

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

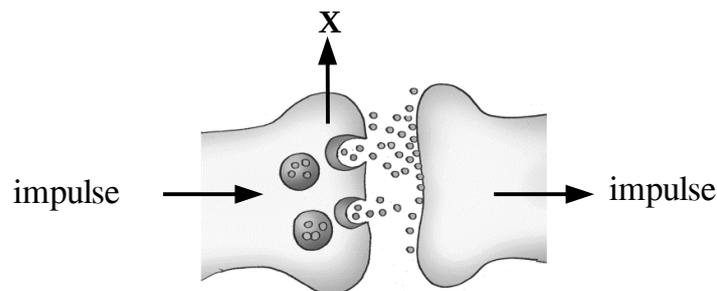
Part III

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)

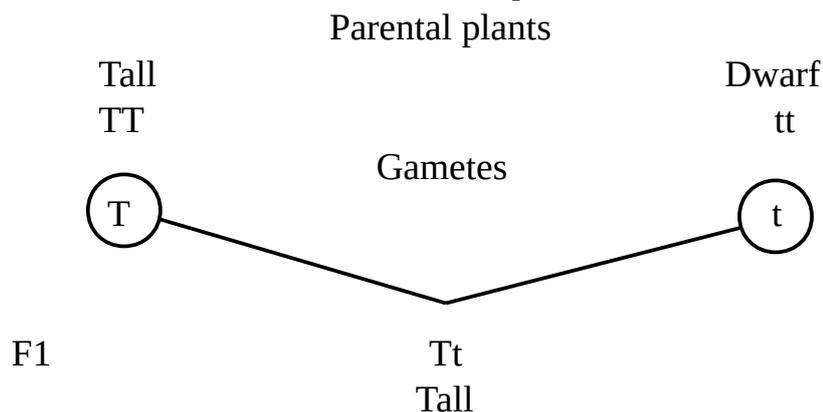
17. Prepare a flow chart of the clotting of blood using the following statements.

- (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

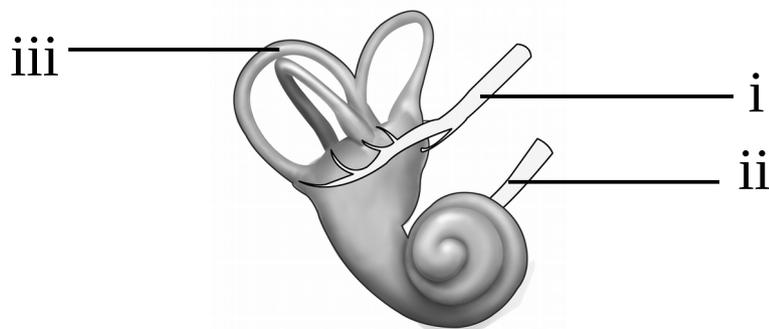
B. Answer any 1 question from 21 to 22. Each carries 4 score. (1X4=4)

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.

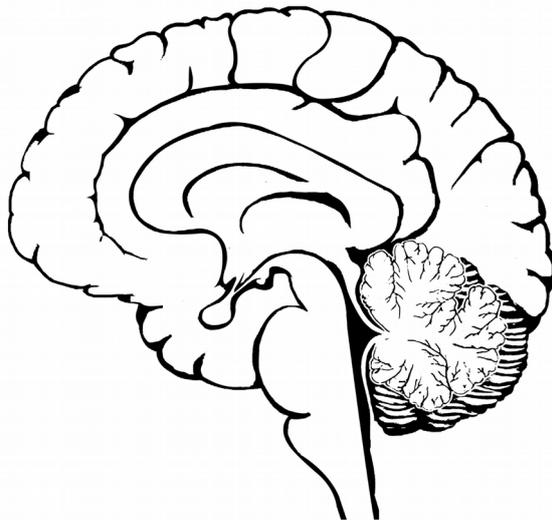
(1X5=5)

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