BIOLOGY I PUC

UNIT 05:

Morphology of Flowering plant

1 mark Questions

1. Name the modification of leaf for climbing
2. Name the underground part of the flowering plant?
3. What is the direct elongation of radical known as?
4. What is primary root?
5. What is a tap root?
6. Where does fibrous root arise from?
7. Give an example of plant with tap root system?
8. Give an example of plant with fibrous root system?
9. What is adventitious root?
10. Give an example of plant with adventitious roots.
11. Give one function of the root.
12. What is the use of root cap?
13. Give the three regions of the root tip?
14. Which region of the root tip is involved in growth lengthwise?
15. Name the thread like structures present on 'region of maturation' of root tip?
16. Name the modified root seen in banyan tree
17. What are stilt roots?
18. What is the use of pneumatophores?
19. From which part of the embryo, shoot system is formed?
20. Name the region on the stem where the leaf arises
21. Name the modification of axillary bud seen in cucumber

22. What are the woody pointed structures seen on citrus stem called?

23. How is the stem modified in *Opuntia*?

24. Give the function of the following modifications

a) Tendril b) Thorn c) Underground stem

25. How is the stem modified in mint plant?

26. What is a lateral flattened photosynthetic structure borne on the stem called?

27. What are the three main parts of the leaf?

28. What are the two lateral small leaves like structures at the leaf base called?

29. The swollen leaf base in legumes is called _____

30. In monocots the leaf base extents into _____

31. What is the main function of petiole?

32. Name the green expanded part of leaf having veins

33. Define venation?

34. Name the venation seen in a) dicot leaf b) monocot leaf

35. What is simple leaf?

36. Leaf having number of leaflets is called _____

37. Give the two types of compound leaf.

38. Define phyllotaxy.

39. Name the phyllotaxy on China rose

40. Name the phyllotaxy having pairs of leaves arising at each node

41. What is whorled phyllotaxy?

42. Name any two modification of leaf

43. How is the petiole modified in Australian Acacia?

44. Which part/ organ of an insectivorous plant modify to trap insects?

45. Give an example of insectivorous plant

46. What is inflorescence?

47. Name the two types of inflorescence

48. What type of floral succession is seen in a) racemose b) cymose

49. Name the inflorescence where the main axis shows unlimited growth

50. Name the reproductive unit of angiosperm

51. What is the swollen end of pedicel known as?

52. Name the accessory organs of the flower

53. Name the reproductive or essential organs of flower

54. What is a perianth?

55. What is a bisexual flower?

56. What is unisexual flower?

57. What is an actinomorphic flower?

58. Give an example of actinomorphic flower

59. Give an example of zygomorphic flower

60. What is a zygomorphic flower?

61. What is a trimerous flower?

62. Define bracteate flower.

63. Give an example of perigynous flower

64. Give an example of epigynous flower

65. Give an example of hypogynous flower

66. What is the outermost whorl of the flower called?

67. What is gamosepalous?

68. What is polysepalous?

69. What is the function of sepals?

70. What is the function of petals?

71. What is aestivation?

72. Name the main types of aestivation?

73. Give an example of valvate aestivation.

74. Give an example of twisted aestivation

75. Give an example of imbricate aestivation

76. Give an example of vexillary aestivation

77. Name the parts of stamen

78. What is staminode?

79. Give an example of epipetalous and epiphyllous stamens

80. What is monoadelphous? Give an example

81. What is diadelphous? Give an example

82. What is polyadelphous? Give an example

83. Name the parts of carpel

84. What is apocarpous? Give an example

85. What is syncarpous? Give an example

86. What is placentation?

87. Name any four types of placentation

88. What is parthenocarpic fruit?

89. What are the parts of thick and fleshy pericarp?

90. Give an example of drupe

91. What are the layers of a seed coat

92. Give example of non endospermous seeds

93. What is the proteinous outer covering layer of endosperm known as?

94. In floral formula what does the symbol K and P stand for?

95. The family Papillionoideae is better known as?

96. Give the floral formula of family Fabaceae

97. Give the floral formula of family Solanaceae

98. Give the floral formula of family Liliaceae

99. Give an example of species that belong to the family Fabaceae

100. Give an example of species that belong to the family Solanaceae

101. Give an example of species that belong to the family Liliaceae

Two mark questions:

1. Name the regions of the root tip.
2. Differentiate between a) prop roots and stilt roots b) tap roots and adventious roots.
3. Some plants grow in swampy areas deficient in oxygen, but the roots still respire. Name the root modification and how are they modified?
4. Name the modification of stem which help in a) climbing b) protection. Give one example.
5. What is venation? Name the type of venation seen in dicotyledons?
6. What is Palmately compound leaf? Give an example.
7. What is Phyllotaxy? Name the Phyllotaxy in *Alstonia*.
8. Write short notes on modification of leaf.
9. Differentiate between racemose and cymose inflorescence
10. Name the reproductive unit of angiosperm and its whorl
11. Name and define the types of symmetry seen in glumohur.
12. The ovary in China rose is said to be superior. Justify.
13. What is Aestivation? Name any two types.
14. What is papilionaceous/vexillary aetivation? Give an example.
15. a) Stamens are united into bunches. Name the three types. b) What is polyandrous?
16. What is a) Staminode b) Epipetalous
17. What is a carpel? Name its parts .
18. Name the a) enlarged part of carpel. b) Receptive part of carpel.
19. What is flattened, cusion like tissue present with in the ovary? What is attached to it?
20. Ovules are borne on central axis of an ovary where locules are not present. Name the placentation type. Give an example.
21. Define placentation. Name any two types
22. What is the ovary called after fertilization? Name two parts.
23. A thick and fleshy pericarp is differentiated into three parts. Name them.
24. Describe a drupe of mango.
25. What is the post fertilized ovule called? Name its parts.
26. What is a) Hilum b) Micropyle.
27. Give one example of economical important plants belonging to Fabaceae that provide dye, edible oil, pulse and fibre.
28. Give one use of the following plants: a) Petunia b) Ahwagandha c) Trifolium d) colchicum
29. Name the family of to which these plants belonging to; a) Gloriosa b) Tomato c) Sweet pea d) Aloe

Four marks questions:

1. Describe the regions of root with neat labeled diagram.
2. Write notes on four root modification
3. Give the distinguishing features of stem.
4. What is venation? Explain types of venation with a neat diagram.
5. What is compound leaf? Explain two types of compound leaf with diagram.
6. Define phyllotaxy? Describe the three types give and examples
7. What is the arrangement of flowers on an axis is termed as? Describe the two types.
8. Name the reproductive unit of Angiosperm. Describe it
9. Define; a) tetramereous b) bracteates c) Polysepalous d) Monoadelphous

5 mark Questions:

1. Describe the parts of leaf with neat labelled diagram

2. Describe the types of flowers based on position of ovary and position of floral parts on thalamus

3. Define aestivation. Describe the types.

4. Define placentation. Describe any four types of placentation

5. Describe types of placentation.

6. Describe the structure of monocotyledon seed with neat labelled diagram

7. Give the general features of family Fabaceae

8. Give the general features of the ‘ potato family’

9. Differentiate between Solanaceae and Liliaceae

10. Draw the floral diagram of a) Solanaceae b) Liliaceae

One Mark Answers

1. Tendril
2. Root
3. Primary root
4. The direct elongation of radical that grows inside the soil.
5. A root that has primary, secondary and tertiary roots
6. Base of Stem
7. Mustard plant
8. Wheat plant
9. Roots that arise from parts of the plants other than the radical
10. Banyan tree
11. Absorption of water and mineral/ anchorage/ storing reserve food material/synthesis of plant growth regulators
12. It protects the tender apex of root
13. Region of maturation, region of elongation and region of meristamatic activity
14. Region of elongation
15. Root hair
16. Prop roots
17. Supporting roots arising from lower nodes of stem like in sugarcane.
18. They help to get oxygen for respiration for roots/ plants growing in swampy areas
19. Plumule
20. Node
21. Tendril
22. Thorn
23. Flattened stem
24. a) Support b) Protection c) Storage
25. A branch from the base of stem grows aerially for some time and arch downward to touch the ground.
26. Leaf
27. Leaf base, petiole and lamina
28. Stipules
29. Pulvinus leaf base
30. a sheath covering the stem
31. It holds the lamina facing toward the light
32. Lamina / leaf blade
33. Arrangement of veins and veinlets on lamina of leaf
34. a) reticulate b) parallel

35. The leaf where lamina is entire or if incisions on lamina are present that doesn't touch the midrib.
36. Compound leaf
37. Pinnate and palmate
38. It is the pattern of arrangement of leaves on stem or branch.
39. Alternate phyllotaxy
40. Opposite phyllotaxy
41. Phyllotaxy where more than two leaves arises at a node and forms a whorl eg: *Alstonia*
42. Tendrils and spines
43. Petiole flattened and photosynthetic in nature
44. Leaf
45. Pitcher plant, Venus fly trap
46. The arrangement of flowers on floral axis
47. Racemose and cymose
48. a) acropetal b) basipetal
49. Racemose
50. Flower
51. Thalamus/ Receptacle
52. Calyx and corolla
53. Androecium and Gynoecium
54. When calyx and corolla of the flower are not distinct
55. A flower that has both androecium and gynoecium
56. A flower that has either only stamens or carpels
57. When a flower can be divided into two equal radial halves in any radial plane passing through the centre
58. Mustard/ Datura/ Chilli flower
59. Pea/ Gulmohar/ bean/ *Cassia* flower
60. When a flower can be divided into two equal radial halves in one particular vertical plane
61. A flower having floral appendages in multiples of three
62. Flowers having bracts at the base of the pedicel
63. Plum/rose/peach flower
64. Guava/ cucumber/ray florets of sunflower
65. Mustard/ China rose/ Brinjal flower
66. Calyx
67. Sepals in flowers are united
68. Sepals in flowers are free
69. Protect the flower in the bud stage
70. The bright colour attracts insects for pollination
71. The mode of arrangement of sepals or petals in floral bud with respect to the other members of the same whorl.

72. Valvate, twisted, imbricate, vexillary/ papilionaceous
73. Calotropis
74. China rose/ Lady's finger/ cotton
75. *Cassia*/ gulmohar
76. Pea/ Bean
77. Stalk/filament and anther
78. A sterile stamen
79. epipetalous- Brinjal and epiphyllous- Lily
80. Stamens united in one bunch eg: China rose
81. Stamens united in two bunch eg: Pea
82. Stamens united in more than two bunch eg: Citrus
83. Stigma ,style and ovary
84. When more than one carpel is present, they may be free eg: Lotus/ Rose
85. When carpels are fused eg: Mustard/ Tomato
86. The arrangement of ovules within ovary
87. Marginal, Axile, Parietal, Basal, Central, Free Central
88. If a fruit is formed without fertilization of ovary
89. Epicarp, Mesocarp and endocarp
90. Mango/ Coconut
91. Testa, tegmen
92. Bean, gram, pea seed
93. Aleurone layer
94. K – calyx and P- perianth
95. Family Fabaceae
96. Refer Page number 79, floral formula
97. Refer page number 80 floral formula of solanaceae
98. Refer Page number 81 floral formula of liliaceae
99. Gram/ Arhar/ Sem/ Moong/ Soyabean/ groundnut/ Indigofera/ Sunhemp/ Sesbania/Trifolium/ lupin/sweet pea/muliathi
100. Tomato/ brinjal/ Potato/ chilli/ Belladonna/ Ashwagandha/ tobacco/ petunia
101. Tulip/ Gloriosa/ Aloe/ Asparagus/ Colchicine

Two mark answers:

1. Root cap, region of meristem, region of elongation, region of maturation.
2. a) Prop roots- Arise from lateral branches of trees like banayan for support.
   Stilt roots- Arise from lower nodes of stem like sugarcane, maize, etc for support. b)Tap root- Arise from radical and form primary, secondary, tertiary roots. Adventitious roots- Arise from any part of plant other than radical.

3. Pneumatophore. The roots come out of the ground and grow vertically upwards to get oxygen for respiration.
4. A) Tendril example- cucumber or grape vine. B) Thorns example- citrus or bougainvillea
5. The arrangement of veins and veinlets in the lamina of leaf is called venation. Reticulate venation.
6. The leaflets are attached at a common point ie: at the tip of petiole example silk cotton.
7. Patterns of arrangement of leaves on the stem or branch. Whorled phyllotaxy.
8. Pg: 71 Paragraphs 5.3.4
9.

Sl.no	Racemose	Cymose
1.	No termination of floral axis	Termination of floral axis by flower
2.	Unlimited growth of axis	Limited growth of axis
3.	Acropetal	Basipetal
4.	Centripetal opening of flowers	Centripetal opening of flowers

10. Flower. Calyx. Corolla, Androecium, Gynoecium
11. Zygomorphic: the flower which can be divided into two similar halves only in one particular vertical plane.
12. Because it is a hypogynous flower, where gynoecium occupies the highest position while other parts, whorled are situated below it.
13. Mode of arrangement of sepals or petals in a floral bud, with respect to the other members of the same whorl is called Aestivation. Example: types- valvate/twisted/ imbricate.
14. It is an imbricate aestivation where the largest petal overlaps the two lateral lateral petals (wings) which inturn overlaps the two smallest petals(keel). Example: Pea/ bean flower petals.
15. A) monoadelphous, dialphous, polyadelphous. B) stamens in a flower remain free from each other.
16. A) Sterile stamen. B) Stamens are attached to the petals.
17. A) The unit of gynoecium- ovary, style and stigma.
18. A) ovary. B) Stigma.
19. Placenta; Ovule.
20. Free central; example- dianthus/ primrose.
21. Arrangement of ovules with in ovary is known as placentation. types : Marginal/ axile/ parietal/free central/ basal plancentation.
22. Fruit; pericarp and seeds.
23. Outer epicarp, middle mesocarp and inner endocarp.
24. Has outer thin epicarp, fleshy mesocarp and stony endocarp which encloses a single seed. It is developed from monocapellary gynoecium.

25. Seed; seed coat and embryo.
26. a) Hilum- a scar on the seed coat through which the developing seeds are attached to the fruit. b) Micropyle: a small pore above hilum in a seed
27. a) Dye- Indigofera b) Edible oil - soyabena or ground nut b) Pulse- Moong or arhar or Bengal gram d) Fibre- Sunhemp
28. a) Petunia- ornamental. b) Ashwagandha- Medicine c) Trifolium – Fodder d) colchicum- colchicines
29. a) Liliaceae b) sollanaceae c) sollanaceae d) liliaceae

4 marks answers:

1. Note a). Brief explaination of root cap, region of meristem, elongation, maturation.
   b) Diagram refer page number 67: figure 5.3

2. Details with examples of a) Storage roots b) Prop roots
   c) Stilt roots d) Pneumatophores

3. Refer page number 68 and paragraph: 5.2

4. Refer page number 70: Paragraph 5.3.1; Diagram 5.7 (b) and (c)

5. a) when the incisions of the lamina reach up to the mid rib dividing it into leaf lets, the leaf is called compound. b) Details of pinnately compound leaf and palmately compound leaf. c) Diagram; page number 70 and figure 5.8 (a)(b).

6. Page number 71; Paragraph 5.3.3

7. a) Inflorescence

   b) Describe Recemose and Cymose inflorescence

8. a) Flower

   b) Details of four whorls: calyx, corolla, Androecium, Gynoecium.

9. a) a flower having floral appendages in multiples of four.

   b) Flowers with a bract

   c) Sepals of floral calyx are free

   d) Stamens are united into one bundle.

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5 marks Answers

1. Pg no 69-70, detail of parts, dig pg 70. fig 5.7(a)

2. pg 73 Ist paragraph, dig: fig 5.13

3. pg 74,paragraph on aestivation,dig: fig 5.15

4. Pg 75,paragraph on placentation, write and draw any four types dig: Fig 5.16

5. Pg 75 paragraph on placentation, dig: fig 5.16

6. Pg 77, Paragraph 5.7.2, dig: fig 5.19 (2nd one)

7. Pg 78 and 79, Vegetative and floral characters of family Fabaceae (5.9.1)

8. Pg 79(5.9.2), Vegetative and floral characters of family Solanaceae

9. write any 5 differences

Characters	Solanaceae	Liliaceae
1. Leaves	Reticulate venation	Parallel venation
2. Accessory whorls	Calyx: persistant, gamosepalous, five Corolla: 5 petals,gamopetalous	Perianth: 3+3 tepals united into a tube
3. Androecium	5 stamens, epipetalous	6 stamens (3+3)
4. Gynoecium	Bicarpellary, syncarpous, ovary superior, bilocular, placenta swollen with many ovules	Tricarpellary, syncarpous, ovary superior, trilocular with many ovules, axile placentation.
5. Floral formula	Refer page number 80 floral formula of solanaceae	Refer Page number 81 floral formula of liliaceae

10. a) pg 80 fig 5.22 (f)

b) pg 81 fig 5.23(d)

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