

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION

SESSION ENDING EXAM (2024-25)

SUBJECT: - BIOLOGY (044)

CLASS -XI

Maximum Marks: 70

Time: 3 hours

General Instructions:

(i) All questions are compulsory.

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

(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.

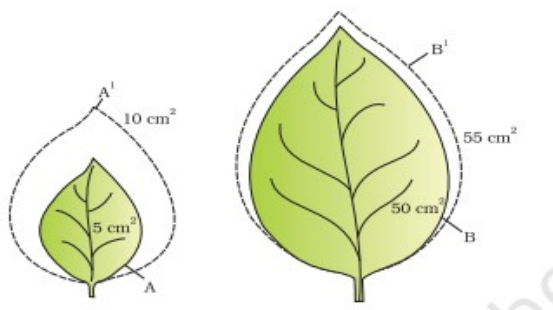
(v) Wherever necessary, neat and properly labelled diagrams should be drawn.

Section A :- (1 Mark Questions)

- Which of the following class of fungi is considered as imperfect fungi :-
 - Phycomycetes
 - Ascomycetes
 - Basidiomycetes
 - Deuteromycetes
- Bovine Spongiform Encephalopathy which is analogous to Cr-Jacob disease is caused by :-
 - Bacteria
 - Fungi
 - Virus
 - Prions
- It has been found that the local vegetation of your city is getting destroyed, ecologists try to find out the probable reason. Name the organism which helps to identify the level of increased pollution in that area:-
 - Dinoflagellates
 - Euglenoids
 - Slime Moulds
 - Lichens
- Space travellers when go to space they stay over there for many days even for months to study the various space related facts. As a nutritionist, you know that protein is one of the essential nutrients in our diet. Which food supplement would you recommend to space travellers for getting proteins :-
 - Chlamydomonas*
 - Volvox*
 - Ulothrix*
 - Chlorella*
- A natural substance obtained from red sea weeds is used in the preparation of ice cream and jellies which is a natural product. Identify the red algae used for the same-
 - Gelidium*
 - Ectocarpus*
 - Dictyota*
 - Laminaria*
- Why fruits of mango and coconut are considered as Drupe, whereas mango has pulpy and juicy mesocarp and coconut has fibrous mesocarp:-
 - Endocarp of both the fruits are stony and hard.
 - Both fruits develop from monocarpellary superior ovaries.
 - Both fruits are one seeded.
 - Both fruits divided into epicarp, mesocarp and endocarp.

1. A & C 2. A, B & C 3. A & D 4. A , C & D

7. During water stress, one special adaptation is found among leaves of grasses for water conservation .Select the correct option for the same :-
 - a. Bulliform cells found in normal condition.
 - b. Bulliform cells become turgid.
 - c. Bulliform cells become flaccid.
 - d. There is parallel venation in monocot leaves help to conserve water.
8. Which adaptation possessed by *Rana tigrina* enables it to protect itself from the predators:-
 - a. Camouflage b. Hibernation c. Aestivation d. poikilotherms
9. Centromere is required for –
 - a. Movement of chromosomes towards poles
 - b. Cytoplasmic cleavage
 - c. Crossing over
 - d. Transcription
10. If we take examples of tomatoes and apples, ethephon hasten fruit ripening. Which phytohormone is released by ethephon :-
 - a. Auxin b. Gibberellins c. Cytokinins d. Ethylene
11. Sometimes we need to take measurement and the comparison of total growth per unit time for the leaves .Which of the following figure represents absolute growth rate :-
 - a. The first leaf A b. The second leaf B c. Both the leaves d. None of these



12. Although photosynthesis is carried out by main photosynthetic pigment , in what way other pigments like chlorophyll b, xanthophylls and carotenoids, which are called accessory pigments, assist photosynthesis :-
 - a. Absorb light and transfer the energy to chlorophyll a.
 - b. Protect chlorophyll a from photo-oxidation.
 - c. Make photosynthesis possible in cloudy or foggy season
 - d. All of the above

Question number 13 to 16 are of Assertion – Reason type questions, for that select any one appropriate option which are given below:-

- a. Assertion and reason both are correct and reason is the correct explanation of assertion.
- b. Assertion and reason both are correct and reason is not the correct explanation of assertion.
- c. Assertion is correct and reason is incorrect.
- d. Assertion is incorrect and reason is correct.

13. Assertion: - Dark reaction of photosynthesis is also called as biosynthetic phase.
Reason: - Biomolecule (glucose) is synthesised in this reaction.
14. Assertion: - Respiratory Quotient of Glucose is one.
Reason: - Volume of carbon dioxide evolved and volume of oxygen consumed are equal for glucose.
15. Assertion: - Diabetes mellitus which is associated with loss of glucose through urine and formation of harmful compounds known as ketone bodies.
Reason: - Diabetic patients are successfully treated with insulin therapy.
16. Assertion: - Progesterone also acts on the mammary glands and stimulates the formation of alveoli (sac-like structures which store milk) and milk secretion.
Reason: - The atrial wall of our heart secretes a very important peptide hormone called atrial natriuretic factor (ANF), which decreases blood pressure.

Section B: - (2 Marks Questions)

17. You might be wondering that the colour of sea water change from blue to red. But it is not a common event. Name the organism and its group which create red tides. How are these harmful to other aquatic animals?

OR

Fungi have been known to form symbiotic associations with other organisms. Name any two such symbiotic associations. Explain how the other species involved is benefitted by the fungi in each case.

18. Many a times the enzyme is unable to perform its function. Explain two ways by which enzyme activity can be inhibited?

OR

Differentiate between fats and oils. Mention two points of differences.

19. Where does the Oxidative Decarboxylation occur in respiration? Write the balanced equation of the same.
20. Most of the people like sweets, irrespective of festivals and celebration. To meet the increasing demand, yield of sugar should be increased by as much as 20 tonnes per acre. Name the phytohormone which would you suggest to increase the yield. How it could help to achieve the target? Explain why decapitation is done in tea plants?
21. Amoeba is a unicellular protist, which perform amoeboid movement by means of pseudopodia. Surprisingly human body also exhibit amoeboid movement. Name two human cells that exhibit above movement. Name two cellular structures involved in this movement.

OR

Briefly explain the structure of contractile protein – myosin.

Section C :- (3 Marks Questions)

22. Differentiate Chlorophyceae, Phaeophyceae and Rhodophyceae on the basis of stored food material, and nature of cell wall.
23. Give appropriate terminology for the following situations in anatomy of flowering plants:-
- Vascular bundle if cambium is present in between xylem and phloem.
 - In dicotyledonous stem ,the structure present on the inner side of the endodermis above the phloem as semi-lunar patches of sclerenchyma
 - The arrangement of vascular tissues in roots.
 - Vascular bundles where the xylem and phloem are jointly situated along the same radius of vascular bundles.
 - The innermost layer of the cortex is –
 - Condition when protoxylem is towards the pith and metaxylem towards endodermis.
24. a) During the course of evolution some of the bacteria become resistant against antibiotics. Which structure has the gene which makes the bacteria antibiotic resistant? How is it different from chromosomal material?
- b) Name and explain other two structures present in bacteria that enables it to thrive successfully in the host body.
25. Even though a very few cells in a C₄ plant carry out the biosynthetic – Calvin pathway, yet they are highly productive. Explain any three reasons for this high productivity.
26. In summer season or during the water deficiency in the body, volume of urine get reduced, whereas when plenty of water is available the volume of urine increase. Explain this situation as control of kidney function by vasoconstriction and vasodilation.
27. In human beings, locomotion is possible due to joints of the skeletal system which is made up of 206 bones and a few cartilages. Name three different types of joints. Write one example of each type of joint present in human body.
28. Hyperthyroidism and hypothyroidism are two different abnormal situations of thyroid gland. On a trip to Himachal Pradesh, Nikhil and his friends observed that many local people were having swollen necks and some children with mental retardation and low intelligence quotient. At the same time they observed some with protrusion of the eyeballs.
- Identify the reason and name the disorders indicated above.
 - How does maternal hypothyroidism affect the foetus?
 - Name and state the role of thyroid hormone other than T₃ and T₄ hormone.

Section D :- (4 Marks Questions)

Read the following paragraph carefully and give answer of the following questions:-

29. *Rana tigrina* is a typical Indian frog which is an olive green coloured amphibian. It is poikilotherm and cannot be seen in extreme winter and extreme summer. *Rana* breed only in rainy season or monsoon. In order to protect their eye ball, they have eye lid called nictitating membrane and they receive sound vibrations by means of tympanum. Their development is indirect and larva is called tadpole, which is truly aquatic and have gills and a post anal tail. Male frogs have copulatory pads in the digits of fore limb and also vocal sacs, which is absent in female frogs. Due to continuous

urbanisation, wet lands are getting decreased, that may lead to extinction of *Rana*. They form important trophic level of food chain in various eco systems.

- a. Why is *Rana tigrina* not seen in extreme climatic conditions?
- b. Why frogs breed only in monsoon?
- c. Mention two changes that the tadpole undergoes during metamorphosis to become a frog.

OR

- d. Mention one economic and one ecological importance of frogs.

30. Mitosis is equational division which found in diploid cells, result in making of diploid cells. However haploid cells also perform mitosis. It is a significant cell division because mitosis confirm growth and development, also repair, maintenance also expansion of population by reproduction. For sexually reproducing organisms, one more type of cell division found, called meiosis or reduction division. Meiosis only found in diploid cells and make haploid cells, as gametes. A significant event called crossing over takes place during meiosis that make hybrid chromosomes which has sister chromatid from homologous chromosome pair. After separation a chromosome carry traits of both parents, which create variation. Variation is considered as key of evolution.

- a. How many daughter cells are produced after mitosis and meiosis respectively from a single parent cell?
- b. Which organisms perform mitosis for their reproduction?
- c. Mention the number of chromosomes (n) and amount of DNA(S) in the following stages of cell division-
 - i) Telophase of mitosis
 - ii) S phase of interphase of mitosis

OR

- d. Name and explain the phase which the cell enters if it is not entering the M-phase. Give one example of the human cell that enters this phase.

Section E –(5 Marks Questions)

31. a) What is taxonomic hierarchy?

b) Differentiate between protonema and leafy stage of mosses.

c) Which event is a precursor to seed habit in pteridophytes which is an important step in evolution? Explain it.

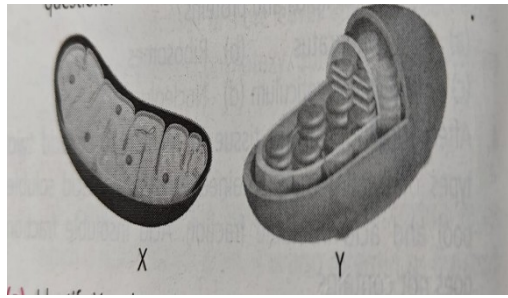
OR

Differentiate between -

- a) Class – Chondrichthyes and class – Osteichthyes (3 points of difference)
- b) Class Aves and Mammalia (2 points of difference)

32. A) Diagrammatically represent the following biomolecules-

- a) Glucose
- b) Lecithin
- c) Adenosine



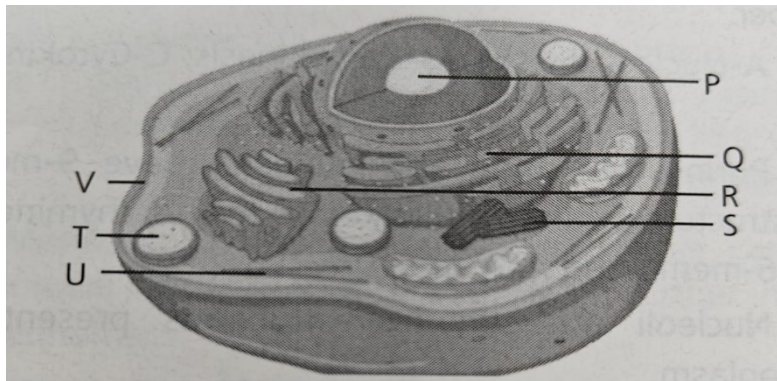
B) Observe the above given diagram and answer to the following questions-

i) Identify X and Y.

ii) What is the functional difference between the two structures given above?

OR

Observe the given diagram of animal cell and answer the questions-



a) Identify the cell organelles labelled from P to U.

b) Mention any one function of P, Q, R, U.

33. A. Human brain is most delicate organ of human body that control over all functions of the body.

So it needs full protection. Write names of any two membranes that cover the brain.

B. How nerve impulse transmission takes place at synapse?

C. Mention one point of difference between chemical and electrical synapse.

OR

Mention the name and source of the hormone which regulates the following-

a) Heart beat and blood pressure

b) Maturation of Graffian follicle

c) Milk secretion

d) Increases blood sugar level

e) Regulation of diurnal cycle in humans