

DIET WAYANAD
PRE MODEL EXAMINATION MARCH 2022
BIOLOGY

Time : 1½ Hrs

Total score : 40

Instructions

- 15 minutes is given as cool-off time.
- Use cool off time to read the questions and plan your answers.
- Attempt the questions according to the instructions.
- Keep in mind, the score and time while answering the questions.
- The maximum score for questions 1 to 24 will be 40.

Part 1**A. Answer any 4 questions from 1 to 6. Each carries 1 score (4X1=4)**

1. Identify the one which is not a component of a nucleotide. 1
 a) Phosphate b) Sugar c) Protein d) Nitrogen base
2. Name the nerves that carry impulses from various parts of the body to the brain. 1
3. Identify the pigment present in the given photoreceptor. 1



4. The enzyme used for cutting the genes; 1
 a) Restriction endonuclease b) Plasmid c) Ligase d) Endorphin
5. Correct mistake if any in the underlined part of the given statements. 1
 a) Germs that have crossed the cell wall are prevented from entering through the cell membrane by a polysaccharide called callose.
 b) The protein called cuticle prevents the entry of germs through the skin.
6. Dysfunction of which endocrine gland is indicated by the following conditions. 1
 • Gigantism • Acromegaly

B. Answer all questions from 7 to 9. Each carries 1 score (3X1 =3)

7. Identify the causative organism of Ratfever? 1
 a) Corynebacterium b) Mycobacteria c) HIV d) Leptospira
8. Fill in the blank according to the model given. 1
 Oparin, Haldane : Chemical evolution theory
 Hugo DeVries :
9. Find the odd one and write the common feature of others. 1
 a) Malleus b) Ommatidia c) Stapes d) Incus

Part II

A. Answer the following question. Carries 2 score. (1X2 =2)

10. "Lost child found after years. The child was identified through DNA testing."
a) What is the basis of this technology? 1
b) Write down the other two benefits of this technology. 1

B. Answer any one of the questions from 11 to 12. Each carries 2 score. (1X2 =2)

11. Haemophilia is caused by the defect in the production of proteins that help the blood to clot.
a) What are the symptoms of this disease? 1
b) How is temporary relief for this disease is brought in? 1
12. 'There is a common ancestor for all the different species that exist today'
Explain how Biochemistry and Physiological studies substantiate the above statement? 2

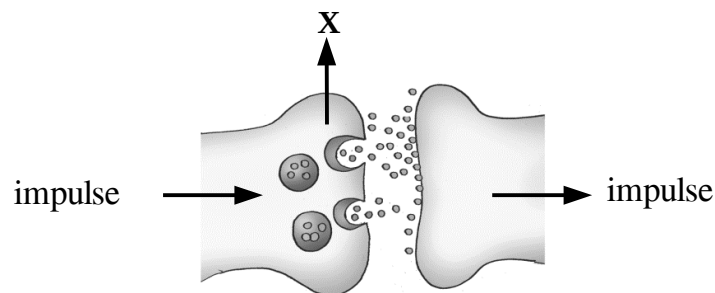
Part III

A. Answer any 3 questions from 13 to 16. Each carries 3 score. (3X3=9)

13. Analyse the informations given below and prepare a flowchart related to the sense of smell. 3

Stimulate the olfactory receptors, Sense of smell, Generate impulses,
Aromatic particles dissolve in the mucus inside the nostrils,
Impulses reaches the brain through olfactory nerve ,
Aromatic particles diffuse in the air and enter the nostrils

14. Observe the illustration of impulse transmission through synapse and answer the following questions.



- a) Which part is denoted as 'X'? 1
b) What are the chemicals secreted from 'X'? Write their function. 2
15. Analyse the following statement regarding protein synthesis and answer the questions.
"Different types of RNA are involved in protein synthesis"
- a) Which RNA is formed from DNA in this process? What is its function? 2
b) How do the amino acids required for this process reach the ribosome? 1

16. Termites and honey bees live in colonies by chemical messages sent through certain substances.

- a) Identify these substances. 1
 b) Write down their any two functions. 2

B. Answer the following question. Carries 3 scores (3X1=3)

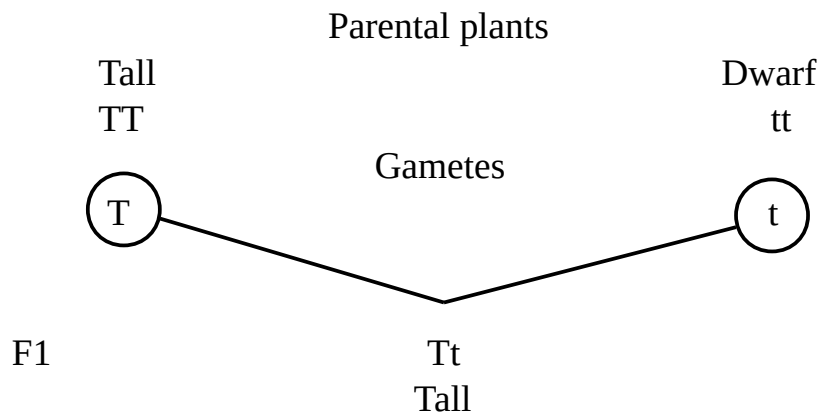
17. Prepare a flow chart of the clotting of blood using the following statements.

- (a) Thromboplastin converts prothrombin to thrombin.
 (b) Blood flows from the wound.
 (c) Tissues degenerate to form the enzyme called thromboplastin.
 (d) Thrombin converts fibrinogen to fibrin.
 (e) Blood clot is formed.
 (f) The red blood cells and platelets entangle in the fibrin network.

Part IV

A. Answer any 2 questions from 18 to 20. Each carries 4 score. (2X4 =8)

18. Observe the illustration and answer the questions.



- a) Identify the dominant and recessive traits. 1
 b) Illustrate F2 generation. 3

19. The normal levels of the two components in human blood are given in the table. Analyse them and answer the questions.

X	9-11 mg/100ml
Y	70-110 mg/100ml

- a) What are the components indicated by **X** and **Y**? 1
 b) Which are the hormones that help to regulate the level of the component **X**? 1
 b) How can the level of **Y** be maintained without increase? 2

20. The following are the main concepts of a theory of evolution. Arrange the concepts in the appropriate order and Write the name of the scientist who proposed this theory as heading.
- Struggle for existence
 - Origin of new species
 - Over production
 - Favourable variations are transferred to the next generation
 - Those with unfavourable variations are destroyed and those with favourable variations survive
 - Accumulation of variations inherited through generations

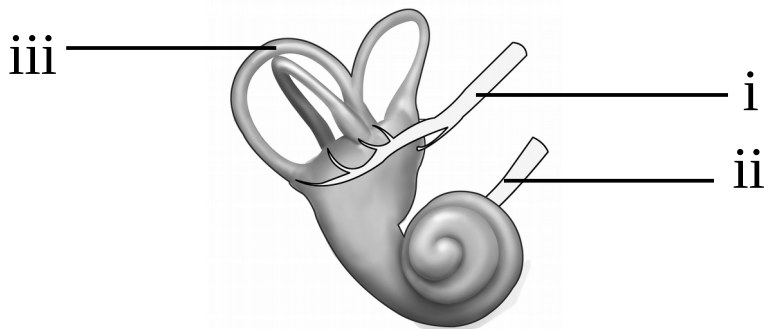
B. Answer any 1 question from 21 to 22. Each carries 4 score. (1X4=4)

21. Two dreadful disease that has gripped the world by fear are given below. Analyse them and answer the questions.

- Diphtheria
- Filariasis

- Identify the pathogens. 1
- Which disease is transmitted by vectors? 1
- Why do lymph ducts swell in patients with filariasis? 2

22. Observe the illustration and answer the questions.



- Identify the parts indicated as (i) and (ii). 1
- Write the functions of the parts indicated as (i) and (ii) 1
- What is the role of the part (iii) in maintaining body balance? 2

Part V

A. Answer any 1 question from 22 to 23. Each carries 5 score.

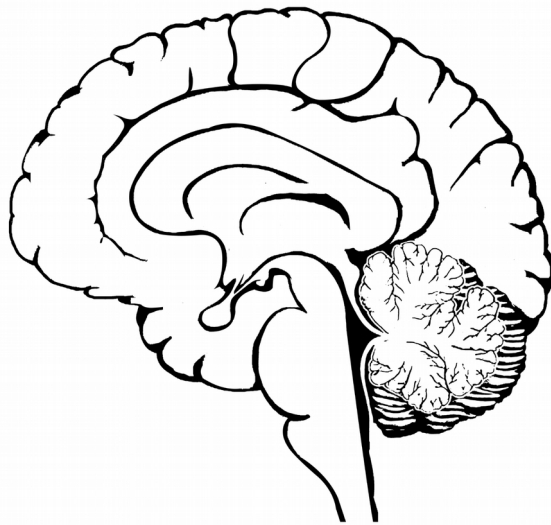
(1X5=5)

23. Read the statement and answer the questions.

‘The only way to get rid of the COVID pandemic is through vaccination, and now the goal of the vaccine has fruitful’

- a) What are vaccines? 1
- b) What are the components of vaccines? 2
- c) How do the vaccines provide immunity? 2

24. Redraw the diagram, identify and label the parts with their names.



(1 score for redrawing)

- a) Evokes sensations 1
- b) Maintains equilibrium of the body 1
- c) Acts as relay station of impulses 1
- d) Controls involuntary actions 1