HALF YEARLY EXAMINATION, 2024-25

BIOLOGY

Time – 3:00 Hrs. **Class – XI** **M.M. : 70**

Date – _____

Name of the student _____Section _____

General Instructions:

(1) There are 33 questions in all. All questions are compulsory.
(2) This question paper has five sections: Section A, B, C, D and E.
(3) All the sections are compulsory.
(4) **Section A** contains sixteen questions of **one mark** each, **Section B** contains five questions of **two marks** each, **Section C** contains seven questions of **three marks** each, **Section D** contains two case study-based questions of **four marks** each and **Section E** contains three long answer questions of **five marks** each.
(5) There is no overall choice. However, an internal choice has been provided in one question in Section B, in one question in Section C and all three questions in Section E. You have to attempt only one of the choices in such questions.
(6) Wherever necessary, neat and properly labelled diagrams should be drawn.

SECTION-A

Q.1 What is the correct order of taxonomic categories from the broadest to the most specific?

A. Kingdom, Phylum, Class, Order, Family, Genus, Species

B. Kingdom, Phylum, Class, Order, Family, Species, Genus

C. Kingdom, Phylum, Order, Class, Family, Genus, Species

D. Kingdom, Class, Phylum, Order, Family, Genus, Species

Q.2 Which taxonomic category, groups organisms based on their evolutionary lineage and common ancestry?

A. Kingdom B. Genus C. Order D. Phylogenetic group

Q.3 Who is known as the father of modern taxonomy?

A. Charles Darwin B. Gregor Mendel C. Carolus Linnaeus D. Louis Pasteur

Q.4 In which taxonomic rank do organisms in the same genus belong to ?

A. Order B. Family C. Species D. Class

Q.5 During which stage of mitosis do the chromosomes align along the equator?

A. Prophase B. Metaphase C. Anaphase D. Telophase

Q.6 What is the outcome of meiosis in terms of chromosome number?

A. The chromosome number is doubled

B. The chromosome number is halved

C. The chromosome number remains unchanged

D. The chromosome number is tripled

Q.7 Which organelle is known as the "powerhouse of the cell"?

A. Nucleus B. Ribosome C. Mitochondrion D. Endoplasmic reticulum

Q.8 What is the primary role of ribosomes in a cell?

A. To generate ATP B. To digest cellular waste

C. To synthesise proteins D. To regulate cell division

Q.9 Which gas is released as a byproduct of respiration in plants?

A. Oxygen B. Carbon dioxide C. Nitrogen D. Hydrogen

Q.10 During respiration in plants, glucose is first broken down in the cytoplasm to produce:

A. Pyruvate B. Acetyl CoA C. ATP D. Carbon dioxide

Q.11 Which of the following animals uses gills for breathing?

A. Frog B. Fish C. Bird D. Dog

Q.12 The breathing rate of an animal is most likely to increase during:

A. Rest B. Sleep C. Exercise D. Eating

Q.13 Which of the following hormones primarily regulates growth in plants?

A. Auxins B. Insulin C. Adrenaline D. Thyroxine

Q.14 In plants, the region where most of the growth occurs is called:

A. Node B. Root cap C. Meristem D. Stomata

Q.15 Which of the following is a polysaccharide?

A. Glucose B. Fructose C. Sucrose D. Cellulose

Q.16 Enzymes are classified as which type of biomolecule?

A. Carbohydrates B. Lipids C. Nucleic acids D. Proteins

SECTION-B

Q.17 What is Binomial System of nomenclature?

Q.18 What is Capsid and How is it useful for viruses?

Q.19 Why is not only one parameter good enough to demonstrate growth throughout the life of a flowering plant?

Q.20 Draw a standard ECG diagram.

OR

Sinoatrial node is called the pacemaker of our heart. Why?

Q.21 Distinguish between:

a) IRV & ERV b) Vital capacity and total lung capacity

SECTION-C

Q.22 Discuss “The respiratory pathway is an amphibolic pathway.”

Q.23 Explain Bohr’s effect in Oxygen dissociation curve.

Q.24 Give some examples of taxa at different hierarchical levels.

Q.25 How are viroids different from viruses?

Q.26 Differentiate between SER and RER.

OR

Differentiate between cilia and flagella.

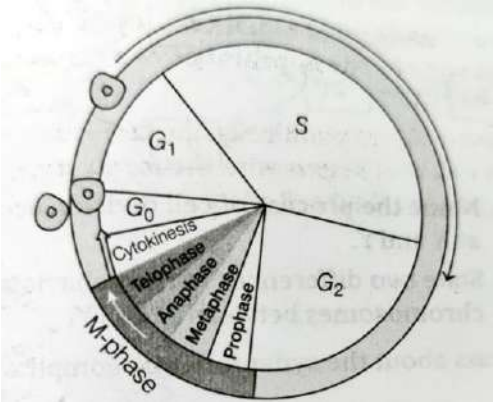
Q.27 Distinguish between: Purine and pyrimidine.

Q.28 Analyse the events during every stage of cell cycle and notice how the following two parameters change:

(i) Number of chromosomes ‘n’ per cell. (ii) Amount of DNA content ‘C’ per Cell.

SECTION-D

Q.29 Observe the given figure and answer the questions that follow:



a) In a G_0 phase of cell cycle:

i) No division or metabolic activity occurs. ii) Division occurs at faster rate.

iii) Cell is metabolically active. iv) Cytokinesis occurs.

b) In a 24 hour cell cycle, maximum duration is occupied by:

i) Interphase ii) M-phase iii) Karyokinesis iv) Cytokinesis

c) The daughter cells formed after M-phase have:

i) Increased number of chromosome. ii) Same amount of DNA as in G_1 phase.

iii) Decreased amount of DNA than in G_1 phase. iv) Decreased number of chromosomes.

d) Duplication of genetic material occurs in:

i) G_1 phase ii) G_2 phase iii) S-phase iv) M-phase

Q.30 Mahima, after returning from Biology class, asked her father why do only green plants manufacture their food using sunlight and not the animals. Father replied that green plants have this ability due to the presence of green pigment called chlorophyll present in the chloroplasts in their cells.

i) Why chloroplast are only present in plant cells?

ii) Name the various types of plastids found in plants.

iii) Which plastids are known as kitchen of the cell?

iv) Which plastids are found in flowers and fruits?

SECTION-E

Q.31 What is a centromere? How does the position of centromere form the basis of classification of chromosomes? Support your answer with a diagram showing the position of centromere on different types of chromosomes.

OR

What is the significance of meiosis?

Q.32 Explain the process of inspiration under normal conditions.

OR

Give the schematic representation of an overall view of Krebs' cycle.

Q.33 Describe briefly the four major groups of protozoa.

OR

Describe the important properties of enzymes.