

# MIRROR JET EXAMS 2024

## BIOLOGY PAPER ONE

### MARKING SCHEME

1. Blood pumped to the arteries by the heart at higher pressure blood pressure in veins is reduced by capillary resistance .
2. Corpus luteum in the ovary secretes progesterone, which maintains pregnancy. After four month pregnancy is maintained by progesterone from placenta estrogen alone.
3. (a).Olecranon process.  
(b) Biceps relaxes while triceps contract,
4. Pollutants are absorbed by aquatic plant/produces which are eaten by primary consumers e.g fish Man accumulates this pollutants through regular eating the consumers, used for irrigating crops and during watering animals.
5. Reduces surface area exposed to the sun, which reduces cuticular transportation.
6. (a) A Saprophytic/ decomposer/ decay bacteria.  
B Nitrobacteria/Nitrifying bacteria.  
(b) Fixation by electrical discharge in the atmosphere/ conversion by thunder storms or lightning.
7. Terminal bud produces hormone /Auxins/indole acetic acid which suppress/inhibit axillary buds.
8. (a) Primary consumer / 2<sup>nd</sup> trophic level  
(b) Secondary consumer/3<sup>rd</sup> trophic level
9. (a) The agar block was ground, into pieces, ground agar was then dissolve in little amount of water then few drops of iodine solution was added.  
(b) To dissolve stored food, and to activate the enzymes,  
(c).To avoid dehydration or to keep wide of the petridish moist / To prevent agar block from drying up.

10. (a) (i) To prevent oxygen from getting into the yeast and glucose suspension/ prevent entry of oxygen  
(ii) To detect the presence/ production of carbon (iv) oxide/ confirmatory test for carbon (iv) oxide  
(b) (i) Reaction stops completely  
(ii) Rate of reaction increases.
11. (a) No reaction; boiling denature the enzymes: hence no action.  
(b) Enzyme catalase
12. (a) Wind  
(b) Easily carried by air currents /wind
13. (a) Growth and delegation of the shoot due to rapid cell division at the shoot tip which inhibits the sprouting out and development of lateral or side branches.  
(b) increase production or crop yield due to increased foliage or number of side branches(1mk)  
(c) Condition of embryo: whether living or dead; presence or absence of growth hormones and enzymes to affected seed germination.
14. Number of legs; body parts
15. (a) Chemicals like colchicine; mustard gas; nitrous oxide, Radiations like UV light. X-rays and Gamma rays; Viruses like papilloma.  
(b) (i) Condition where offspring shows characteristic that are superior than those of either the parents,  
(ii) Condition in which an individual has more than two sets of chromosomes.
16. (a) Divergent, or Adaptive radiation  
(b) The ancestral population of insects split into several groups, which become isolated from one another ; Each group become adapted to different ecological niche; through random mutation and natural selection; the mouthparts of each group under went gradual modification; enabling them to utilize the food in their environment. (5mks)

17. (a) Short sightedness/ Myopia.

(1mk)

(b) Use of concave lens (diverging lens) to diverge the light rays so that they are focused on the retina.

18. (a) A; Eye piece

B ; Coarse adjustment knob.

(b) C

(ii) Magnification = Eye piece      X      Objective lens  
   Magnification      magnification

19.(a) (i)  $\longrightarrow$  ( 1)

(ii) (2)  $\longleftarrow$

(b) Stomata opening and closure; Absorption of water by plant root; F feeding in insectivorous plant. Provision of support in herbaceous plants;

20. (a) Poison stops respiration from taking place, hence no energy accumulation by the cell to see the cell through the remaining stages of cell division .

(b) Produces variation

Formation of sex cells (gametes)

21. (a) A . Spiracle

B Trachea

(b). Preventing trachea walls from collapsing ; Strengthens trachea walls (thus prevent collapsing)

(c) tracheolar fluid; moistens the inner walls of tracheoles; (thus facilitating diffusion of gases in solution form).

22. (a) Hydrolysis

(b) A ; Sucrase , B; Fructose

(c) Succus entericus /intestinal juice

(d) ileum

23. (i) Secretes progesterone during pregnancy site for exchange of materials between material and foetal blood. (1mk)

(ii) Lubricate the foetus; Acts as shock absorber. (1mk)

24. (a)

A ; Capsular space ;RY Bowman's capsule;;

B ; loop of henle RY; U- shaped tubule



(b) (i) Blood in vessel X is under high pressure and has higher content of urea , while blood in vessel Y is under low pressure and has lower content of urea . (1mk)

(ii) Content of F has plasma proteins, blood cells which are absent in the content of D. (1mk)

(iii). Reduces surface area of water reabsorption back into the bloodstream; hence increase water content in urine formed and released by the organism..(1mk)

25. (a) (i) AA . Broad abdomened fly Ry AA alone. (2mks)

aa. Narrow abdomened fly Ry aa alone

(ii) parental phenotype  Broad abdomen  narrow abdomen

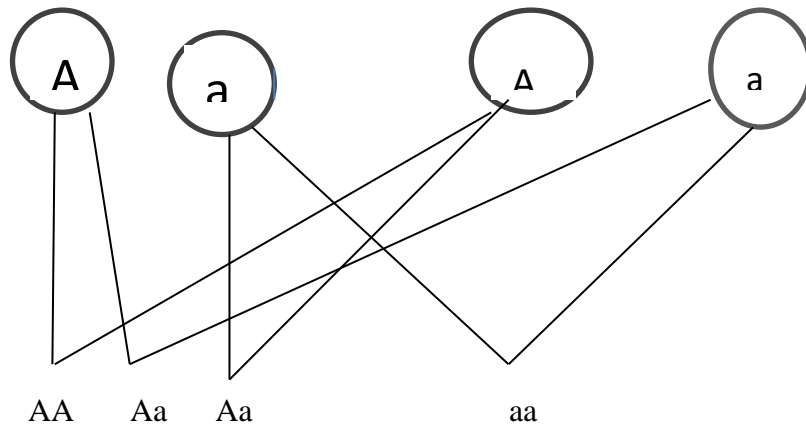
Parental Genotype

Aa

X

Aa

Gametes



(c) (i) AA; AA

(1mk)

(ii) Used for establishing the unknown genotype of an individual (test cross).