BIOLOGY

FORM 3

PAPER 1 M/SCHEME

END YEAR 2025 EXAM

Question 1

a) 1mm = 1000μm

Areas = $\pi r^2 = {}^{22}/_{7}$ x (2000)^2

= ($^{22}/_{7}$ x 2000 x 2000);

= 125714.29μm^2 ;

b) $\frac{125714.29}{5}$

= 25142.858μm^2

Question 2

Osmosis	Active transport
(i)Does not require energy	(i)Require / use energy
(ii)No carrier molecules	(ii)Carrier molecules are involved
(iii)Involve movement of solvent molecules	(iii)Involve movement of solute particles.
(iv)Solvent molecules more along a conc-gradient	(iv)The solute molecules move against a conc-gradient. (any 3pts)

Question 3

- Thin epithelium i.e one cell thides
- Highly vascularised to maintain steef diffusion granules
- Ileum has villi are highly folded while lungs have alveols to increase S.A for absorbtion.

Question 4

- Vilus
- Increase the surface area for the absorption of the digested food substance
- Epithelium
- Lacteal
- Arteriole
- Succus entericus / intestinal juice
- Peptidase, sucrose, polypeptidase, maltase, lipase

Question 5

a) adenosine triphosphate; **reject symbols (ATP)**

b) P – oxygen

W – Carbon (IV) oxide **NB: reject symbols**

Stroma **reject : chloroplast**

d) Condensation

Question 6

(a) (i) It initiate the clothing process neutralizing an anti-clockwise factor called heparin and activates prothrombin to thrombin.

(ii) It activates conversion of fibrinogen to fibrin which forms a meshwork of fibres on the cut surface (to trap red blood cells forming a clot)

(b) (i) One can receive blood only from blood group O.

(ii) One can receive blood from all blood groups.

Question 7

(a)

(i) Narrow lumen – to enhance capillarity;

(ii) Lack of cross-walls to allow continuous movement of water uninterrupted / continuous column / stream of water;

(b) Presence of sieve plates (between the sieve tubes) / perforated cross walls; presence of cytoplasmic strands (within the sieve tube lumen); presence of companion cells; **(Mark first 2 = 2marks**

Question 8

Arteries	**Veins**
- Transport blood from the heart to the body tissue.	- Transport blood from body tissue to heart.
- Transport oxygenated blood except Pulmonary artery	- Transport deoxygenated blood except pulmonary vein.

Question 9

a) Asthma , tuberculosis, whooping cough

b) photosynthetic theory
starch sugar interconversion theory
potassium ion theory

Question 10

a) Adenosine triphosphate; reject ATP

b) A goat has a small surface area to volume ratio. Its body is less exposed to the environment hence it losses less heat and require less energy to replace. ***Acc. Reverse for a rat***.

Question 11

- Waste products are mainly from carbohydrates thus are less harmful than proteinous;
- Waste products are formed slowly as plants are less active;
- Some waste products are re- used. eg oxygen, carbon(iv)oxide.
- Some waste products are removed by diffusion;
- Some waste products are stored in insoluble form in dead tissues/ leaves/ fruits/seeds;

(Mark any 3) (3mks)

Question 12

(a) Deamination;

(b) - Removal of excess amino acids;
- Availing energy in the body;
- Formation of glycogen/fat for storage;
(any 2 correct ***b) is tied to (a)***

Question 13

i Class pisces

ii. Presence of fins for locomotion

- Body covered by scales

- Crustacea ✓1
- Arachnida ✓1

Question 14

a) *Centriole*

b) *Root tips;*
- *Shoot tip*
- *Cambium*

Question 15

.(a) (i) Study of a single species within a community / ecosystem / habitat / environment.

(ii) Study of natural communities / different species within an ecosystem.

(b)

Leaf	Habitat
A	Acquatic / fresh water
B	Forest terrestrial
C	Arid / semi – arid / desert.

Question 16

a) i) Prostate glands - Secretes alkaline fluid which neutralize the vaginal fluids; alkaline fluid activates sperms;

b) Uterus - Site for attachment and growth of embryo;
- Its muscular contraction aids in expulsion of fully developed foetus during birth;

c) Epididymis - Storage of sperms temporarily ;
- Site for maturation of sperms;

Question 17

Amount of oxygen required to get rid of the lactic acid that has accumulated in the muscles/tissues when oxygen supply is lower than the demand. ***Vise versa***

Question 18

a) Complete metamorphosis undergo 4 steps i.e.
egg → Larva → Pupa → Adult

while incomplete undergoes three stages; i.e
Egg → Nymph → Adult

Question 19

- Has seed coat to protect embryo;
- Has food stores/reserves to provide nourishment to embryo;
- Low water content to reduce chemical reactions during dormancy; any two.

Question 20

Vibrio cholera *rej* if the names are not underlined separately.

Question 21

Ability of the microscope to separate closely packed particle to appear separate

Question 22

A process/phenomenon where red blood cells burst when placed in hypotonic solution

Question 23

Ammonia

Question 24

Separate the heart into two halves hence preventing the mixing of oxygenated and deoxygenated blood

Question 25

Anemometer

Question 26

Shedding off of the exoskeleton in the arthropods