flattened.	**1**
		2. Shortening of the eyeball from front to back.	**1**
	(iii)	 Rectification of Hypermetropia with suitable convex lens	**2**

(B) (i)



1

(ii) 1. Cerebrum
2. Cerebellum **1**

(iii) The main activities of WHO are : (*any 3 are expected*)
i. It collects and supplies information about epidemic diseases so that origin and spread of such diseases is monitored.
ii. To promote and support projects for research on diseases.
iii. To suggest quarantine measures to prevent spread of disases.
iv. To lay pharmaceutical standards for certain group of drugs.
v. To maintain upto date statistical health records for most countries. It acts as 'head quarters' through which health agencies all over the world can contact each other. **3**

A.6

(A) (i) (1) Seminiferous tubules
(2) Testicular lobules
(3) Epididymis
(4) Vas deferens (sperm duct) **1**

(ii) (1) Seminiferous tubules : Sperm production by the process of spermatogenesis.
(3) Epididymis :
(i) It is a site for stroge of sperms and sperm maturation. ½
(ii) Helps in transportation of sperms from seminiferous tubules into vas deferens. ½

(iii) Scrotal sac acts as thermoregulator. The temperature in scrotal sac remains 2-3°C lower than the body temperature which is suitable for maturation of sperms. Thus, testes are located in the scrotal sac outside the abdomen. **1**

(iv) The inguinal canals, facilitate the movement (descent) of testes from the abdominal cavity into the scrotal sacs, during the birth of a male child. Also, The sperm duct (vas deferens) from each testis travels upward into the abdomen passing through an inguinal canal. **1**

(v) Semen is a mixture of mature sperms and secretions of various male reproductive accessory glands. It is milky fluid. **1**

(B) (i) The experiment was conducted to show that sunlight is necessary for photosythesis. **1**

(ii) The plant was placed in dark for destarching i.e. removal of starch. **1**

(iii) 1. The leaf was placed in boiling water for killing the cells.
2. The leaf was placed in methylated spirit for the removal of chlorophyll from leaf cells. **2**

	(iv)	$6CO_2 + 12H_2O \xrightarrow[\text{chlorophyll}]{\text{light}} C_6H_{12}O_6 + 6O_2 \uparrow + 6H_2O$	**1**
A.7			
(A)	(i)	1. Anterior / Superior Vena cava 2 - Aorta	**1**
	(ii)	5 - The hepatic artery carries oxygenated blood to the liver.	**1**
		8 - The inferior vena cava carries deoxygenated blood from the lower body to the heart.	**1**
	(iii)	The hepatic portal vein carries digested food from the intestines to the liver.	**1**
	(iv)	Blood vessel labelled 6, that is the Hepatic portal vein will contain a high amount of glucose and amino acids after a meal.	**1**
(B)	(i)	Anaphase (Mitosis)	**1**
	(ii)	A - Spindle fibre	**1**
		B - Centromere	**1**
	(iii)	After the division in chromosomes (centromeres) the sister chromatids are pulled towards the opposite poles with the help of spindle fibres.	**1**
	(iv)	Two daughter cells are formed.	**1**

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