

TIME: 2hrs.

General Instructions:

- i. This question paper consists of 28 questions in 5 sections.
- ii. All questions are compulsory.
- iii. **Section A** consists of 18 objective type questions carrying 1 mark each.
- iv. **Section B** consists of 3 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
- v. **Section C** consists of 4 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
- vi. **Section D** consists of 2 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
- vii. **Section E** consists of 1 source-based/case-based units of assessment of 04 marks each with sub-parts.

SECTION - A

1. Identify the incorrect pairing:

a.) Hydra --- Regenerative cells	b.) Tissue culture---- Disease free plants
c.) Leishmania-----kala-Azar	d.) Papaya----Self pollination
2. A Mendelian experiment consisted of breeding tall pea plants bearing violet flowers with short pea plants bearing white flowers. All the progeny were tall but almost half of them bore white flower. What could be the genetic make-up of the parent bearing violet flower?

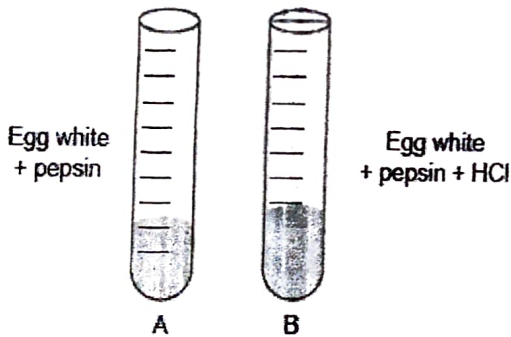
a.) TTVV	b.) TTVv	c.) TtVV	d.) TtVv
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3. In a monohybrid cross of yellow and green seeds, total of 280 seeds were produced. Total number of green seeds will be:

a.) 210	b.) 70	c.) 270	d.) 90
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4. The number of pair/pairs of sex chromosomes in the zygote of a human being is

(a) 2	(b) 3	(c) 1	(d) 4
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5. Damage of cerebellum will mostly affect the career of :

a) architect	b) teacher	c) librarian	d) athlete
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6. Which is **Incorrect**:
 - a.) Blue green algae are producers
 - b.) Green plants store food in the form of sucrose
 - c.) Producers prepare food from inorganic substances
 - d) Plants convert solar energy to chemical energy
7. Which organisation succeeded in forging an agreement to freeze CFC production.
 - a.) Union Nations Environment Programme.
 - b.) Union National Environment Programme
 - c.) United Nations Environment Programme
 - d.) United National Environment Programme

8. The correct sequence of reproductive stages seen in flowering plants is:
- Gamete, zygote, embryo, seedling
 - Zygote, gamete, embryo, seedling
 - Seedling, embryo, zygote, gametes
 - Gamete, embryo, zygote, seedling
9. Which of the following changes at puberty is associated with Girls?
- Breast size increases, Growth of thick hair on face, oily skin.
 - Beginning of menstruation cycle, Growth of Thick hair on face, oily skin.
 - Breast size increases, Growth of thin hair on face, oily skin.
 - Beginning of menstruation cycle, cracking of voice, oily skin.
10. Vegetative propagation refers to formation of new plants from
- stem, flowers and fruits
 - stem, leaves and flowers
 - stem, roots and flowers
 - stem, roots and leaves
11. Which receptor/receptors will be there in tongue?
- Gustatory receptors
 - Thermo receptors
 - Olfactory receptors
 - Both a and b
12. A student sets up an experiment to study the role of enzymes in digestion of food.



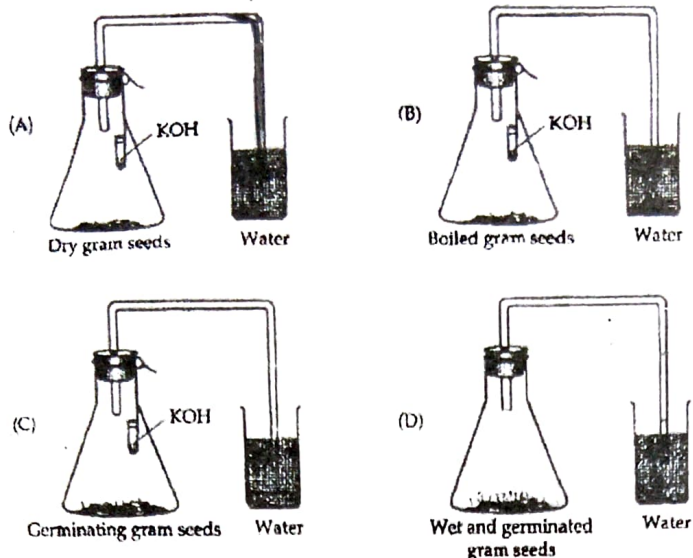
In which test tube, the digestion of protein will occur?

- Test tubes A as pepsin will breakdown protein into simple molecules.
- Test tube B as HCl will breakdown protein into simple molecules.
- Test tube A as pepsin will breakdown into simple molecules.
- Test tube B as HCl will activate pepsin for breakdown of protein into simple molecules.

13. The opening and closing of the stomatal pore depends upon:

- oxygen
- temperature
- water in guard cells
- concentration of CO₂ in stomata

14. Observe the following images and choose the correct set up to show that CO₂ is released during respiration.



Following questions consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

15. **Assertion:** Accumulation of variation in a species increases the chances of its survival in changing environment.

Reason: Accumulation of heat resistance in some bacteria ensure their survival even when temperature in environment rises too much.

16. **Assertion:** For each trait there will be two versions of a gene in each organism.

Reason: Each trait is influenced by both maternal and paternal DNA.

17. **Assertion:** If blood sugar level in blood rises they are detected by cells of pancreas and produce more insulin.

Reason: The timing and amount of hormone released are regulated by feedback mechanism.

18. **Assertion:** In anaerobic respiration, one of the end product is alcohol.

Reason (R): There is an incomplete breakdown of glucose.

SECTION - B

19. a) Which process helps to restore normal number of chromosomes in the progeny?
 b.) Give any two reasons for selecting garden pea by Mendel for his experimentation?

20. A student set up two experiments in his lab.

Experiment 1 consisted of a cotton plugged test tube containing yeast and sugar solution kept in a warm place. After 2hrs a small drop of yeast culture was observed under microscope.

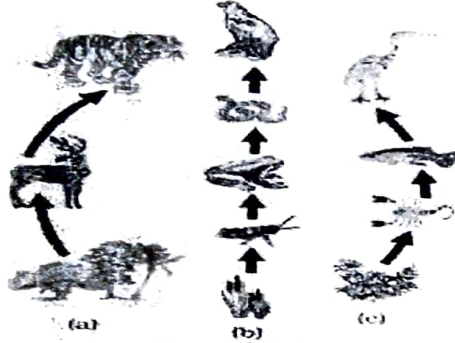
Experiment 2 consisted of a slice of bread kept in a cool, moist dark place. Surface of slice was observed with a Magnifying glass.

With the help of well labelled diagram show the observation of both the experiments.

21. a.) What are the two components of the system that facilitate communication between CNS and body Parts.
 b.) How chemical coordination is a better means of communication?

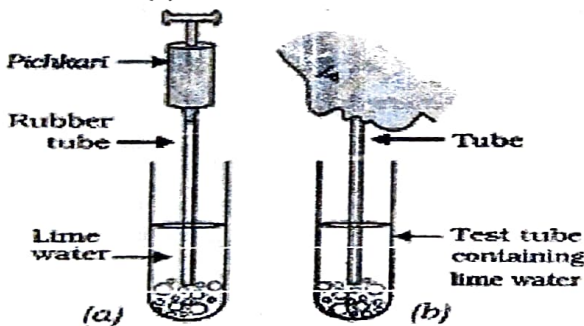
SECTION - C

22. a.) A woman got pregnant three times and every time she was blessed with baby girl. Her family Declared her responsible for this condition. Do you think her family is right? Justify your answer with correct explanation.
 b.) How sex is determined in case of snails?
23. a.) Observe the picture given below and tell which one is most stable food chain and why?



- b.) In place of green plants which other organism can be placed at the first trophic level?
 c.) Suggest any one way to reduce biological magnification.

24. a.) Observe the image given below carefully and write your observations with reason for both (a) and (b)



- b.) How our lungs designed to maximize exchange of gases.

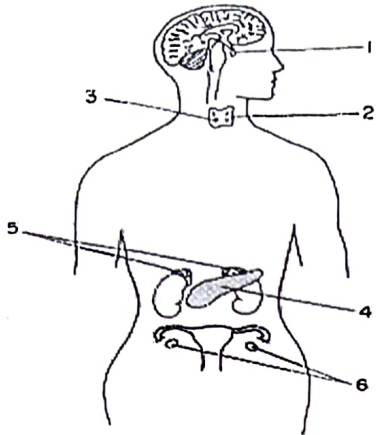
25. a.) Identify the type of movement in case of:
 i) Movement of sunflower in response to day and night.
 ii) Clinging of tendril around support.
 b.) Reflex actions are more efficient over thinking process. Justify the statement.
 c.) Show your response on touching a hot plate in the form of a reflex arc.

SECTION - D

26. a.) How male germ cell is different from female germ cell in case of humans?
 b.) How does uterus prepare itself every month to receive and nurture the growing embryo?
 c.) Name any one bacterial and one viral sexually transmitted disease. Also mention one way to prevent transmission of such diseases.

mind body

27. a.) Observe the given figure carefully and Write any one hormone secreted by glands numbered as 1 to 6



b.) How do animal muscles move in response to information given by motor neurons?

SECTION - E

28. Case Study:

Haemodialysis is a process of purifying the blood of a person whose kidneys are not working normally. Blood drained from a convenient artery is pumped into a dialysing unit after adding an anticoagulant like heparin. The unit contains a coiled cellophane tube surrounded by a fluid (dialysing fluid) having the same composition as that of plasma except for the nitrogenous wastes. The porous cellophane membrane of the tube allows the passage of molecules based on a concentration gradient. As nitrogenous wastes are absent in the dialysing fluid, these substances freely move out, thereby clearing the blood. The cleared blood is pumped back to the body through a vein after adding anti heparin to it.

- a.) Which function of kidney is missing in case of hemodialysis?
- b.) Name the structural and functional unit of kidney.
- c.) In which part of excretory system urine is stored?
- d.) Which nitrogenous waste is removed from blood by the kidneys?