ROLL NUMBER					

SET	A

INDIAN SCHOOL MUSCAT
FINAL EXAMINATION 2023
BIOLOGY(044)

CLASS : XI
DATE: 12.02.2023

TIME ALLOTED : 3 HRS.
MAXIMUM MARKS:70

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

1. In Pteridophytes, the spore bearing leaf like appendages are called : 1

(a) Sporophyll
(b) Sporophyte
(c) Sporangium
(d) Stipe

2. The nitrogen fixing cells present in cyanobacteria are 1

(a) Heterocyst
(b) Nucleolus
(c) Cnidoblast
(d) Gemmules

3. The effect of apical dominance can be overcome by which of the following hormone? 1

(a) IAA

(b) Ethylene

(c) Gibberellin

(d) Cytokinin

4. RBC contains a red pigment called haemoglobin which is a protein that exhibits A structure and has B subunits. 1

(a) A. tertiary B. four

(b) A. quaternary B. four

(c) A. tertiary B. two

(d) A. quaternary B. two

5. The lungs are covered by double membrane to reduce the friction. What do you call the membrane? 1

(a) Meninges

(b) Perichondrium

(c) Pleura

(d) Pericardium

6. The conducting tissues in plants form the vascular bundles. The arrangement of VB are different in different types of plants and in different parts of a plant. Which of the following statements about the vascular bundles of a dicot stem is correct? 1

(a) Bundles are open and radial

(b) Bundles are closed and radial

(c) Bundles are open and conjoint

(d) Bundles are closed and conjoint

7. Skeletal muscles are associated with movement. Their characteristics are 1

(a) Spindle-shaped, striated, uninucleate and unbranched

(b) Cylindrical, striated, uninucleate and unbranched

(c) Spindle-shaped, non-striated, syncytial and branched

(d) Cylindrical, striated, syncytial and unbranched

8. *Drosophila melanogaster* commonly known as fruit fly have been used in genetic and mutation studies. It has a diploid number of chromosome 8. If its cells are undergoing mitosis, what would be the number of chromosomes after S phase of interphase in a cell? 1

(a) 4

(b) 8

(c) 16

(d) 32

9. Which of the following statements with regard to gibberellins is incorrect? 1

(a) GA3 is used to speed up the malting process in brewing industry

(b) Spraying juvenile conifers with GA3 hastens the maturity period, thus leading to earlier production of seeds

(c) Spraying sugarcane crops with GA3 makes the internodes shorter and thicker.

(d) Gibberellins promote bolting in plants with rosette habit.

10. In the taxonomic hierarchy, class is a taxon that comes between 1

(a) Genus and family

(b) Family and order

(c) Order and phylum

(d) Phylum and kingdom

11. Our skeletal system includes different types of joints to facilitate various movements. Which among the following pairs is incorrect with respect to a joint and its position. 1

(a) Hinge joint – between Humerus and Pectoral girdle

(b) Pivot joint – between Atlas and Axis

(c) Gliding joint – between the Carpals

(d) Saddle joint – between Carpal and Metacarpal of the thumb

12. The pneumotaxic centre and respiratroy rhythm centre are present respectively in 1

(a) Pons and medulla oblongata

(b) Medulla oblongata and pons

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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**: Members of phylum aschelminthes are called roundworms. 1
Reason: Body of aschelminthes is circular in cross-section.

14. **Assertion**: Mitochondria of active cell has more number of cristae and F0-F1 particles. 1
Reason: F0-F1 particles are involved in ATP production.

15. **Assertion**: A coenzyme or metal ions that is very tightly bound to enzyme protein is called prosthetic group. 1
Reason: A complete, catalytically active enzyme together with its bound prosthetic group is called apoenzyme.

16. **Assertion**: One complete meiosis results in the formation of four genetically different daughter cells. 1
Reason: crossing over during meiosis I leads to recombination of genes.

SECTION – B

17. Which class of kingdom fungi has both unicellular as well as multicellular member? When a fungus is called coprophilous? 2

18. Define Glycolysis. In which part of the cell does it take place? Name the enzyme that converts sucrose into glucose and fructose. 2

19. Why growth and reproduction cannot be taken as defining property of all living organisms? 2

OR

A plant may have different names in different regions of the country or world. How do botanists solve this problem?

20. Match the following: 2

1. Common duct for urine and sperm.	A. Urinary bladder
2. Organ which stores undigested food	B. Cloacal aperture
3. Common opening for egestion and excretion.	C. Urinogenetal canal
4. Organ which stores urine temporarily	D. Cloaca

21. While Raj was doing an experiment in the biology lab, Iodine fell on the starched table cloth and the paper in front of him. Raj found the cloth turned blue black while the paper did not show colour change though both have polymers of glucose. Give reason. 2

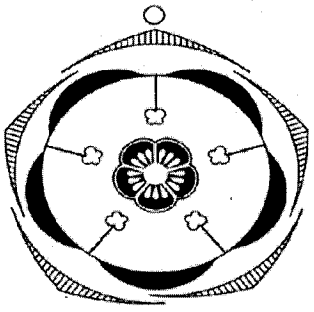
SECTION – C

22. Explain the autoregulatory mechanism of GFR. 3

23. When and why does photorespiration take place in plants? How does this process result in a loss to the plant? 3

24. a) What is stroke volume? What is its relation with cardiac output? 3
b) Describe any one disorder of the circulatory system.

25. Given below is a floral diagram 3



a. Identify the aestivation shown in the calyx and corolla of the above flower.
b. Name the type of placentation seen in its ovary. Give example of a flower showing such placentation.

26. Discuss the adaptations observed in the body of Aves which help them to survive in aerial mode of life? 3

OR

All vertebrates are chordates but all chordates are not vertebrates. Justify.

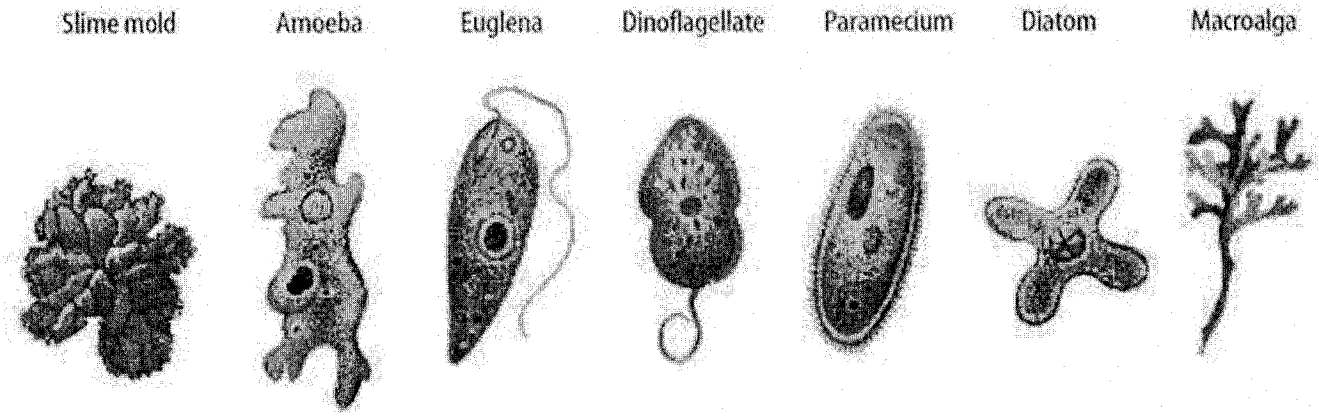
27. Plants are able to perform photosynthesis due to the presence of chlorophyll. Name the organelle containing the pigment. Which are the other types of the same organelle present in the plant cell? Name them and write their functions. 3

28. What is limbic system composed of? Mention its functions. 3

SECTION – D

Q.no 29 and 30 are case based questions. Each question has subparts with internal choice in one subpart.

29. A **protist** is any eukaryotic organism (that is, an organism whose cells contain a cell nucleus) that is not an animal, plant, or fungus. While it is likely that protists share a common ancestor (the last eukaryotic common ancestor), the exclusion of other eukaryotes means that protists do not form a natural group, or clade. Therefore, some protists may be more closely related to animals, plants, or fungi than they are to other protists. However, like the groups *algae*, *invertebrates*, and *protozoans*, the biological category *protist* is used for convenience. Others classify any unicellular eukaryotic microorganism as a protist. The study of protists is termed protistology. 4



a) Name one ciliated protozoan.

b) Which protist form an aggregation called plasmodium?

c) Red tide causes mortality of aquatic organisms. Identify the organism responsible for the same.

OR

d) **Assertion:** Euglena are called Myxotrophs.
Reason: Euglena have outer protein covering called the Pellicle.

30. The fruit is a characteristic feature of angiosperms. It is a mature or ripened ovary, usually developed after fertilization, with a few exceptions. Ovary wall turns into the fruit wall. 4

a) What are parthenocarpic fruits?

b) Identify the three parts, the pericarp can be differentiated into, when it is thick and fleshy as in mango. Name the edible part in mango.

c) Write the similarities between the fruits of mango and coconut.

OR

d) Which hormone can be used for making parthenocarpic fruits?

SECTION – E

31. With the help of schematic representation, describe the C4 pathway. Give any two characteristic of C4 plants. 5

OR

Briefly describe the Krebs's cycle with the help of schematic representation.

32. Explain the Conduction of nerve impulse along a nerve fiber. 5

OR

Describe the sequence of events which occurs in the cardiac cycle in humans. Where and how are the sounds of 'lubb' and 'dubb' produced in the heart during this cycle?

33. Briefly explain the events happening during the Prophase I of Meiosis I. Which process leads to recombination of characters? 5

OR

a) Translation is the process of protein synthesis. Which organelle will be the site for translation to occur? Who discovered it?
b) What is the organelle composed of?
c) Which are the two types of the organelle and mention the differences (any two).
d) During translation many of them will be connected to each other. Name the resultant structure.

******END OF THE QUESTION PAPER******

ROLL NUMBER				

SET	B

INDIAN SCHOOL MUSCAT
FINAL EXAMINATION 2023
BIOLOGY(044)

CLASS : XI
DATE: 12.02.2023

TIME ALLOTED : 3 HRS.
MAXIMUM MARKS:70

GENERAL INSTRUCTIONS:

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SECTION A

1. *Drosophila melanogaster* commonly known as fruit fly have been used in genetic and mutation studies. It has a diploid number of chromosome 8. If its cells are undergoing mitosis, what would be the number of chromosomes after S phase of interphase in a cell? 1

(a) 4
(b) 8
(c) 16
(d) 32

2. During muscle contraction the calcium ions released from the sarcoplasmic reticulum bind to 1

(a) Tropomyosin
(b) Myosin ATPase
(c) Troponin

(d) Actin

3. Glycogen is a homopolymer of 1

(a) Glucose units
(b) Galactose units
(c) Ribose units
(d) Amino acids

4. In pteridophytes, the spore bearing leaf like appendages are called 1
(a) Sporophyll
(b) Sporophyte
(c) Sporangium
(d) Stipe

5. The conducting tissues in plants form the vascular bundles. The arrangement of VB are different in different types of plants and in different parts of a plant. Which of the following statements about the vascular bundles of a dicot stem is correct? 1
(a) Bundles are open and radial
(b) Bundles are closed and radial
(c) Bundles are open and conjoint
(d) Bundles are closed and conjoint

6. The nitrogen fixing cells present in cyanobacteria are 1
(a) Heterocyst
(b) Nucleolus
(c) Cnidoblast
(d) Gemmules

7. The quantity of oxygen delivered to the tissues under normal physiological conditions, by every 100ml of oxygenated blood is about 1
(a) 5ml
(b) 8ml

(c) 12ml

(d) 16ml

8. Which of the following hormone can be used for removing dicot weeds? 1

(a) GA3

(b) Ethylene

(c) 2,4-D

(d) Cytokinin

9. Which of the following statements with regard to gibberellins is incorrect? 1

(a) GA3 is used to speed up the malting process in brewing industry

(b) Spraying juvenile conifers with GA3 hastens the maturity period, thus leading to earlier production of seeds

(c) Spraying sugarcane crops with GA3 makes the internodes shorter and thicker.

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10. In the taxonomic hierarchy, class is a taxon that comes between 1

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(c) Order and phylum

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11. Our skeletal system includes different types of joints to facilitate various movements. Which among the following pairs is incorrect with respect to a joint and its position. 1

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Reason: A complete, catalytically active enzyme together with its bound prosthetic group is called apoenzyme.

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Reason: In plant cells the formation of a new cell wall starts with the formation of a precursor, called cell plate.

15. **Assertion**: Members of phylum Aschelminthes are called roundworms. 1

Reason: Body of Aschelminthes is circular in cross-section.

16. **Assertion**: Mitochondria of active cell has more number of cristae and F0-F1 particles. 1

Reason: F0-F1 particles are involved in ATP production.

SECTION – B

17. How do fats enter the respiratory pathway? 2

18. Match the following: 2

1. Common duct for urine and sperm.	A. Urinary bladder
2. Organ which stores undigested food	B. Cloacal aperture
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19. Which class of kingdom fungi has both unicellular as well as multicellular member? When a fungus is called coprophilous? 2

20. While Raj was doing an experiment in the biology lab, Iodine fell on the starched table cloth and the paper in front of him. Raj found the cloth turned blue black while the paper did not show colour change though both have polymers of glucose. Give reason. 2

21. Why growth and reproduction cannot be taken as defining property of all living organisms? 2

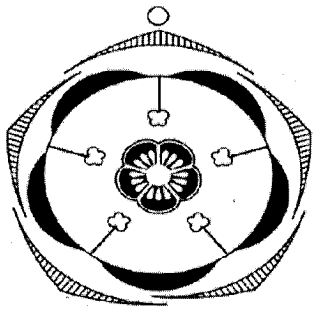
OR

A plant may have different names in different regions of the country or world. How do botanists solve this problem?

SECTION – C

22. (a) What are kinetochores? 3
(b) State the function of SER.
(c) What is metacentric chromosome?

23. Given below is a floral diagram 3



a. Identify the aestivation shown in the calyx and corolla of the above flower.

b. Name the type of placentation seen in its ovary. Give example of a flower showing such placentation.

24. Cyclic photophosphorylation results in the production of ATPs and not NADPH. Give reasons. 3

25. Define heterospory. Give two examples of ferns showing herterospory. 3

OR

When is a coelom considered to be a true coelom? Name the phyla in which organisms are

(i) Triploblastic and acoelomate

(ii) Triploblastic and pseudocoelomate

26. Expand JGA. How is it formed and write its function. 3

27. Fill in the blanks A,B,C,D,E and F with respect to the events in synaptic transmission. 3

1. When the action potential arrives at the axon terminal, the (A) present there move towards and fuse with the plasma membrane.
2. A release the (B) into the (C)
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4. This binding opens (E)
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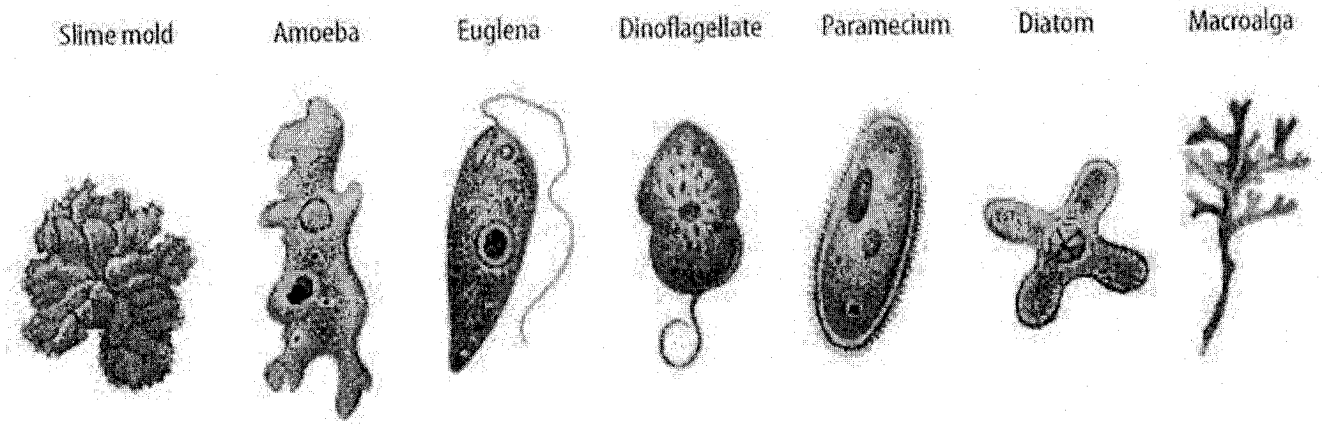

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SECTION – E

31. Briefly explain the events happening during the Prophase I of Meiosis I. Which process leads to recombination of characters? 5

OR

a) Translation is the process of protein synthesis. Which organelle will be the site for translation to occur? Who discovered it?

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32. Explain the Conduction of nerve impulse along a nerve fiber. 5

OR

Describe the sequence of events which occurs in the cardiac cycle in humans. Where and how are the sounds of 'lubb' and 'dubb' produced in the heart during this cycle?

33. With the help of schematic representation, describe the C4 pathway. Give any two characteristic of C4 plants. 5

OR

Briefly describe the Kreb cycle with the help of schematic representation.

******END OF THE QUESTION PAPER******

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SECTION A

1. Which of the following statements with regard to gibberellins is incorrect? 1

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   (c) Spraying sugarcane crops with GA3 makes the internodes shorter and thicker.

   (d) Gibberellins promote bolting in plants with rosette habit.

2. Which of the following groups consist of only polysaccharides? 1

   (a) Cellulose, starch, glycogen

   (b) Starch, lactose, cellulose

   (c) Lactose, starch, glycogen

   (d) Starch, maltose, cellulose

3. Which of the following contractile proteins of the muscle functions as ATPase? 1

(a) Tropomyosin

(b) Myosin

(c) Actin

(d) Troponin

4. What is the volume of air, a normal healthy human can inspire or expire approximately per minute? 1

(a) 500ml

(b) 1100-1200ml

(c) 2500-3000ml

(d) 6000-8000ml

5. The nitrogen fixing cells present in cyanobacteria are 1

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SECTION – B

17. Why growth and reproduction cannot be taken as defining property of all living organisms? 2

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A plant may have different names in different regions of the country or world. How do botanists solve this problem?

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SECTION – C

22. a) What is stroke volume? What is its relation with cardiac output? 3
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24. Differentiate between cyclic and non cyclic photophosphorylation. 3

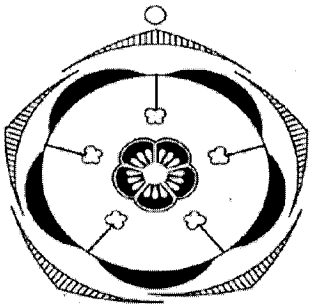
25. Describe Renin Angiotensin mechanism of Kidney regulation. 3

26. Cell wall is a non living rigid structure that forms an outer covering for the palsma membrane in some protists fungi and plants. It protects the cell from mechanical injuries and infections and helps in cell to cell interactions. 3

(a) Name the three layers in the cell wall of a mature plant cell.

(b) Mention any three components of cell wall of algae.

27. Given below is a floral diagram 3



a. Identify the aestivation shown in the calyx and corolla of the above flower.

b. Name the type of placentation seen in its ovary. Give example of a flower showing such placentation.

28. (a) How do members of Phaeophyceae vary in colour from olive green to various shades of brown? 3

(b) Name any two common members of phaeophyceae.

(c) What is the reserve food material present in brown algae?

OR

Some animals of phylum Cnidaria show metagenesis. Justify. Give one example of animal that show metagenesis.

SECTION – D

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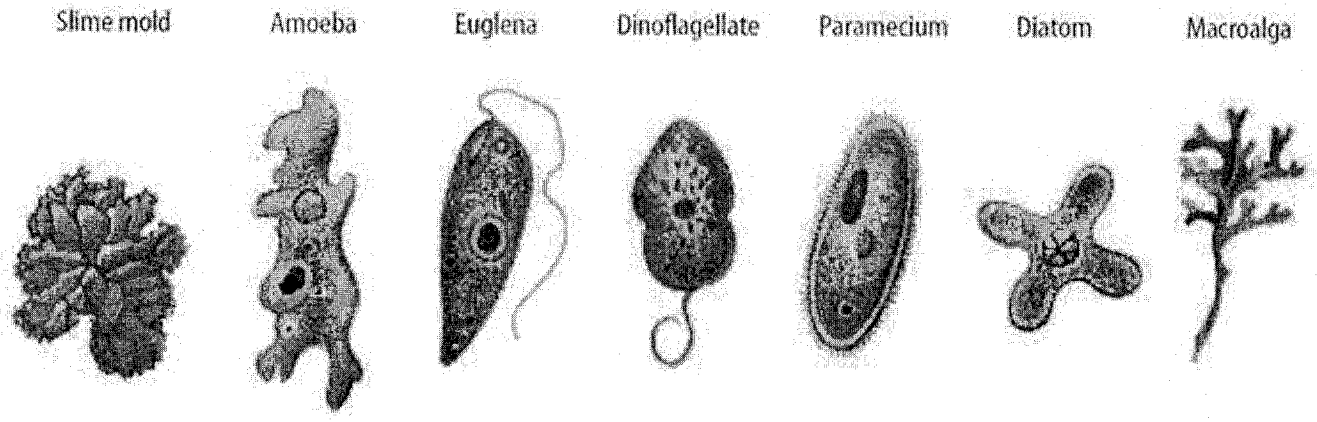
category *protist* is used for convenience. Others classify any unicellular eukaryotic microorganism as a protist. The study of protists is termed protistology.



a) Assign the given protists to the groups they belong to.

b) Which among this form aggregation called plasmodium?

c) Red tide causes mortality of aquatic organisms. Identify the organism responsible for the same.

OR

d) **Assertion:** Euglena are called Myxotrophs.

Reason: Euglena have outer protein covering called the Pellicle.

30. The fruit is a characteristic feature of angiosperms. It is a mature or ripened ovary, usually developed after fertilization, with a few exceptions. 4

a) What are parthenocarpic fruits?

b) Identify the three parts, the pericarp can be differentiated into, when it is thick and fleshy as in mango. Name the edible part in mango.

c) Write the similarities between the fruits of mango and coconut.

OR

d) Which hormone can be used for making parthenocarpic fruits?

SECTION – E

31. Briefly explain the events happening during the Prophase I of Meiosis I. Which process leads to recombination of characters? 5

OR

a) Translation is the process of protein synthesis. Which organelle will be the site for translation to occur? Who discovered it?
b) What is the organelle composed of?
c) Which are the two types of the organelle and mention the differences (any two).
d) During translation many of them will be connected to each other. Name the resultant structure.

32. Explain the Conduction of nerve impulse along a nerve fiber. 5

OR

Describe the sequence of events which occurs in the cardiac cycle in humans. Where and how are the sounds of 'lubb' and 'dubb' produced in the heart during this cycle?

33. With the help of schematic representation, describe the C4 pathway. Give any two characteristic of C4 plants. 5

OR

Briefly describe the Kreb's cycle with the help of schematic representation.

******END OF THE QUESTION PAPER******