INDIAN SCHOOL AL WADI AL KABIR

FINAL EXAMINATION (2023-24)
Sub: Biology (044)
SET-1

Date: 27.02.2024 Max. Marks: 70
Class: XI Time Allowed: 3 hours

General Instructions:

(i) All questions are compulsory.

(ii) The question paper has five sections and 33 questions. All questions are compulsory.

(iii) **Section–A** has 16 questions of 1 mark each; **Section–B** has 5 questions of 2 marks each; **Section– C** has 7 questions of 3 marks each; **Section– D** has 2 case-based questions of 4 marks each; and **Section–E** has 3 questions of 5 marks each.

(iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

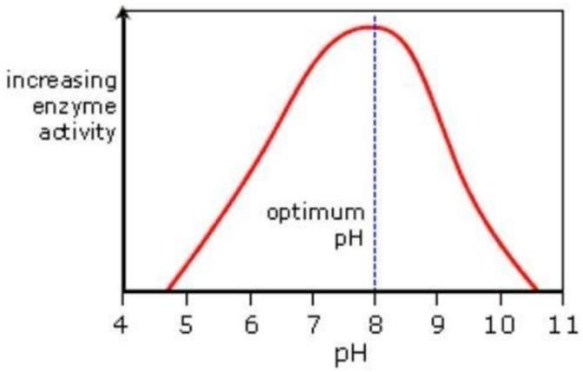
(v) Wherever necessary, neat and properly labeled diagrams should be drawn.

SECTION-A

Q.No.	Question	Marks
1	Metabolism refers to: a) Release of energy b) Gain of energy c) Catabolism d) Gain or release of energy	1
2	Which of the following statements is false about the fungi? a) They are eukaryotes b) They are heterotrophs c) They possess a purely cellulosic cell wall d) None of the above	1
3	Vascular bundles are not found in: a) Gymnosperms b) Pteridophytes c) Angiosperms d) Bryophytes	1

4	Flame cells are the excretory structures for: a) Annelida b) Coelenterates c) Platyhelminthes d) Echinodermata	1
5	The morphological nature of the edible part of a coconut is: a) Cotyledon b) Perisperm c) Pericarp d) Endosperm	1
6	Root hair develop from the region of: a) Maturation b) Meristematic activity c) Root cap d) Elongation	1
7	Who is a poikilotherm? a) Organism which cannot regulate its body temperature b) Organism which can regulate its body temperature c) Organism which has a cutaneous respiration d) Organism which has a tympanum	1
8	Peptide synthesis inside a cell takes place in a) Ribosomes b) Mitochondria c) Chromoplast d) Chloroplast	1
9	Which is the most abundant biomolecule on earth? a) Mineral salts b) Proteins c) Lipids d) Carbohydrates	1
10	Photosynthetic pigments found in the chloroplasts occur in a) Chloroplast envelope b) Matrix c) Plastoglobules d) Thylakoid membranes	1
11	Seed dormancy is triggered by a) Indole-3-ethanol b) Abscisic acid c) Carbon dioxide d) None of the above	1

12	Human skin cannot function as a respiratory organ because: a) It is not permeable to O_2 and CO_2 b) It is rather thick c) It is dry d) All of the above	1
Question No. 13 to 16 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 and R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true.		
13	Assertion: When there is a fall in the blood pressure due to loss of blood volume, this is compensated by vasoconstriction of veins. Reason: Veins hold the extra amount of blood which can be shifted to the arteries as required.	1
14	Assertion: Visceral muscles are smooth in appearance. Reason: Many muscle cells assemble in a branching pattern to form a visceral muscle.	1
15	Assertion: Nerve conduction is the one-way conduction. Reason: Nerve impulse is transmitted from dendrite terminals to axon terminals.	1
16	Assertion: Melatonin influences the menstrual cycle, pigmentation, and defense capability. Reason: It plays an important role in the regulation of diurnal rhythm of our body	1
SECTION-B		
17	What is the difference between a virus and a viroid?	2
18	What do you mean by anisogamy and isogamy?	2
19	Differentiate between open and closed circulatory system?	2
20	Why is the maize grain considered as a fruit and not as a seed?	2
21	In catalyzed reactions, the formation of the enzyme-substrate complex is the first step. Explain the other steps until the formation of the product. **OR**	2

	The functional groups in amino acids are weak bases and acids chemically, the ionization is affected by the pH of the solution. The activity for several enzymes is affected by the ambient pH and is depicted in the curve below, explain in brief.  	
	SECTION-C	
22	Give 6 comparison between C3 and C4 Pathways **OR** Give 6 comparison between cyclic and non-cyclic photophosphorylation.	3
23	Differentiate between Monocot and Dicot leaf.	3
24	Give two prominent features of the following phases: i) G_0 of cell cycle ii) Prophase I of Meiosis iii) Metaphase II of Meiosis	3
25	A man is climbing a hill, what precautionary respiratory measures do you think is necessary and important for him?	3
26	Explain the structure of a neuron with a well-labelled diagram and define the following terms: a) Unipolar b) Myelinated c) Neurotransmitters	3
27	Which hormonal deficiency is responsible for the following? a) Diabetes mellitus b) Goitre c) Pituitary Dwarfism	3

<table>
<tr><td>28</td><td>Explain the cells involved in the coagulation of blood and the procedure how it takes place.</td><td>3</td></tr>
<tr><td colspan="3">SECTION-D</td></tr>
<tr><td>29</td><td>Read the passage given below and answer the following questions:

The system for control and coordination is highly evolved in the frog. It includes both neural system and endocrine glands. The chemical coordination of various organs of the body is achieved by hormones which are secreted by the endocrine glands. The prominent endocrine glands found in frog are pituitary, thyroid, parathyroid, thymus, pineal body, pancreatic islets, adrenals, and gonads. The nervous system is organized into a central nervous system (brain and spinal cord), a peripheral nervous system (cranial and spinal nerves) and an autonomic nervous system (sympathetic and parasympathetic). There are ten pairs of cranial nerves arising from the brain. Brain is enclosed in a bony structure called brain box (cranium). The brain is divided into forebrain, mid-brain, and hindbrain. Forebrain includes olfactory lobes, paired cerebral hemispheres and unpaired diencephalon. The midbrain is characterized by a pair of optic lobes. Hindbrain consists of cerebellum and medulla oblongata. The medulla oblongata passes out through the foramen magnum and continues into spinal cord, which is enclosed in the vertebral column.
The ovaries are situated near kidneys and there is no functional connection with kidneys. A pair of oviduct arising from the ovaries opens into the cloaca separately. A mature female can lay 2500 to 3000 ova at a time. Fertilisation is external and takes place in water. Development involves a larval stage called tadpole. Tadpole undergoes metamorphosis to form the adult.
Frogs are beneficial for mankind because they eat insects and protect the crop. Frogs maintain ecological balance because these serve as an important link of food chain and food web in the ecosystem. In some countries the muscular legs of frog are used as food by man.

<table>
<tr><td>i) The CNS and PNS respectively consists of:

a) Brain, Spinal Cord and peripheral nerves
b) Brain only
c) Reflex neurons
d) None of the above</td><td>1</td></tr>
<tr><td>ii) Give 2 functions of the adrenal gland in frogs.</td><td>1</td></tr>
<tr><td>iii) What do you understand by term ‘metamorphosis’?
OR
The female frog lays 2500-3000 eggs at a time. Give reasons on laying such high number of eggs.</td><td>2</td></tr>
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</td><td>4</td></tr>
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30	Read the passage given below and answer the following questions: The cells derived from root apical and shoot-apical meristems and cambium differentiate and mature to perform specific functions. This act leading to maturation is termed as differentiation. During differentiation, cells undergo few to major structural changes both in their cell walls and protoplasm. For example, to form a tracheary element, the cells would lose their protoplasm. They also develop a very strong, elastic, lignocellulosic secondary cell walls, to carry water to long distances even under extreme tension. Plants show another interesting phenomenon. The living differentiated cells that by now have lost the capacity to divide can regain the capacity of division under certain conditions. This phenomenon is termed as dedifferentiation. For example, formation of meristems – interfascicular cambium and cork cambium from fully differentiated parenchyma cells. While doing so, such meristems/tissues can divide and produce cells that once again lose the capacity to divide but mature to perform specific functions, i.e., get redifferentiated.	4

i) The time differentiated cells have lost the capacity to divide, such cell regains the capacity of division under certain conditions, such phenomenon is termed as a) Differentiation b) Dedifferentiation c) Redifferentiation d) None of the above	1
ii) Cell produced after dedifferentiation that cell once again lose the capacity to divide but mature enough to perform certain functions are termed as a) Dedifferentiation b) Dedifferentiation c) Redifferentiation d) None of the above	1
iii) Name the factors that can affect the development of plants and animals. **OR** Root apical and shoot apical meristems can mature into _____, _____, _____ and _____ respectively.	2

SECTION-E		
31	Describe the following with a well labelled diagram: i) Synapsis ii) Bivalent iii) Chiasmata iv) Homologous Chromosome v) Sister Chromatids **OR** Explain the terms Cytokinesis and Karyokinesis. How is cytokinesis different in plants and animals? Elaborate your answer with a well labelled diagram showing the process of cytokinesis in plants and animals.	5
32	Briefly explain the Amphibolic Pathway. What is Respiratory Quotient? Write about the RQ of fats and proteins. **OR** What is glycolysis and what is the product of Glycolysis? Also differentiate between Aerobic Respiration and Fermentation.	5
33	Explain the structure of a nephron with the help of a well labelled diagram. Briefly write a note on the counter-current mechanism. **OR** Explain the regulation of Kidney function by ADH, Renin and ANF. Also explain the terms: i) Glycosuria ii) Glomerulonephritis	5

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