**Question Bank**

**BSc III SEMESTER**

**Core Course Botany –Paper -III**

**Course Code:DSC-Botany -303**

**Plant anatomy,Reproductive Biology,Cell biology,Genetics (Mendalism)**

**2020-21**

**Plant anatomy**

**Two Marks Questions**

1. Tissue
2. Meristem
3. Apical Meristem
4. Tyloses
5. Sieve tube
6. Companion cell
7. Lignifications
8. Macroslerieds
9. Brachysclereids
10. Osteosclereids
11. Asterosclereids
12. Bast fibre
13. Parenchyma
14. Collenchyma
15. Sclerenchyma
16. Aerenchyma
17. Idioblasts/Cell inclusions
18. Spherocrystals
19. Raphides
20. Cystolith
21. Palisade parenchyma
22. Spongy parenchyma
23. Subsidiary cells/Accessory cells
24. Stoma
25. Stomatal chamber
26. Guard cells
27. Plasmodesmata
28. Endarch
29. Exarch
30. Radial Vascular bundles
31. Conjoint collateral closed
32. Conjoint collateral open
33. Amphivasal/Leptocentric
34. Amphicribal/Hydrocentric
35. Protoxylem and Metaxylem
36. Protophloem and metaphloem
37. Annular thickenings
38. Spiral thickenings
39. Reticulate thickenings
40. Scalariform thickenings
41. Simple pitted thickenings
42. Bordered pitted thickenings
43. Maceration
44. Intercalary meristem
45. Lateral meristem
46. Promeristem
47. Primary meristem
48. Secondary meristem
49. Protoderm
50. Procambium
51. Angular collenchyma
52. lacunar collenchyma
53. lamellar collenchyma
54. Intraxylary fibres
55. Extraxylary fibres
56. Components of xylem
57. Components of phloem
58. Apical meristem
59. Tracheids
60. Trachea
61. Xylem fibres
62. Xylem parenchyma
63. Dermal layer
64. Oil glands
65. Trichomes
66. Epiblema
67. Root hair
68. Cuticle
69. Hypodermis
70. Epidermis
71. Cortex
72. Ground tissue
73. Endodermis
74. Pericycle
75. Pith
76. Medullary rays
77. Ray initials and fusiform initials
78. Intrafascicular cambium
79. Interfascicular cambium
80. Secondary Xylem
81. Secondary phloem
82. Cork/Phellum
83. Phellogen/cork cambium
84. Bark or Periderm.
85. Secondary cortex/Phelloderm
86. Lenticels
87. Annular rings
88. Autumn wood
89. Spring wood
90. Dendrochornology
91. Sylviculture
92. Vascular cambium
93. Secondary medullary rays
94. Heart wood/Duramen
95. Sap wood/Alburnum
96. Motor cells/Bulliform cells
97. Bicollateral V. B.
98. Mesophyll
99. Hypostamtic /Epistomatic

100.Amphistomatic

1. Scotoactive stomata
2. Apoplast
3. Symplast
4. Scattered Vascular bundles/ Atactostele
5. Eustele
6. Bundle cap
7. Bundle sheath
8. Bundle sheath extension
9. Polyarch stele
10. Tetrach stele
11. Prosenchyma
12. Stone cells(Sclereids)
13. Casparian strips
14. Chlorenchyma
15. Living Mechanical Tissue
16. Dead Mechanical Tissue
17. Mechanical Tissue
18. Laticiferous Tissue
19. Non-articulate Latex ducts or Latex cells
20. Articulate Latex Ducts or Latex Vessels
21. Secretary Tissue
22. Glandular Tissue
23. Oil Glands
24. Digestive Glands
25. Hydathodes(Water Secreting Glands)
26. Nectary Glands
27. Rhytidome
28. Complementary Cells
29. Anomalous Secondary Growth
30. Medullary vascular bundles
31. Cortical vascular bundles

**Reproductive Biology**

1. Free central
2. Superficial
3. Endothecium
4. Middle layer
5. Amoeboid
6. Secretory
7. Successive type
8. Simultaneous type
9. Pollenkitt
10. Sporopollenin
11. Tetrahedral
12. Decussate
13. T. Shaped.
14. Vegetative nucleus
15. Generative nucleus
16. Integuments
17. Tenvincellate
18. Crassinucellate
19. Parictal cell
20. Antipodals
21. Secondary nucleus
22. Bisporic
23. Tetrasporic
24. Chalazogamy
25. Porogamy
26. Apomixes
27. Endosperm
28. Ruminate endosperm
29. Nuclear endosperm
30. Cellualar endosperm
31. Ruminate endosperm
32. Helobial endosperm
33. Apospory
34. Diplospory
35. Polyembryony
36. Tenvincellate
37. Crassinucellate
38. Parictal cell
39. Antipodals
40. Secondary nucleus
41. Bisporic
42. Tetrasporic
43. Chalazogamy
44. Porogamy
45. Tapetum
46. PEN
47. MGU
48. FGU
49. Campylotropous
50. Anatropous
51. Filliform apparatus
52. Double fertilization
53. Triple fusion
54. Post - fertilization changes.
55. Polyembryony
56. Suspensor
57. Nucellus
58. Porogamy
59. Synergids
60. Syngamy
61. Endothecium
62. Linear tetrad
63. Functional Megaspore
64. Embryosac
65. Colpate regins
66. Pollen embryosac
67. Chalazogamy
68. Mesogamy
69. Chemotropism
70. Endosperm
71. Haustorium
72. Cleavage
73. Octant stage
74. Parthenocarpy
75. Apogamy
76. .Wall layers.
77. Albuminous seed
78. Perispermic seed
79. Sporophytic budding
80. Tetrads

81 Pollinia

1. Porogamy
2. Incompatibility
3. Egg apparatus
4. CoconutMilk
5. Pollination
6. Self pollination
7. Cross pollination
8. Autogamy
9. Allogamy
10. Xenogamy
11. Geitonogamy
12. Cleistogamy
13. Chasmogamy
14. Self sterility
15. Dichogamy
16. Herkogamy
17. Heterostyly
18. Agents pollination
19. Abiotic components of pollination
20. Biotic components of pollination
21. Anemophily
22. Hydrophily
23. Entomophily
24. Ornithophily
25. Chiropterophily
26. Seed
27. Dicot seed
28. Monocot seed
29. Caruncle
30. Operculum
31. Aril
32. Functions of Seed coat
33. Albuminous seed
34. Ex albinous seeds
35. Significance of seed dispersal
36. Importance of seeds
37. Autochory
38. Anemochory
39. Hydrochory
40. Zoochory
41. Functions of seed

**CELL BIOLOGY**

1. Cell
2. Prokaryotic cell
3. Eukaryotic cell
4. Incipient nucleus/Nucleoid
5. Cell Wall
6. Protoplast
7. Plasma membrane
8. Plasmodesmata
9. Nuclear envelope
10. Ribosomes Integral protein
11. Cell inclusions
12. RER
13. SER
14. Golgi apparatus
15. Cell membrane
16. Peripheral protein
17. Perimitochondrial space
18. Power house of the cell
19. Vesicles Nucleolus
20. Cytoplasm
21. Protoplasm
22. Nucleoplasm
23. Cell-Cycle
24. Peroxisones
25. Phagocytosis
26. Nuclear matrix
27. Sphero Raphide
28. Chromatin
29. 70S, 30S
30. Fluid Mosaic Model
31. Nucleus
32. Svedberg unit
33. Pinocytes
34. Sedimentation coefficient.
35. Chloroplasts
36. Cell sap
37. Elementary particle
38. Endoplasmic reticulum
39. Vacuole
40. Cytoplasm/Cytosol
41. 70S, 30S
42. Fluid Mosaic Model
43. Nucleus
44. Svedberg unit
45. Pinocytes
46. Sedimentation coefficient.
47. Chloroplasts
48. Cell sap
49. Elementary particles
50. Endoplasmic reticulum
51. Vacuole
52. Cytoplasm/Cytosol
53. Perinuclear space
54. Nuclear pore
55. Cystolith
56. Raphides

**Two Marks Questions**

**Genetics**

1. Define genetics
2. Who is father of genetics
3. Homozygous
4. Heterozygous
5. Phenotype
6. Genotype
7. Mendalian factors
8. Allele
9. Recessive gene
10. What is Inheritance
11. Incomplete dominance
12. Define monohybrid cross
13. Define dihybrid cross
14. What is segregation?
15. Independent assortment
16. What is punnet square
17. What is test cross
18. What s back cross
19. Genotype dihybrid ratio
20. 9:3:3:1 is \_\_\_\_\_\_\_\_\_\_\_\_
21. If a cross between Red and white flowered plant results in pink flowered plant then the phenomenon is called ?

**FIVE MARKS QUESTIONS**

**Plant Anotomy**

1. What is tissue? Mention the types.
2. Classify the plant tissues.
3. Define meristem and classify.
4. Describe the Histogen theory.
5. Describe the Tunica-carpus theory.
6. Describe apical cell theory.
7. What are simple tissues? Mention the types.
8. What are the complex tissues? Mention the types.
9. Explain the characteristics of simple living fundamental tissue.
10. Explain the characteristics of simple living mechanical tissue.
11. Explain the characteristics of simple dead mechanical tissue.
12. Explain the characteristics of water conducting tissue.
13. Explain the characteristics of food conducting tissue.
14. Explain the different types of parenchyma based on their functions.
15. Explain the types of collenchyma.
16. What is lignification? Mention the types of lignifications in xylem.
17. Sketch a neat labelled diagram of conjoint collateral and closed vascular bundle.
18. Sketch a neat labelled diagram of conjoint collateral and open vascular bundle
19. Sketch a neat labelled diagram of T. S. of Parenchyma.
20. Sketch a neat labelled diagram of T. S. of Collenchyma.
21. Sketch a neat labelled diagram of T. S. of Sclerenchyma.
22. Sketch a neat labelled diagram of T. S. of meristematic tissue.
23. Sketch a neat labelled diagram of T. S. of bicollateral vascular bundle.
24. Sketch a neat labelled diagram of T. S. of lenticel.
25. Sketch a neat labelled diagram of stomata.
26. Write the functions of parenchyma.
27. Write the functions of xylem and phloem.
28. Write the comparison between parenchyma and collenchyma
29. Write the comparison between collencyma and sclerenchyma
30. Write the comparison between xylem and phloem.
31. Write the comparison between dicot root and monocot root.
32. Write the comparison between dicot stem and monocot stem.
33. Write the comparison between dicot leaf and monocot leaf.
34. Write a short note on any two of the following.

a) Tyloses b) lenticel c) stomata d) Bark/Periderm

1. Define secondary growth. Explain the Extrastelar secondary growth in dicot stem.
2. Define secondary growth. Explain the intrastelar secondary growth in dicot stem.
3. Write short notes on endodermis of roots
4. What are annual rings? What is their significance?
5. Difference between dorsiventral leaf and isobilateral leaf
6. Explain Secretary tissue
7. Explain wall thickings in vessels
8. Explain structure of sieve tube
9. What are the important features of meristematic tissues?
10. What are Sclereids? Mention the types based on their shapes
11. Explain the types of Xylem elements
12. Explain the types of Phloem elements
13. Explain dermal tissue system
14. Explain cell inclusions
15. Draw a neat labeled diagram of dicot root
16. Draw a neat labeled diagram of monocot root
17. Draw a neat labeled diagram of dicot stem
18. Draw a neat labeled diagram of monocot stem
19. Draw a neat labeled diagram of dorsiventral leaf
20. Draw a neat labeled diagram of isobilateral leaf
21. Differentiate between sap wood and heart wood.
22. Give an account of nectary tissues.

**5 Marks Questions**

**Reproductive Biology**

1. Describe the Microsporogenesis in angiosperms
2. Describe the stage in the development of male gametophyte
3. Describe the Megasporogenesis in angiosperms
4. Describe the development of monosporic embryo sac
5. Describe the formation of nuclear endosperm
6. Describe the formation of helobial endosperm
7. Give the morphology of the ovular type in angiosperms.
8. Explain the endosperm type in angiosperms
9. With a neat labeled diagram describe the T.S of anther
10. Describe the development of dicot embryo
11. Describe the development of monocot embryo
12. With neat labeled diagram explain structure of dicot embryo.
13. With neat labeled diagram explain structure of monocot embryo with any one example.
14. Explain double fertilization and triple fusion
15. Write a note on pollen-pistil interaction.
16. Describe the tetrasporic embryo sac.
17. Give a brief account of apomixes
18. Describe the stages of development of bisporic type of embryo sac that you have studied.
19. Describe the structure of mature anther
20. Draw a neat labeled diagram of explain role of tapetum in microsporogenisis.
21. Explain the role of endosperm in the development of embryo
22. With neat labeled diagram explain male germ unit
23. Explain double fertilization,
24. Describe microgametogenesis in angiosperms
25. Draw a neat labeled diagram of Embryo sac or female gametophyte
26. Describe megagametogenesis in angiosperms
27. What is endosperm ? describe any two types.
28. What is endosperm ?Explain Nuclear and Cellular endosperm.Write its functions
29. What is endosperm ?Explain Helobial and Ruminated endosperm Write its functions
30. Write Brief account of Polyembrony
31. What is polyembryony ? Explain any two types of polyembryony
32. Explain Cleavage polyembryony and Adventive polyembryony
33. What is apomixes ? Briefly describe apomixes.
34. Write Brief account of Female germ unit
35. .Explain anemophily
36. .Explain hydrophily.
37. Explain zoophily
38. .Explain entomophily.
39. Explain ornithophlily .
40. Explain Self pollination
41. Explain Cross pollination
42. Explain Autogamy,Allogamy
43. Explain Xenogamy ,Geitonogamy
44. Write adaptations of self pollination
45. Explain Dichogamy and Herkogamy
46. Explain Agents Cross pollination in brief .
47. Explain Anemophily ,Hydrophily
48. Explain Entomophily and Ornithophily
49. Expalin structure of dicot seed
50. Explain structure of monocot seed .
51. Explain Caruncle and Operculum and Aril
52. Explain Albuminous seed and Ex albiminous seed
53. Write function of seed coat and Importance of seed
54. Write classification of seeds and importance of seeds.
55. Explain any two external agencies
56. Explain Autochory and Anomochory
57. Explain Hydrochory and Zoochory

**Cell Biology**

**5 Marks Questions**

1. Explain the functions of Golgi complex
2. Explain cell cycle with suitable diagrams
3. Write a note on cell inclusions.
4. Write a note on structure of nucleus
5. With a neat labelled diagram describe the structure of Prokaryotic cell.
6. With a neat labelled diagram describe the structure of Eukaryotic cell.
7. Give the difference between Prokaryotic cell and Eukaryotic cell
8. Write a note on Plant Cell Membranes.
9. Explain the Fluid Mosaic Model with a diagram.
10. Give the structure of Ribosomes.
11. What are the functions of Ribosomes.
12. Explain the structure of Mitochondria
13. Explain the structure of Gologi complex
14. Explain the structure of Chloroplast
15. Explain the structure of vacuole
16. Explain the structure of Cell wall
17. Explain the structure of Plasma membrane
18. Explain the structure of Nucleus.
19. Explain the structure of Endoplasmic reticulum.
20. What are the functions of ER?
21. Describe the structure of Golgi apparatus with neat labelled diagram.
22. What are the functions of Golgi bodies?
23. Describe the structure of Nucleus with neat labelled diagram.
24. What are the functions of Nucleus?
25. Write a note on Peroxisomes.
26. Write a note on Cell inclusions.
27. What is Cytoplasm? Explain its properties
28. Explain the properties of Cytoplasm.

**FIVE MARKS QUESTIONS**

**Genetics**

1. Explain Pre - Mendalian theories
2. Define law of segregation with suitable example
3. List any seven characters selected by Mendel for his genetic studies
4. Explain monohybrid cross with suitable example
5. Explain Dihybrid cross with suitable example.
6. Explain Incomplete Dominance with Suitable example
7. Explain test cross with an example.
8. Explain back cross with an example.
9. Explain scope of Genetics

10Tall plant having genotype TT cross with dwarf Plant having genotype tt. What happening in F1 and F2 generation

**TEN MARKS QUESTIONS**

**Plant Anatomy**

* 1. Define tissues and Explain living mechanical permanent tissue.
  2. Describe the structure and functions of Parenchyma.
  3. Describe the structure and functions of collenchyma
  4. Describe the structure and functions of Sclerenchyma.
  5. Describe the structure and functions of xylem/wood/complex dead /water conducting tissue.
  6. Describe the structure and functions of Phloem/bast/living food conducting tissue.
  7. Give an account of dermal tissue system.
  8. Give an account of Vascular tissue system.
  9. Give an account of laticiferopus tissue system
  10. Give an account of Secretary tissue system.
  11. Give an account of cell inclusions
  12. With the help of neat labelled diagram explain the internal structure of young monocot root.
  13. With the help of neat labelled diagram explain the internal structure of young dicot root.
  14. With the help of neat labelled diagram explain the internal structure of young monocot stem.
  15. With the help of neat labelled diagram explain the internal structure of young dicot stem.
  16. With the help of neat labelled diagram explain the internal structure of young monocot leaf.
  17. With the help of neat labelled diagram explain the internal structure of young dicot leaf.
  18. With the help of neat labelled diagram explain the internal structure of old dicot stem.
  19. Describe the secondary growth in dicot stem.
  20. Describe the secondary growth in dicot root.
  21. With the help of neat labelled diagram explain the anomalous secondary growth in *Bignonia*.
  22. With the help of neat labelled diagram explain the anomalous secondary growth in *Boerhaavia*.
  23. With the help of neat labelled diagram explain the anomalous secondary growth in *Salvadora*.
  24. With the help of neat labelled diagram explain the anomalous secondary growth in *Beta vulgaris root.*
  25. With the help of neat labelled diagram explain the anomalous secondary growth in *Dracaena* stem*.*
  26. Define secondary Growth. Explain the Normal secondary growth in dicot stem with a neat labeled diagram.
  27. What is secondary growth? Describe the instrastelar and extrastelar secondary growth in dicot stem
  28. Define Vascular bundle. Explain the types of vascular bundles with a neat labeled diagram.
  29. Define Meristem. Explain the types of meristem based on position and origin.
  30. What is Anomalous Secondary Growth? Draw diagrams to show anomalous secondary growth in *Bignonia.*
  31. What is the function of cambium? Give illustrated account of anomalous behavior of cambium in *Salvadora and Dracaena.*

**10 Marks Questions**

**Reproductive Biology**

1. With a neat labeled diagram explain microsporogenesis in angiosperm

2. With a neat labeled diagram explain malegametogenesis

3. With a neat labeled diagram explain embryo sac development in angiosperms

4With a neat labeled diagram describe the polygonum type of embryo sac

5. Draw a neat diagram and explain type of tapetum and its role in microsperogenesis

6. Draw neat diagram and explain the process of double fertilization and triple fusion

7 Explain with diagram role of anther wall in microsporogenisn

8. Explain with diagram development of male gametogenesis in angiosperms

9 What is endosperm? Explain the types endosperms

10. Describe megasporogenesis in Angiosperms

11. Explain double fertilization and triple fusion in angiosperms and add a note on post fertilization changes.

12. What is endosperm ? describe any two types.

13.What is endosperm ?Explain Nuclear and Cellular endosperm.Write its functions

14 What is endosperm ?Explain Helobial and Ruminated endosperm Write its functions

15.What is polyembryony ? Explain any two types of polyembryony

16.What is apomixes ? Briefly describe apomixes.

17Define Pollination ? Write adaptations for self pollination

18.What is Pollination ? Write adaptations or mechanisms favouring cross pollination

19.Explain Caruncle ,Operculum and Aril

20.Write functions and importance of seeds.

21.Explain anytwo external agents of seed dispersal

22. Describe Autochory and Anemochory

23.Explain Hydrochory and Zoochory .

24Explain entomophily and ornithophlily .

25Explain Self pollination

27Explain Cross pollination

28.Explain Autogamy,Allogamy

29Explain Xenogamy ,Geitonogamy

30Write adaptations of self pollination

31Explain Dichogamy and Herkogamy

32Explain Agents Cross pollination in brief .

1. Explain Anemophily ,Hydrophily

34Explain Entomophily and Ornithophily

35Expalin structure of dicot and monocot seed .

36Explain Caruncle and Operculum and Aril

37Explain Albuminous seed and Ex albiminous seed

38Write functions of seed coat and Importance of seed

39Write classification of seeds and importance of seeds.

40Explain any two external agencies of seed dispsersal

41Explain Autochory and Anemochory

42 Explain Hydrochory and Zoochory

**Ten marks questions**

**Cell Biology**

1. Describe Prokaryotic cell with a neat labelled diagram
2. Describe Eukaryotic cell with a neat labelled diagram
3. Write a note on plant cell membrane
4. List differences between prokaryotic and eukaryotic cells
5. What are Plant Cell Membranes? Explain Fluid Mosaic model.
6. Give the difference between Prokaryotic cell and Eukaryotic cell.
7. Describe the structure and functions of Ribosome’s with neat labelled diagram.
8. Describe the structure and functions of ER with neat labelled diagram.
9. Give the structure of Golgi bodies and mention the functions.
10. Describe the structure and functions of Mitochondria with neat diagram.
11. Describe the structure and functions of Nucleus with neat labelled diagram.
12. Describe with neat lebelled diagram of Chloroplast and mention its functions.
13. Describe with neat lebelled diagram of Peroxisomes and mention its functions
14. What is Cytoplasm? Explain its properties.

**Ten Marks Questions**

**Genetics**

1. Define law of independent assortment with suitable example
2. Describe test cross and back cross with examples and write the significance.
3. Explain different laws of inheritance proposed by Mendel
4. Explain incomplete dominance with suitable examples
5. Discuss dihybrid cross with suitable example using checker board