Indian School Al Wadi Al Kabir

Assessment I (2024-2025)

Class: XI | Sub: Biology (044) | Max. Marks: 70

Date: 26/09/2024 | Set - II | Time: 3 hours

General Instructions:

(i) All questions are compulsory.

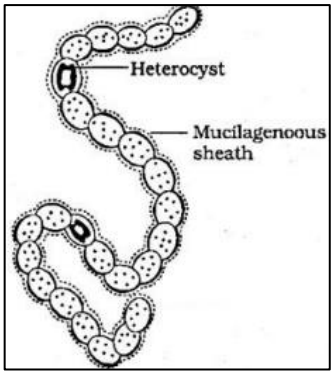
(ii) The question paper has five sections and 33 questions. All questions are compulsory.

(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.

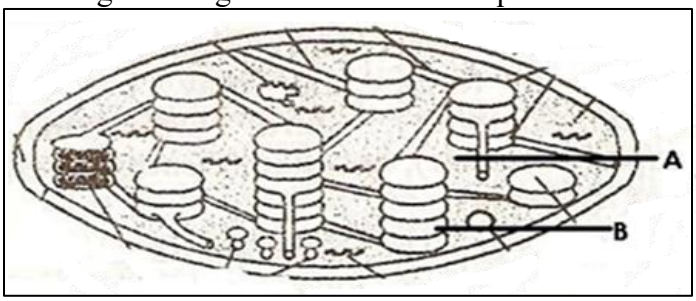
(iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

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

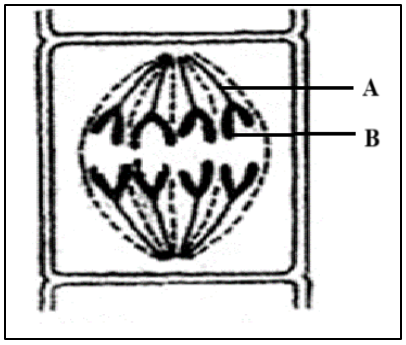
Section A		
Q. No	**Question**	**Marks**
1.	The arrangement of outer and central microtubules in a cilium is called the: a) 9+1 pattern. b) 9+0 pattern. c) Flagellin pattern. d) 9+2 pattern.	1
2.	In meiosis, crossing over is initiated at: a) Leptotene. b) Zygotene. c) Diplotene. d) Pachytene.	1
3.	Identify the primary metabolite from the following. a) Amino acids b) Rubber c) Spices d) Gums	1
4.	Cellulose is a: a) Monosaccharide of glucose b) Disaccharide of glucose c) Polysaccharide of glucose d) Monomers of glucose	1

5.	Which of the following is a correct sequence in biological classification? a) Kingdom → Phylum → Class → Order → Family → Genus → Species b) Kingdom → Class → Order → Phylum → Family → Genus → Species c) Kingdom → Phylum → Class → Family → Order → Genus → Species d) Phylum → Kingdom → Class → Order → Family → Genus → Species	1
6.	In lichens, fungal component is known as: a) Mycobiont b) Phycobiont c) A & B d) None of these	1
7.	The heterocyst of Nostoc given in the figure helps it to:  a) photosynthesise. b) recycle iron and sulphur. c) fix atmospheric nitrogen. d) exchange respiratory gases.	1
8.	Fusion of two motile gametes which are dissimilar in size is termed as: a) Oogamy. b) Isogamy. c) Anisogamy. d) Zoogamy.	1
9.	Radial symmetry is found in: a) Coelenterates and Platyhelminthes. b) Coelenterates and Ctenophora. c) Arthropoda and Mollusca. d) Porifera and Coelenterates.	1
10	Which among the following is **incorrect** about cytotaxonomy and chemotaxonomy? a) Cytotaxonomy is based on the chromosomes present in the organism. b) Chemotaxonomy is based on the chemical composition of plants. c) Cytotaxonomy involves characteristics like number of chromosomes, division of cell and position of centromere. d) Cytotaxonomy involves only external characteristics.	1
11.	The mature seeds of plants such as gram and peas possess no endosperm, because:	1

	a) These plants are not angiosperms. b) There is no double fertilization in them. c) The endosperm is not formed. d) Endosperm gets used up by the developing embryo during seed development	
12.	Which among the following is **incorrect** about the symbols used in a floral formula? a) **K** is used to represent the calyx of a flower. b) **C** is used to represent the perianth of a flower. c) **Br** is used to represent the bracteate of a flower. d) **A** is used to represent the androecium of a flower.	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 (A):** Sub-metacentric chromosome has one shorter and one longer arm. **Reason(R):** Metacentric chromosome has one very long and one very short arm.	1
14.	**Assertion(A):** Species constitute a group of individuals with fundamental differences. **Reason(R):** *indica, leo, tuberosum* represent the specific epithets.	1
15.	**Assertion(A):** Epiphyllous condition is found in the flowers of lily. **Reason(R):** In lily, stamens are attached to the perianth.	1
16.	**Assertion(A):** When the veinlets form a network, the venation is termed parallel. **Reason(R):** Leaves of dicotyledonous possess reticulate venation.	1
	Section-B	
17.	a) Both lysosomes and vacuoles are endomembrane structures, yet they differ in terms of their functions. Comment. **OR** b) Who proposed cell theory? Give its postulates.	2
18.	a) Explain the structure and function of a mitochondria. **OR** b) How does mesosome help a prokaryotic cell?	2
19.	a) What are the events that occur during G_2 phase? b) What do you understand by quiescent stage (G_0) of the cell cycle?	2

20.	Draw a schematic sketch of a chordate showing the important chordate characteristics.	2
21.	a) Mention the differences between co-factors and co-enzymes. **OR** b) i) What is meant by tertiary structure of proteins? ii) What are macromolecules?	2
	Section-C	
22.	Observe the given diagram and answer the questions that follow:  a) Label A and B. b) Give the function of each. c) How do amyloplasts and elaioplasts help the plant cell?	3
23.	Describe the following types of aestivations with the help of simple diagrams. a) Valvate b) Imbricate c) Vexillary	3
24.	a) What do the terms “algal bloom” and “red tides” signify? b) Draw a neat labelled diagram of a Bacteriophage.	3
25.	a) “All vertebrates are chordates but all chordates are not vertebrates”. Justify the statement. b) Provide appropriate technical term for the following. i) Cells that line spongocoel in porifera. ii) Lateral appendages for swimming in aquatic annelids.	3
26.	Draw neat labelled diagrams of female and male thallus of Marchantia.	3
27.	Classify the enzymes based on the types of reaction they catalyse. (Any three)	3
28.	a) Explain the floral characters of the family Solanaceae with key reference to: i) Calyx ii) Corolla b) Write the floral formulae of the potato family.	3

	Section-D	
29.	There is a need to standardise the naming of living organisms such that a particular organism is known by the same name all over the world. This process is called nomenclature. Carl Linnaeus is being credited for the introduction of the binomial nomenclature (naming system) of the plants and animals with his work in the book Species Plantarum in 1753. This naming system is used by biologists all over the world and is found convenient. E.g., *Homo sapiens.* a) What is binomial nomenclature? b) i) Give the common name of *Mangifera indica* Linn. ii) What is the meaning of Linn written at the end of the name? *Attempt either subpart c) or d).* c) What do the first two parts in the scientific name denote? **OR** d) Why are they written in italics?	4
30.	Kamal, a student of class XI went to a marine aquarium and also visited a butterfly garden where he observed varieties of organisms like sharks, jelly fishes, octopus, starfishes, sea horses, butterflies etc. a) Identify the phylum, to which jelly fish and starfish belong. b) Give any two characteristic features each of jelly fish and starfish which helped you to identify their respective phylum. *Attempt either subpart c) or d).* c) What do you understand by metagenesis? Give an example. **OR** d) How important is the presence of air bladder in Pisces?	4
	Section-E	
31.	a) How does cytokinesis in plant cells differ from that in animal cells? b) Can there be a mitosis without DNA replication in **S** phase? Comment. c) Describe the following: i) Synapsis ii) Chiasmata **OR**	5

	 a) Identify the stage shown in the figure and also label the parts A and B. b) How will this stage be different from a similar stage in Meiosis I? c) Describe briefly, the stage immediately before this stage.	
32.	a) How is the five-kingdom classification advantageous over the two-kingdom classification? b) Give a comparative account of classes of kingdom fungi on the basis of their mode of nutrition. **OR** a) What is diatomaceous earth? b) State any two uses of heterotrophic bacteria and archaebacteria which are economically important. c) How are viroids different from that of virus?	5
33.	a) In which plant will you look for mycorrhiza and coralloid roots? Also explain what these terms mean. b) Name two pigments other than chlorophyll that are found in algae which help in grouping them into red and brown algae. c) Mosses are considered as amphibians of plant kingdom. Give reason. **OR** a) Distinguish between protonema and prothallus. b) Tabulate a comparative study of different classes of algae.	5