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M.Sc. (Third Semester)
EXAMINATION, Dec. - Jan., 2021-22
BOTANY
Paper First
(Plant Development and Plant Resources)

*Time : Three Hours]**[Maximum Marks:80**[Minimum Pass marks :16*

Note: Attempt all sections as directed.

Section - A**(Objective/multiple choice Questions)****(1 mark each)****Note :** Attempt all questions.

Choose the correct answer:

1. Root hair arise from:

- (A) Epiblema
- (B) Cortex
- (C) Pericycle
- (D) Endodermis

2. In the root apex the meristem from which the root cap develop independantly of all other initials of the apical meristem is known as -

- (A) Calyptrogen
- (B) Casparian strip
- (C) Collumella
- (D) Corpus

3. Seed dormancy can be broken by exposure to red light in

- (A) Pea
- (B) Lettuce
- (C) Tomato
- (D) Onion

4. Application of which of the following hormones delay the onset of senescence -

- (A) Ethylene
- (B) Abscisic acid
- (C) Gibberellin
- (D) Cytokinin

5. Aleurone layer surrounds the starchy endosperm in -

- (A) Cereal grains
- (B) Endospermic dicot seeds
- (C) Seeds of gymnosperms
- (D) None of the above

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6. Cell cycle is controlled by:
- (A) Restriction endonuclease
 - (B) DNA Polymerase
 - (C) Cyclin dependent protein kinases (CDKs).
 - (D) RNA - Polymerase
7. Tunica corpus theory of the shoot apex was proposed by
- (A) Dermen
 - (B) Prophan and Chan
 - (C) Schmidt
 - (D) Clowes
8. In plants primary growth involves the activity of:
- (A) Apical meristem
 - (B) Lateral meristem
 - (C) Vascular cambium
 - (D) Phellogen
9. Articulated and non - articulated laticifers -
- (A) Differ in their function
 - (B) Have similar function and contents
 - (C) Originate towards maturity and contents.
 - (D) Are non - living

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10. The formation of distinct annual rings during secondary growth of stem mainly depends upon:
- (A) Contrasting seasonal variations.
 - (B) More or less uniform climate throughout the year
 - (C) Formation of Phellogen
 - (D) Formation of unequal quantities of xylem and phloem.
11. Androgynophore is the internode between:
- (A) Corolla and androecium
 - (B) Androecium and gynoecium
 - (C) Calyx and corolla
 - (D) Corolla and androecium and gynoecium
12. In flowering plants the leafgap is found in:
- (A) Node
 - (B) Internode
 - (C) Shoot apex
 - (D) Root apex
13. Which type of phytochrome predominates in etiolated seedlings:
- (A) Type - I
 - (B) Type - II
 - (C) Both Type - I and II
 - (D) None of the above

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14. Tropical movements occur in response to -
- (A) Internal stimulus
 - (B) External diffused stimulus
 - (C) External unilateral stimulus
 - (D) All of the above.
15. In the land plants guard cells differ from other epidermal cells in the possession of:
- (A) Mitochondria
 - (B) Chloroplasts
 - (C) Nucleus
 - (D) Endoplasmic reticulum
16. In a vertical section of a dorsiventral leaf:
- (A) Mesophyll is undifferentiated
 - (B) Mesophyll is differentiated into palisade and spongy parenchyma.
 - (C) Palisade is present but spongy parenchyma is absent.
 - (D) Spongy parenchyma is present but palisade is absent.
17. *Triticum aestivum*, a common wheat is:
- (A) Autopolyploid
 - (B) Autodiploid
 - (C) Autoteraploid
 - (D) Allohexaploid

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18. The sticky yellow resins which is exuded from the female flowers of Indian Hemp plant is commercially known as:
- (A) Bhang
 - (B) Ganja
 - (C) Hashish
 - (D) None of the above
19. Reserpine obtained from -
- (A) Cinchona
 - (B) *Wittania*
 - (C) *Atropa*
 - (D) *Rauvolfia*
20. Botanical name of Willow is:
- (A) *Salix alba*
 - (B) *Moras alba*
 - (C) *Xylia xylocarpa*
 - (D) *Diospyros ebenum*

Section - B

(Very short answer type questions)

(2 marks each)

Note : Attempt any eight questions.

1. Define the seed germination
2. What is senescence?

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3. Define Phyllotaxy.
4. How annual rings formed?
5. Name the three histogens in the shoot apical meristem as proposed by Hanstein.
6. After the formation of leaf primordia which meristems are responsible for its growth?
7. What biochemical changes occur in the Vegetative apex during its transition to reproductive apex?
8. Botanical name, vernacular name and family of two Aromatic plants studied by you.
9. Botanical name, vernacular name and family of two timber yielding plants.

Section - C

(Short Answer Type Questions)

(3 marks each)

Note: Attempt any eight questions.

1. Based on tunica - corpus theory, explain the organisation of shoot apical meristem in angiosperms.
2. What are Mycorrhiza?
3. Differentiate between soft wood and hard wood?
4. Give examples in support of the axis nature of thalamus.
5. Write note on scarification and stratification.
6. Account on phototropic movement.
7. Differentiate between xylem and phloem.

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8. Write a short note on any two Medicinal plants.
9. Name any two Botanical name of gums yielding plants.

Section - D

(Long Answer Type Questions)

(5 marks each)

Note : Attempt any four questions.

1. Describe the programmed cell death in the life cycle of plants.
2. Account on organization of shoot apical meristem (SAM)
3. Describe the differentiation of epidermis in leaf.
4. Describe Homeotic mutant in Arabidopsis.
5. Give an account on cereal producing plants of Chhattisgarh.

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