KOTHARI INTERNATIONAL SCHOOL, NOIDA
ANNUAL EXAMINATION-1, SESSION: 2025-26
GRADE: 11 SUBJECT: BIOLOGY (044)
SET B

DAY & DATE: WEDSDAY- FEBRUARY 11, 2026
MAXIMUM MARKS: 70 **TIME ALLOTTED: 3 HOURS**
NAME: _____ **ROLL NO: _____**

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

Q1. As we go from species to kingdom in a taxonomic hierarchy, the number of common characteristics: **(1)**
(A) Will decrease
(B) Will increase
(C) Remain the same
(D) May increase or decrease

Q2. Holdfast, stipe and frond constitute the plant body in case of: **(1)**
(A) Rhodophyceae
(B) Chlorophyceae
(C) Phaeophyceae
(D) All of the above

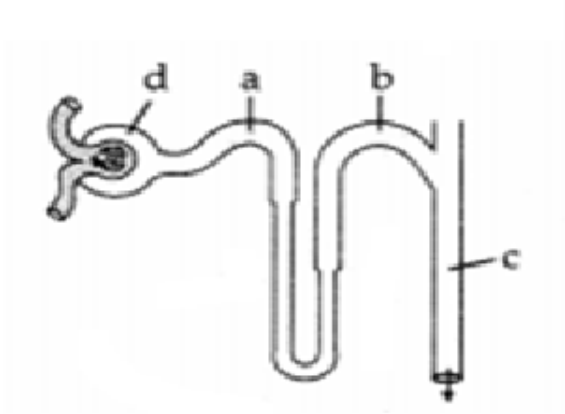
Q3. During anaphase-I of meiosis: **(1)**
(A) Homologous chromosomes separate
(B) Non-homologous autosomes separate
(C) Sister chromatids separate
(D) Non-sister chromatids separate

Q4. A hormone responsible for normal sleep-wake cycle is: **(1)**
(A) Epinephrine
(B) Gastrin
(C) Melatonin
(D) Insulin

Q5. Which among the following a cell which does not exhibit phagocytic activity: **(1)**
(A) Monocytes
(B) Neutrophils
(C) Basophil
(D) Macrophage

Q6. Knee joint and elbow joints are examples of: **(1)**
(A) Saddle joint
(B) Ball and socket joint
(C) Pivot joint
(D) Hinge joint

Q7. Filtration of the blood takes place at: **(1)**



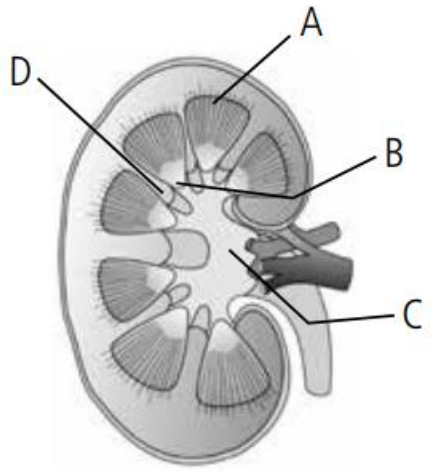
(A) a
(B) b
(C) c
(D) d

Q8. Which one of the following is oviparous? **(1)**
(A) Platypus
(B) Flying fox (Bat)
(C) Elephant
(D) Whale

Q9. A nerve impulse leaves a neuron via the: **(1)**
(A) Dendrites
(B) Axon
(C) Cyton
(D) Nucleus

Q10. Which of the following statements is true for a secretory cell? **(1)**
(A) Golgi apparatus is absent.
(B) Rough Endoplasmic Reticulum (RER) is easily observed in the cell.
(C) Only Smooth Endoplasmic Reticulum (SER) is present.
(D) Secretory granules are formed in the nucleus.

Q11. Identify the correct option : **(1)**



(a) A is medullary pyramid; B is minor calyx ;C is renal pelvis;D is renal column
(b) A is minor calyx ;B is medullary pyramid; C is renal pelvis;D is renal column
(c) A is renal pelvis; B is medullary pyramid; C is minor calyx ;D is renal column
(d) A is renal column; B is medullary pyramid; C is minor calyx ;D is renal pelvis

Q12. Which one of the following is oviparous? **(1)**
(A) Platypus
(B) Flying fox (Bat)
(C) Elephant
(D) Whale

Directions: In the following questions, A statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as:
(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true but Reason (R) is NOT the correct explanation of Assertion (A).
(C) Assertion (A) is true but Reason (R) is false.
(D) Assertion (A) is false but Reason (R) is true.

Q13. Assertion (A): Glucagon is known as a hyperglycemic hormone. **(1)**
Reason (R): Glucagon stimulates the liver to convert stored glycogen into glucose and increases the level of blood glucose.

Q14. Assertion (A) : Human skull is described as dicondylic. **(1)**
Reason (R) : It articulates with the first vertebrae of the vertebral column by means of two occipital condyles.

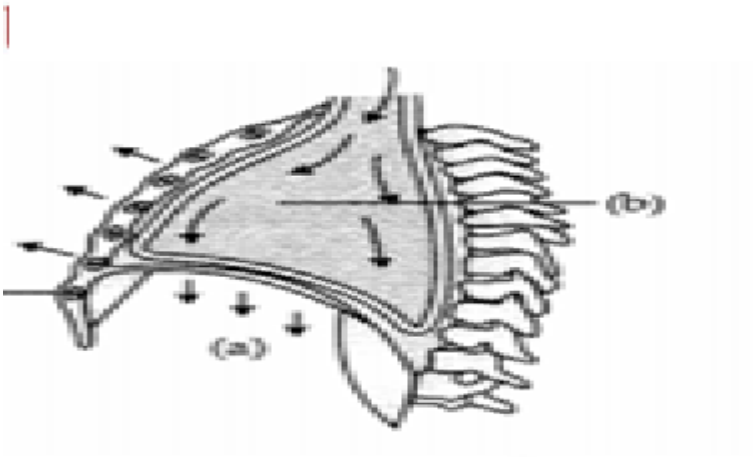
Q15. Assertion (A): Palmitic acid is an unsaturated fatty acid. **(1)**
Reason (R) : These are fatty acids without double bond.

Q16. Assertion (A): Hypothalamus is called "thermostat" of the body. **(1)**
Reason (R): It keeps body temperature at roughly 37°C by means of a complex thermostat system.

SECTION B

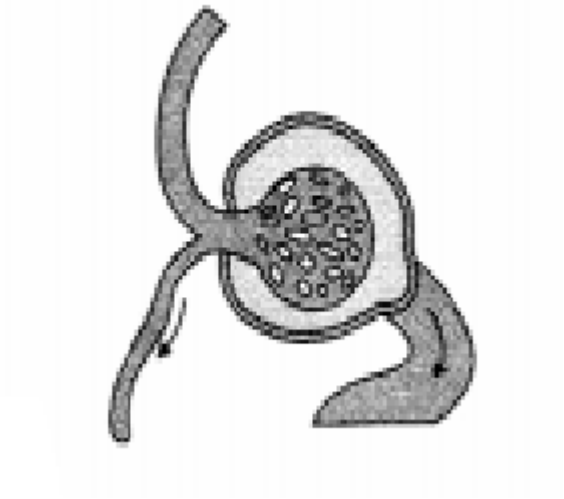
Q17. Why have unicellular algae not been kept in kingdom Protista by Whittaker? **(2)**

Q18. Study the given diagram: **(2)**



(A)Name the process shown in the above diagram.
(B) Identify the labelling (a) and (b)

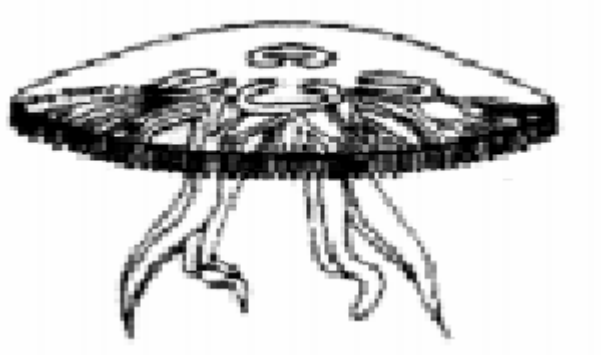
Q19. Study the given diagram: **(2)**



(a) Afferent arteriole

(b) Bowman's capsule

Q20. **(2)**

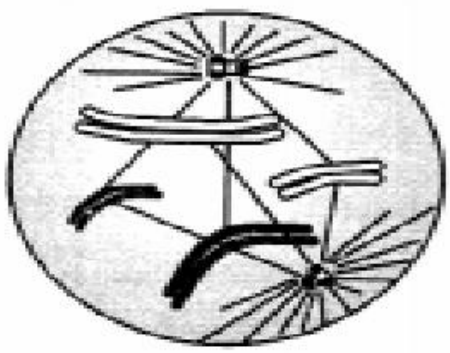


(a) Identify the given animal, and write down the name of the phylum to which it belongs.
(b) Give some more examples of this phylum

Q21. A student got injured someday. He took the medicine from the doctor and got cured. He wonders that how medicine got to know where to act. He asks the doctor about the reason. What could be the possible reason according to you? **(2)**

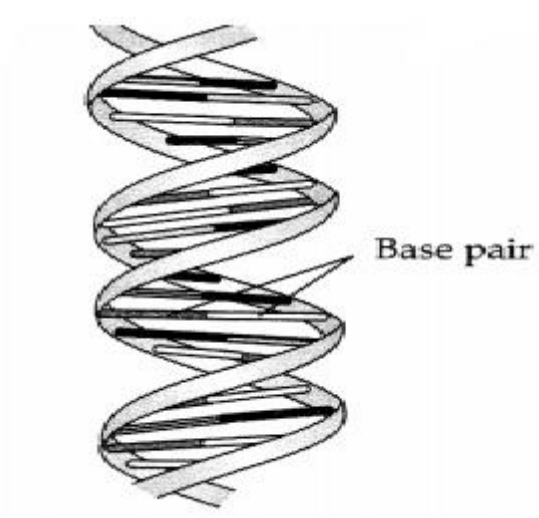
OR

(a)Label the given diagram .
(b) Determine the stage at which this structure is visible.



SECTION – C

Q22. a)What are the various types of nitrogenous bases found in DNA? **(3)**

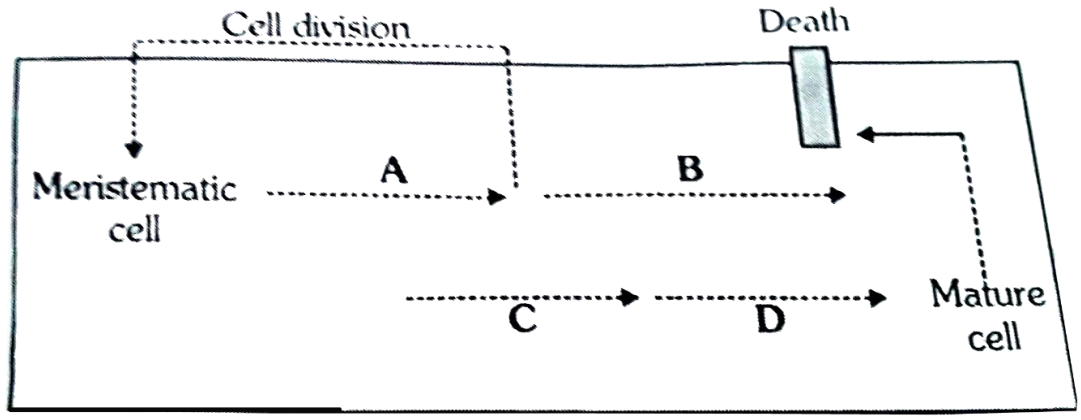


b) Name the type of bond seen between –
(i) two nitrogen bases of DNA and
(ii) phosphate and hydroxyl group of sugar of DN

Q23. Describe the habit, habitat and morphology of mosses. **(3)**

Q24. Analyse the events during every stage of cell cycle and notice how the following two parameters change. **(3)**
(a) Number of chromosomes (n) per cell
(b) Amount of DNA content
(c) per cell

Q25. Identify the process shown in the flow chart and label the parts A,B ,C and D. **(3)**



Q26. Does it make any difference to have the haemoglobin in the corpuscles rather than in plasma? Explain. **(3)**

Q27. Certain plants growing in tropical region suffer from photorespiratory loss. **(3)**
(a) How do they overcome it?
(b) Mention the anatomical adaptation.
(c) Mention the first stable $C0_2$ fixation product and the enzyme responsible for it.

OR

Enzymes are biological catalysts which accelerate chemical reactions. They are essential for different physiological processes. They are proteins that helps to speed up the process of metabolism.
(a)
(i) Name the enzyme that catalyses carboxylation as well as oxygenation reaction.
(ii) In which cell organelle is this enzyme found?
(b) In what way is that organelle different in the mesophyll and bundle sheath cells ?

Q28. Distinguish between endocrine and exocrine glands. **(3)**

SECTION – D

QNo 29 and 30 are case based questions.

Q29. Inspite of differences in structure and form of different animals, there are fundamental features common to various individuals in relation to the arrangement of cells, body symmetry, nature of coelom, patterns of digestive, circulatory or reproductive systems. These features are used as the basis of animal classification **(4)**
Answer the following questions:
1) Birds and mammals share one common feature. What is that common feature from the following characteristics given below?
(a) Pigmented Skin
(b) Pneumatic bones
(c) Viviparity
(d) Warm-blooded nature

2) The body cavity is the cavity between the body and gut walls. In some animals, the body cavity is absent, while in some, it is present. To define the terms.
(a) Acoelomate and
(b) Pseudocoelomate.
(c) Coelomate

Q30. Mitosis takes place both in somatic and reproductive cells of plants and animals. In multicellular organisms, mitosis produces more cells for growth and repair. Mitosis division is responsible for the growth and development of a single-celled zygote into a multicellular organism. Mitosis division helps in maintaining the proper size. Mitosis also helps in restoring wear and tear in body tissues, replacing damaged or lost part, healing wounds and regeneration of detached parts. Mitosis is a method of multiplication of unicellular organisms. It produces diploid daughter cells with identical genetic complements (both quantitatively and qualitatively) as in the parent cell. Mitosis is a continuous process and it is divided into four phases viz: prophase metaphase, anaphase and telophase. **(4)**

(a) What is the significance of mitosis?
(b) What happens during the mitotic cell division?
(c) What is the characteristic feature of mitosis?

OR

Proteins are polypeptide chains made up of amino acids. There are 22 types of amino acids joined together by peptide bonds when carboxylic groups two amino acids: Essential and non-essential amino adds. The Primary structure of a protein is the linear sequence of amino acids in a polypeptide chain. The first amino acid of the enzyme is called a terminal acids and the last amino acid of the peptide is called C-terminal amino acid. The secondary structure proteins forms a helix. There are three types of secondary structure: a helix, p pleated and collagen helix. In tertiary structure long protein chain is folded upon itself like a hollow woollen ball to give three dimensional view of the protein. In quaternary structure, each polypeptide develops its own tertiary structure and function as a subunit of protein.

(a)Amino acids, as the name suggests, have both an amino group and a carboxyl group in their structure. In addition, all naturally occurring amino acids (those which are found in proteins) are called L-amino acids. From this, can you guess from which compound the simplest amino acid can be made?

(b) Many organic substances are negatively charged e.g., acetic acid, while others are positively charged e.g., ammonium ion. An amino acid under certain conditions would have both positive and negative charges
simultaneously in the same molecule. Name such form of amino acid.

(c) A primary protein normally have how many ends?

(d) Name the bond present in the tertiary structure of a protein contain.

Q31. Calvin cycle occurs in all photosynthetic plants whether they have C_3 or C_4 pathways. With the help of photosynthesis, plants turn light, carbon dioxide, and water into sugars that fuel plant growth using the primary photosynthetic enzyme RuBisCO. Various plant species on Earth use C_3 photosynthesis, and some show C_4. (5) **(5)**

With context to the given paragraph complete the following table :

Characteristics	C_3 Plants	C_4 Plants
Place of photosynthesis:		
CO_2 acceptor:		
Kranz anatomy:		
1st stable product:		
Optimum temperature:		
Photorespiratorv loss:		

Or

In relation with the Calvin cycle and photorespiration complete the following table, defining carboxylation and oxygenation:

Characteristics	Carboxylation	Oxygenation
Define:		
First step of the cycle:		
Acceptor molecule:		
Process:		

Q32. Each of the following terms has some anatomical significance. What do these terms mean? Explain with the help of line diagrams. **(5)**
(a) Plasmadesmoses/Plasmodesmata
(b) Middle lamella
(c) Secondary wall

OR

The arrangement of ovules within the ovary is known as placentation. What does the term placenta refer to? Draw various types of placentations in the flower.

Q33. Epidermal cells are often modified to perform special functions in plants. Name some of them **(5)**

OR

(b) (i) What is venation
(ii) Explain its types.