

FTS

QUARTERLY EXAMINATION- 2023
BIOLOGY

CLASS :11

TIME : 3.00

MARKS : 70

PART - I (BIO-BOTANY) SECTION - I

- I Note : (i) Answer all the questions. (ii) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer.**
1. Phylogenetic classification is the most favoured classification because it refers $8 \times 1 = 8$
- a) Comparative Anatomy
b) Number of flowers produced
c) Comparative cytology
d) Evolutionary relationship ✓
2. Assertion (A) : Bryophyllum and Begonia are examples for foliar buds.
Reason (R) : Leaves of these plants possess adventitious buds.
- a) Both Assertion and Reason are true and the Reason is correct explanation of Assertion
b) Both Assertion and Reason are true but Reason is not a correct explanation of Assertion
c) Assertion is true but Reason is false
d) Assertion is false but Reason is true
3. Proteins perform many physiological functions. For example some functions as enzymes. One of the following represents an additional function that some proteins discharge
- a) Antibiotics
b) Pigment conferring colour to skin
c) Pigments making colours of flowers
d) Hormones ✓
4. Match the different kind of plastids with its function
- a) Amyloplast i) store oil
b) Elaioplast ii) store starch
c) Aleuroplast iii) store protein
d) Chloroplast iv) photosynthesis
- a) A - ii B - i C - iii D - iv
b) A - i B - ii C - iii D - iv
c) A - i B - ii C - iv D - iii
d) A - iv B - iii C - ii D - i
5. In an inflorescence where flowers are borne laterally in an acropetal succession the position of the youngest floral bud shall be
- a) Proximal
b) Distal
c) Intercalary
d) Any where
6. Who proposed the five kingdom classification?
- a) Charles Darwin
b) Carolus Linnaeus
c) R.H. Whittaker
d) Ernst Haeckel
7. Which of the following represents gametophytic generation in pteridophytes?
- a) Prothallus
b) Thallus
c) Cone
d) Rhizophore
8. Identify A, B, C and D in the given diagram depicting cell cycle and select the correct option.
- a) A - G₂ B - G₁ C - S D - G₀
b) A - G₀ B - G₁ C - S D - G₂
c) A - S B - G₁ C - G₂ D - G₀
d) A - S B - G₀ C - G₁ D - G₂



SECTION - II

II Note : Answer any four questions.

9. List out any two Primary functions of stem.
10. What is Eustele? Give an example.
11. Draw the structure of polytene chromosome and label its parts.
12. Define DNA Barcoding.
13. Write any two significance of seeds.
14. Differentiate between Holoenzyme and Apoenzyme.

SECTION - III

III Note : Answer any three questions. Question No 19 is compulsory.

15. Write any three uses of herbarium.
16. Differentiate between TEM and SEM.
17. Write the properties of Water.
18. Write the distinguishing features of Monera.
19. Draw the floral diagram and write the floral formula of Hibiscus rosa - sinensis.

SECTION - IV

IV Answer all the questions.

20. a) Give a general account on lichens. (OR) b) Describe the floral characters of Datura metal.
21. a) Explain the structure of chloroplast with diagram. (OR)
b) Differentiate between mitosis and meiosis.

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1-d 4.e 7.a
2.a 5.a 8.b
3.d 6.c

SECTION - II

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Q) Answer any four questions.

12.

9. List out any two primary functions of stem.
Primary functions.

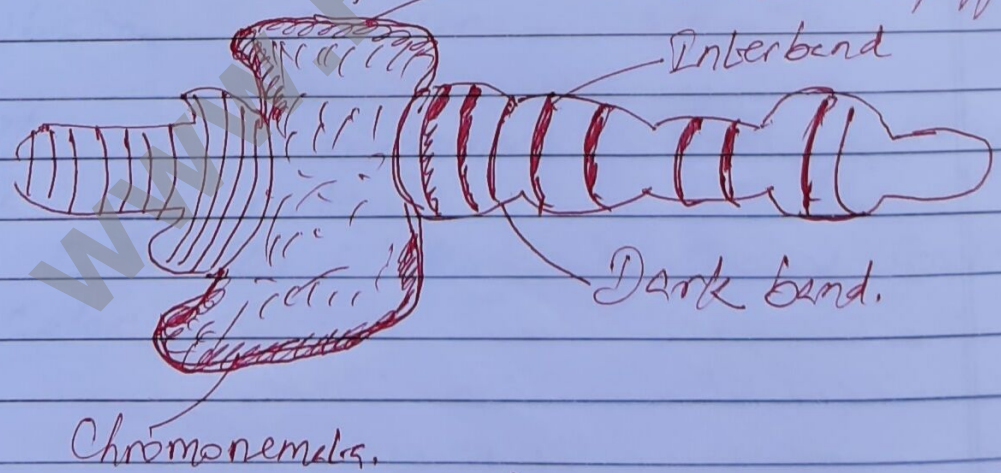
1. It provides support and bears leaves, flowers and fruits.
2. It transports water and mineral nutrients to other parts from the roots.
3. It transports food prepared by leaves to other parts of the plant body.

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10. What is Eustele? Give an example.
The stele is split into distinct collateral vascular bundles around the pith.

Ex: Dicot stem.

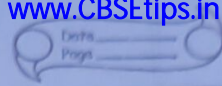
11. Draw the structure of polytene chromosome and label its parts.



polytene chromosome.

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12. Define DNA Barcoding.

DNA Barcoding is a taxonomic method that uses a very short genetic sequence from a standard part of a genome.

⇒ The genetic sequence used to identify a plant is known as 'DNA tags' (or) DNA Barcodes.

13. Write any two significance of seeds.

1. The seeds encloses and protects the embryo for next generation.

2. It contains food for the development of embryo.

3. It is a means for the dispersal of new individuals of the species.

4. A seed is a means for perpetuation of the species. It may be dormant during unfavorable conditions but germinates on getting suitable conditions.

5. Seeds of various plants are used as food both for animals and men.

6. They are the basis of agriculture.

7. Seeds are the products of sexual reproduction and they provide genetic variation and recombination in plants.

14. Differentiate between Holoenzyme and Apoenzyme.

Holoenzyme

Apoenzyme.

⇒ Active enzyme with its non protein component

The inactive enzyme without its non protein component.

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Section - III

Answer Any three Questions Q. no: 19 is Compulsory.

15. Write any three uses of Herbarium.

1. Herbarium provides resources material for systematic research and studies.
2. It is a place for orderly arrangement of voucher specimens.
3. Voucher specimens play a role in studies like floristic diversity, environmental assessment, ecological mechanisms and survey of unexplored areas.
4. Voucher specimen serves as a reference for comparing doubtful newly collected fresh specimens.
5. Herbarium provides opportunity for documenting biodiversity and studies related to the field of ecology and conservation biology.

16. Differentiate between TEM and SEM

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TEM

1. This is the most commonly used electron microscope which provides 2D image

2. A beam of electron passes through the specimen to form an image on fluorescent screen.

3. The magnification is 1-3 Lakhs times.

4. Resolving power is $2-10 \text{ \AA}$

SEM

1. This is used to obtain three dimensional image and has a lower resolving power than TEM.

2. The interaction of electrons with specimens result into the release of different form of radiation from the surface of the specimen

3. The magnification is 200000 times.

4. Resolution is 5-20nm

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17. Write the properties of water

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⇒ Adhesion and cohesion property.

⇒ High latent heat of vaporisation.

⇒ High melting and boiling point.

⇒ Universal solvent

⇒ Specific heat capacity.

18. Write the distinguishing features of monera.

<u>CRITERIA</u>	<u>MONERA</u>
1. CELL TYPE	prokaryotic.
2. Level of organization	mostly unicellular rarely multicellular.
3. Cell Wall	presents made up of peptidoglycan and mureopeptides.
4. Nutrition	(i) Autotrophic. (photoautotrophic; Chemo autotrophic) (ii) Heterotrophic. (parasitic and Saprophytic)
5. Mobility	Motile or non-motile.
6. organisms.	Archaeobacteria. Eubacteria. Cyanobacteria. Actinomyces and mycoplasma.

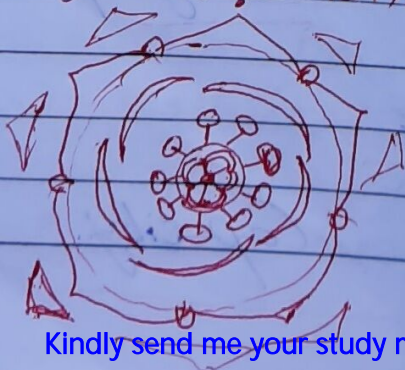
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19. Draw the floral diagram and write the floral formula of Hibiscus rose - Sinensis.

Floral Formula: $\text{Br}_1 \text{Br}_1, \oplus, \overline{9}, \overline{5}, \overline{K}_{(5)}, \overline{C}_5, \overline{A}_{(2)}, \overline{G}_{(1)}$



HIBISCUS

ROSE - SINENSIS.

- IV a. Give a general account on lichens.
1. The Symbiotic association between algae and fungi is called lichens.
 2. The algal partner is called phycobiont or photobiont.
 3. The fungal partner is called mycobiont.
 4. Algae provide nutrition for fungal partner. In turn fungi provide protection and also help to fix the thallus to the substratum through rhizine.
 5. Asexual reproduction takes place through fragmentation, soredia, and isidia.
 6. Phycobionts reproduce by aplanetes, hormogonia, aplanospore etc.
 7. Mycobionts undergo sexual reproduction and produce ascospores.

206. Describe the floral characters of Datura metel.

- Br, Ebrl, ♀ ♂ K₅, G₅, A₅, G₂
1. Flower: Flowers are large, greenish white bracteate, ebracteolate, pedicellate, complete, heterochlamydeous, pentamerous, regular, actinomorphic, bisexual and hypogynous.

Calyx: Sepals 5, green Sympetalous
 Showing valvate aestivation, Calyx
 is mostly persistent, odd sepal is
 posterior in position.

Corolla: petals 5, greenish white, sympetalous
 - low, plicate (folded like a fan)
 Showing twisted aestivation. Funnel
 shaped with wide mouth
 and 10 lobed.

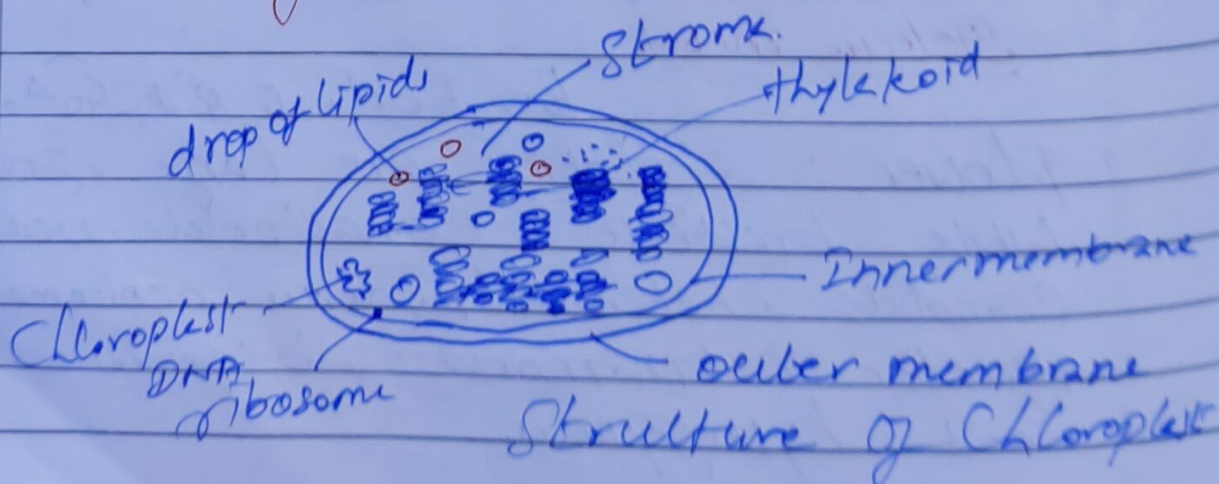
Androecium: Stamen 5, free from
 one another, epipetalous, alternipetalous
 - low and are inserted in the middle
 of the corolla tube.

Antlers are basifixed, ditheous
 with long filament, imbricate, and
 longitudinally dehiscent.

Gynoecium: ovary bicarpellary, syncar-
 -pous superior ovary, basically
 bicellular but tetralocular due to the
 formation of false septum.

Carpels are obliquely placed and
 ovules on swollen axile placentation
 style simple long and filiform,
 stigma two lobed

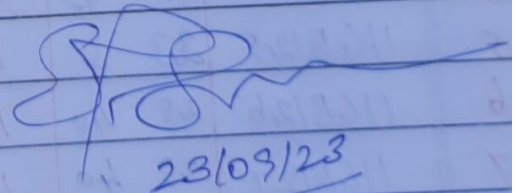
21. Explain the structure of chloroplast
 with diagram.



Q. Differentiate between mitosis and meiosis.

- | | <u>Mitosis</u> | <u>Meiosis</u> |
|----|---|---|
| 1. | <u>one division</u> | <u>Two divisions</u> |
| 2. | <u>Number of Chromosome remain the same</u> | <u>Number of Chromosome is halved.</u> |
| 3. | <u>Homologous Chromosome lineup separately on the metaphase plate</u> | <u>Homologous Chromosome pair up to form bivalent.</u> |
| 4. | <u>Chiasmata don't form and Crossing over never occurs.</u> | <u>Chiasmata form and Crossing over occurs.</u> |
| 5. | <u>Daughter Cells are genetically identical</u> | <u>Daughter Cells are genetically different from parent cell.</u> |
| 6. | <u>Two daughter cells are formed</u> | <u>Four daughter cells are formed.</u> |

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