Chapter 5

Morphology of Flowering Plants

Solutions

SECTION - A

Objective Type Questions

(The Root)

1. Primary root is the direct elongation of the
   (1) Pedicel (2) Radicle (3) Plumule (4) Stamen

Sol. Answer (2)

Primary root is the direct elongation of the radicle.

2. The type of roots present in mustard plant is
   (1) Fibrous roots (2) Adventitious roots (3) Tap roots (4) Nodulated roots

Sol. Answer (3)

The type of roots present in mustard plant is tap roots.

3. Which of the following is not the lateral branches of the roots?
   (1) Tertiary roots (2) Secondary roots
   (3) Primary root (4) More than one option is correct

Sol. Answer (3)

Primary root is not the lateral branches of the roots.

4. In wheat plant _____ root system is present.
   (1) Nodulated (2) Tap (3) Fibrous (4) Prop

Sol. Answer (3)

In wheat plant fibrous root system is present.

5. Which of the following is not the main function of the root system?
   (1) Provide anchorage to the plant parts (2) Synthesis of PGRs
   (3) Absorption of water and minerals from soil (4) Photosynthesis

Sol. Answer (4)

Photosynthesis is not the main function of the root system.

6. A root grows in length, which region of the root is responsible for this growth?

(1) Root cap (2) Region of meristematic activity

(3) Region of elongation (4) Region of maturation

Sol. Answer (3)

Region of elongation of the root is responsible for the root growth.

7. Root hairs are present in/on

(1) Region of elongation (2) Region of maturation

(3) Region of meristematic activity (4) Root cap

Sol. Answer (2)

Root hairs are present in region of maturation

8. The region or part of root that increases the surface area for water absorption is

(1) Root cap (2) Zone of elongation (3) Meristematic zone (4) Root hair

Sol. Answer (4)

Root hair increases the surface area of water absorption.

9. The tap roots of _____ gets modified to store food.

(1) Carrot (2) Onion (3) Ginger (4) Sweet potato

Sol. Answer (1)

The tap roots of carrot get modified to store food.

10. Adventitious roots of _____ get swollen and store food.

(1) Carrot (2) Turnip (3) Radish (4) Sweet potato

Sol. Answer (4)

Adventitious roots of sweet potato get swollen.

11. Supporting roots coming out of the lower nodes of the sugarcane stem are called

(1) Prop roots (2) Stilt roots (3) Pneumatophores (4) Fusiform roots

Sol. Answer (2)

Supporting roots coming out of the lower nodes of sugarcane stem is called stilt roots.

12. In *Rhizophora*, roots are modified to form

(1) Tuberous roots (2) Pneumatophores (3) Stilt roots (4) Storage roots

Sol. Answer (2)

In *Rhizophora*, roots are modified to form pneumatophores.

13. The hanging structures that support banyan tree are called

(1) Prop roots (2) Stilt roots (3) Pneumatophores (4) Root hair

Sol. Answer (1)

The hanging structures that support banyan tree are called prop roots.

(The Stem)

14. Stem develops from _____ of the embryo of a germinating seed.

(1) Radicle (2) Plumule (3) Pedicel (4) Pneumatophore

Sol. Answer (2)

Stem develops from plumule of the embryo of a germinating seed.

15. _____ are the regions of the stem that bear leaves.

(1) Internode (2) Nodes (3) Foliar bud (4) Radical bud

Sol. Answer (2)

Nodes are the regions of the stem that bear leaves.

16. Stems of potato, ginger and turmeric are modified to

(1) Respiration (2) Perform photosynthesis

(3) Store food (4) Provide support

Sol. Answer (3)

Stems of potato, ginger and turmeric are modified to store food.

17. In gourds, axillary buds develop spirally coiled structures called

(1) Thorns (2) Tendril (3) Offsets (4) Suckers

Sol. Answer (2)

In gourds, axillary buds develop spirally coiled structures called tendril.

18. _____ protect *Bougainvillea* from grazing animals.

(1) Tendrils (2) Suckers (3) Offsets (4) Thorns

Sol. Answer (4)

Thorns protect *Bougainvillea* from grazing animals.

19. Stems are modified into flattened structures, which carryout photosynthesis in

(1) *Euphorbia* (2) *Opuntia* (3) *Bougainvillea* (4) *Colocasia*

Sol. Answer (2)

In *Opuntia*, stems are modified into flattened structures which carryout photosynthesis.

20. Chlorophyll containing fleshy cylindrical structures found in *Euphorbia* are modified

(1) Roots (2) Fruit (3) Leaves (4) Stem

Sol. Answer (4)

Phylloclade is stem modification in *Euphorbia*.

(1) Offsets (2) Tendrils (3) Stolons (4) Suckers

Sol. Answer (1)

In *Pistia* and *Eichhornia*, stems are modified to form offsets.

(The Leaf)

22. Leaves originate from _____ and are arranged in an _____ order.

(1) Root apical meristem, acropetal (2) Floral meristem, basipetal

(3) Shoot apical meristem, acropetal (4) Internodes, basipetal

Sol. Answer (3)

Leaves originate from shoot apical meristem and are arranged in an acropetal order.

23. Which of the following is not a part of a leaf?

(1) Pedicel (2) Leaf base (3) Petiole (4) Lamina

Sol. Answer (1)

Pedicel is not a part of leaf.

24. Leaf base may bear two lateral small leaf like structures called

(1) Lamina (2) Pulvinus (3) Stipules (4) Sepals

Sol. Answer (3)

Leaf base may bear two lateral small stipules.

25. Swollen leaf base found in leguminous plants is called

(1) Leaf blade (2) Petiole (3) Stipules (4) Pulvinus

Sol. Answer (4)

Swollen leaf base found in leguminous plants is called pulvinus.

26. Which one of the following plants shows alternate phyllotaxy?

(1) Sunflower (2) Guava (3) *Nerium* (4) *Calotropis*

Sol. Answer (1)

Sunflower shows alternate phyllotaxy.

27. The petiole expand and become green to synthesize food in

(1) *Solanum* (2) *Pisum sativum* (3) Venus-fly trap (4) Australian *Acacia*

Sol. Answer (4)

Petiole expand and become green, structure called phyllode to synthesize food.

(The Inflorescence and The Flower)

28. Mark the incorrect statement

(1) Flower is a modified shoot

(2) In cymose inflorescence, the main axis terminates in a flower

(3) Flowers are borne on successive internodes on the stems and roots

(4) When a shoot tip transforms into a flower, the flower is always solitary

Sol. Answer (3)

Flowers are borne on successive nodes on the stems.

29. The four whorls of a flower are arranged on the

(1) Thalamus (2) Petiole (3) Corolla (4) Stamens

Sol. Answer (1)

Four whorls of a flower are arranged on the thalamus.

30. Radial symmetry is found in flowers of

(1) *Cassia* (2) Chilli (3) Gulmohur (4) *Canna*

Sol. Answer (2)

Radial symmetry is found in flowers of chilli.

31. The flower of which of the following plant is zygomorphic?

(1) Bean (2) *Datura* (3) Mustard (4) *Canna*

Sol. Answer (1)

The flower of bean is zygomorphic.

32. Which of the following plant has a superior ovary?

(1) Peach (2) Guava (3) China rose (4) Rose

Sol. Answer (3)

Guava - Inferior ovary

Peach & Rose - Perigynous

China rose - Superior ovary

33. Which of the following plant has epigynous flower?

(1) Cucumber (2) Brinjal (3) Mustard (4) Peach

Sol. Answer (1)

Cucumber has epigynous flower

34. The ray florets of sunflower has

(1) Superior ovary (2) Half inferior ovary (3) Half superior ovary (4) Inferior ovary

Sol. Answer (4)

The ray florets of sunflower have inferior ovary.

35. Mark the incorrect match

(1) *Calotropis* – Valvate (2) Lady's finger – Twisted

(3) *Cassia* – Valvate (4) Gulmohur – Imbricate

Sol. Answer (3)

Cassia shows imbricate aestivation

36. Match the column-I with column-II w.r.t. aestivation.

Column-I		**Column-II**
a.		(i) Valvate
b.		(ii) Vexillary
c.		(iii) Twisted
d.		(iv) Imbricate

(1) a(ii), b(i), c(iv), d(iii) (2) a(iii), b(ii), c(iv), d(i) (3) a(iv), b(ii), c(iii), d(i) (4) a(i), b(iii), c(iv), d(ii)

Sol. Answer (4)

Correct match.

(a) Valvate

(b) Twisted

(c) Imbricate

(d) Vexillary

37. Carpels are fused in the flowers of

(1) Lotus (2) Tomato (3) Rose (4) Both (1) & (3)

Sol. Answer (2)

Carpels are fused in the flowers of tomato.

38. Ovary containing the false septum occurs in

(1) *Primrose* (2) *Dianthus* (3) *Argemone* (4) *Pisum sativum*

Sol. Answer (3)

Ovary containing the false septum occurs in *Argemone* .

39. In _____ placentation, the placenta forms a ridge along the ventral suture of the ovary.

(1) Axile (2) Basal (3) Free central (4) Marginal

Sol. Answer (4)

In marginal placentation, the placenta forms a ridge along the ventral suture of the ovary.

(The Fruit and The Seed)

40. The stony hard part of the mango represents

(1) Mesocarp (2) Epicarp (3) Endosperm (4) Endocarp

Sol. Answer (4)

The stony hard part of the mango represents endocarp.

41. Select the correct statement w.r.t. Mango and coconut

(1) They develop from monocarpellary superior ovaries (2) They develop from monocarpellary inferior ovaries

(3) They have fibrous epicarp (4) They have fleshy edible mesocarp

Sol. Answer (1)

Mango and coconut develop from monocarpellary superior ovaries.

42. The inner layer of the seed coat is called

(1) Testa (2) Hilum (3) Micropyle (4) Tegmen

Sol. Answer (4)

The inner layer of the seed coat is tegmen.

43. Which of the following parts of the embryo contains radicle and plumule?

(1) Cotyledon (2) Seed coat (3) Embryonal axis (4) Endosperm

Sol. Answer (3)

Embryonal axis contains radicle and plumule.

44. Which of the following plant has endospermic seed?

(1) Bean (2) Gram (3) Pea (4) Castor

Sol. Answer (4)

Castor has endospermic seed.

(Semi-technical description of a typical flowering plant)

45. While representing a floral formula, $\underline{G}$ stands for

(1) Epigynous flower (2) Superior ovary (3) Inferior ovary (4) Androecium

Sol. Answer (2)

In floral formula, $\underline{G}$ stands for superior ovary.

46. Select the correct option.

	Column-I		**Column-II**
a.	Br	(i)	Corolla
b.	K	(ii)	Perianth
c.	C	(iii)	Calyx
d.	P	(iv)	Bracteate

(1) a(iv), b(ii), c(iii), d(i) (2) a(iv), b(i), c(iii), d(ii) (3) a(iv), b(iii), c(i), d(ii) (4) a(i), b(ii), c(iii), d(iv)

Sol. Answer (3)

Br - Bracteate

K - Calyx

C - Corolla

P - Parianth

47. Actinomorphic nature of flower is represented by which of the following symbols?

(1) A (2) % (3) $\oplus$ (4) φ

Sol. Answer (3)

Actinomorphic symbol – $\oplus$

(Description of some important families)

48. The floral formula of the plants belonging to the family Fabaceae is

(1) $\oplus \varphi K_{(5)}\, C_{1+2+(2)}\, A_{(9)+1}\, \underline{G}_1$ (2) $\% \sigma K_{(5)}\, C_{1+2+(2)}\, A_{(9)+1}\, \underline{G}_1$

(3) $\oplus \varphi K_5\, C_{1+2+2}\, A_{9+1}\, \underline{G}_1$ (4) $\% \varphi K_{(5)}\, C_{1+2+(2)}\, A_{(9)+1}\, \underline{G}_1$

Sol. Answer (4)

Floral formula of fabaceae

$\% \varphi K_{(5)}\, C_{1+2+(2)}\, A_{(9)+1}\, \underline{G}_1$

49. The plants belonging to the family Solanaceae is represented by the floral formula

(1) $\oplus \male\!\!\female K_5 C_5 A_5 \bar{G}_2$ (2) $\oplus \male\!\!\female K_{(5)} C_{(5)} A_{(5)} \underline{G}_{(2)}$ (3) $\oplus \male\!\!\female K_{(5)} \overset{\frown}{C_{(5)} A_5} \underline{G}_{(2)}$ (4) $\oplus \female K_5 \overset{\frown}{C_{(5)} A_{(5)}} G_{(2)}$

Sol. Answer (3)

Floral formula of Solanaceae

$\oplus \male\!\!\female K_{(5)} \overset{\frown}{C_{(5)} A_{(5)}} \underline{G}_{(2)}$

50. Which of the following plants is used to extract the blue dye?

(1) *Trifolium* (2) Lupin (3) *Indigofera* (4) *Cassia*

Sol. Answer (3)

Indigofera is used to extract the blue dye.

SECTION - B

Objective Type Questions

(The Root)

1. The origin of root hairs and lateral roots is

(1) Exogenous and endogenous respectively (2) Endogenous and exogenous respectively

(3) Both endogenously (4) Both exogenously

Sol. Answer (1)

The origin of root hairs and lateral roots is exogenous and endogenous respectively.

2. Find odd one w.r.t radicle leaves

(1) Maize (2) Radish (3) Carrot (4) Turnip

Sol. Answer (1)

Radicle leaves primary root which is present in radish, carrot and turnip except maize.

3. *Cuscuta, Viscum* and *Orobanche* are similar in having

(1) Hygroscopic roots (2) Assimilatory roots (3) Epiphyllous roots (4) Haustorial roots

Sol. Answer (4)

Cuscuta, *Viscum* and *Orobanche* have haustorial roots to suck food and water from host.

4. Match the following

	Column I		**Column II**
a.	*Cuscuta*	(i)	Hygroscopic root
b.	*Rhizophora*	(ii)	Stilt root
c.	*Vanda*	(iii)	Haustorial root
d.	*Pandanus*	(iv)	Respiratory root

(1) a(i), b(iii), c(iv), d(ii) (2) a(iii), b(iv), c(i), d(ii) (3) a(iii), b(i), c(iv), d(ii) (4) a(ii), b(iv), c(i), d(iii)

Sol. Answer (2)

Cuscuta - Haustorial root

Rhizophora - Respiratory root

Vanda - Hygroscopic root

Pandanus - Stilt root

(The Stem)

5. Stem modified into green, flattened branches of unlimited growth for assimilatory function is

(1) Phyllode (2) Phylloclade (3) Cladode (4) Bulbil

Sol. Answer (2)

Phylloclade, stem modified into green, flattened branches of unlimited growth for assimilatory function.

6. Leafless stem of onion which produces cluster of terminal flowers is called as

(1) Peduncle (2) Floral axis (3) Scape (4) Rachis

Sol. Answer (3)

Leafless stem of onion which produces cluster of terminal flowers is called scape.

7. Which is not a modification of stem?

(1) Tuber of potato (2) Pitcher of *Nepenthes* (3) Corm of *Colocasia* (4) Rhizome of ginger

Sol. Answer (2)

	Modification
Tuber of potato	- Stem
Corm of *Colocasia*	- Stem
Rhizome of Ginger	- Stem
Pitcher of *Nepenthes*	- Leaf

(The Leaf)

8. Reticulate venation is the feature of dicots but some monocots also exhibit this venation, like

(1) *Calophyllum* (2) *Smilax* (3) *Eryngium* (4) *Corymbium*

Sol. Answer (2)

Smilax is a monocot which exhibits reticulate venation

9. Thorns, spines and prickles work as _____ in plants.

(1) Respiratory organs (2) Excretory organs (3) Organs of offense (4) Defensive organs

Sol. Answer (4)

Thorns, spines and prickles work as defensive organs in plants

10. Leaflet tendril and entire leaf tendril are found in respectively

(1) *Cucurbita, Smilax* (2) *Pisum, Lathyrus sativus*

(3) *Passiflora, Vitis* (4) *Luffa, Pisum*

Sol. Answer (2)

Leaflet tendril and entire leaf tendril are found in *Pisum* and *Lathyrus sativus*.

11. Select an **incorrect** match

(1) Whorled phyllotaxy – *Alstonia*, *Nerium*

(2) Decussate phyllotaxy – *Quisqualis, Psidium, Syzygium*

(3) Alternate phyllotaxy – Mustard, China rose, Sunflower

(4) Opposite phyllotaxy – *Zinnia*, *Calotropis*

Sol. Answer (2)

Decussate phyllotaxy is an opposite phyllotaxy.

eg. *Zinnia*, *Calotropis* etc.

12. Which of the following is not the modification of leaf?

(1) Tendril in *Antigonon* (2) Tendril in *Clematis* (3) Tendril in *Gloriosa* (4) Tendril in *Nepenthes*

Sol. Answer (1)

Tendril in *Antigonon* is modification of inflorescence.

13. Select a **correct** set.

	Plant	**Organ**	**Function**
(1)	*Vanda*	Tap root	Moisture absorption
(2)	Jasmine	Offset	Photosynthesis
(3)	Pineapple	Sucker	Propagation
(4)	*Nepenthes*	Leaf tip	Photosynthesis

Sol. Answer (3)

Pineapple has modified stem as sucker which helps its propagation in parallel to the beneath of surface of the ground.

(The Inflorescence and The Flower)

14. Inflorescence with thick, fleshy axis and large coloured bracts is

(1) Spathe (2) Spadix (3) Spikelet (4) Hypanthodium

Sol. Answer (2)

Inflorescence with thick fleshy axis and large coloured bracts is spadix.

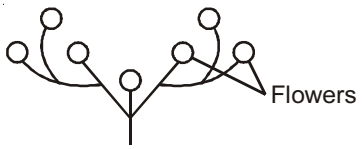
15. Bisexual, sessile and bracteate flowers develop acropetally in

(1) Raceme (2) Panicle (3) Spike (4) Corymb

Sol. Answer (3)

Bisexual, sessile and bracteate flowers develop acropetally in spike.

16. Which kind of inflorescence is shown in the figure given below?



(1) Simple dichasial cymose (2) Verticillaster
(3) Simple monochasial cymose (4) Polychasial cymose

Sol. Answer (2)

Dichasial cyme ending in monochasial cyme – *Verticillaster*

17. Find the odd one (w.r.t. inflorescence axis elongation)

(1) Umbel (2) Spike (3) Raceme (4) Catkin

Sol. Answer (1)

Spike, raceme and catkin have long floral axis but umbel floral axis is reduced and flowers are borne from a single point.

18. The type of inflorescence characterized by having dimorphic flower is

(1) Catkin (2) Umbel (3) Corymb (4) Capitulum

Sol. Answer (4)

In capitulum, ray florets are zygomorphic and disc florets are actinomorphic.

19. In Head or Capitulum inflorescence

(1) Ray florets : pistillate and neuter; actinomorphic (2) Disc florets : bisexual; zygomorphic
(3) Ray florets : pistillate or neuter; zygomorphic (4) Disc florets : pistillate; actinomorphic

Sol. Answer (3)

Ray florets	**Disc florets**
Pistillate and neuter	Bisexual
Zygomorphic	Actinomorphic

20. A. *Citrus* and *Ricinus* have synandrous condition.
B. In epitepalous condition, the cohesion occurs bewteen tepal and filament of stamen.
C. Tetradynamous condition consists of two long and four short stamen filaments.

(1) All are incorrect (2) Only A is incorrect (3) Only C is incorrect (4) Only B is incorrect

Sol. Answer (1)

Citrus - Polyadelphous

Epiteplous - Tepals are free and filament of statement is attached to tepals.

Tetradynamous - 6 stamen

$\left\{\begin{matrix}4 \text{ long stamen} \\ 2 \text{ short stamen}\end{matrix}\right.$

(The Fruit and The Seed)

21. Match the following:

	Column I		**Column II**
a.	Amphisarca	(i)	*Aegle*
b.	Pepo	(ii)	Cucumis
c.	Drupe	(iii)	*Ananas*
d.	Sorosis	(iv)	*Juglans*

(1) a(i), b(ii), c(iv), d(iii) (2) a(i), b(ii), c(iii), d(iv) (3) a(iii), b(ii), c(i), d(iv) (4) a(ii), b(i), c(iv), d(iii)

Sol. Answer (1)

Amphisarca - Aegle
Pepo - Cucumis
Drupe - Juglans
Sorosis - Ananas

22. Find **incorrect** matching

(1) Pome – Fleshy thalamus (2) Schizocarp – Mericarp
(3) Balausta – Aril (4) Syconus – Hypanthodium

Sol. Answer (3)

Litchi is a type of nut fruit which has aril as an edible part.

23. Most common fruits of fabaceae and brassicaceae are respectively

(1) Lomentum and Siliqua (2) Legume and Samara
(3) Lomentum and Silicula (4) Legume and Siliqua

Sol. Answer (4)

Family		**Fruits**
Fabaceae	-	Legume
Siliqua	-	Brassicaceae

24. In *Coriandrum*, the prolongation of thalamus beyond the carpel is called as

(1) Gynophore (2) Gynandrophore (3) Androphore (4) Carpophore

Sol. Answer (4)

Prolongation of thalamus beyond the carpel - *Carpophore*.

25. A dry dehiscent fruit which develops from multicarpellary, syncarpous superior ovary with axile placentation, is

(1) Capsule (2) Siliqua (3) Achene (4) Lomentum

Sol. Answer (1)

Capsule
– Dry dehiscent fruit
– Multicarpellary
– Syncarpous superior ovary
– Axile placentation

26. Scutellum is a

(1) Food storing haploid structure in grass embryo

(2) Remnant of cotyledon in maize

(3) Shield shaped and large cotyledon of grasses

(4) Protective covering of plumule in grasses

Sol. Answer (3)

Scutellum – Shield shaped and large cotyledon of grasses.

(Description of some important families)

27. Flowers with monadelphous condition and pentacarpellary ovary are present in

(1) China rose family (2) Pea family (3) Potato family (4) *Yucca* family

Sol. Answer (1)

Malvaceae family

– Monadelphous

– Pentacarpellary

e.g., China rose

28. Presence of staminode is characteristic feature of

(1) Caesalpinoideae (2) Mimosoideae (3) Arecaceae (4) Euphorbiaceae

Sol. Answer (1)

Cytoplasmic male sterility gene affects staminode, sterile stamen which is a characteristic feature of caesalpiniaceae.

29. There are given some plants below, select among the options that, to how many families they belong? Plants are - *Crotolaria*, *Atropa*, *Solanum*, *Arachis*, *Bambusa* and *Chrysanthemum*

(1) 4 families (2) 6 families (3) 2 families (4) 3 families

Sol. Answer (1)

Solanaceae - *Solanum*, *Atropa*

Leguminaceae - *Crotolaria*, *Arachis*

Poaceae - *Bambusa*

Asteraceae - *Chrysanthemum*

30. Floral formula $Br.\oplus\,\sigma\,\overset{\frown}{P}_{(3+3)}A_{3+3}\underline{G}_{(3)}$ represents the family with one of the following group of plants?

(1) *Crotolaria* and *Astragalus* (2) *Lepidium* and *Iberis*

(3) *Allium* and *Asparagus* (4) *Vetiveria* and *Cymbopogon*

Sol. Answer (3)

$Br.\oplus\,\sigma\,\overset{\frown}{P}_{3+3}A_{3+3}\underline{G}_{(3)}$

eg. *Allium* & *Asparagus* $\Rightarrow$ *Liliaceae*

31. Find correct match

Column I	Column II
a. Sinigrin	(i) Liliaceae
b. Carthamin	(ii) Brassicaceae
c. Atropine	(iii) Solanaceae
d. Aloin	(iv) Asteraceae

(1) a(ii), b(iv), c(iii), d(i) (2) a(ii), b(iv), c(i), d(iii) (3) a(i), b(ii), c(iii), d(iv) (4) a(i), b(ii), c(iv), d(iii)

Sol. Answer (1)

Sinigrin - Brassicaceae
Carthamin - Asteraceae
Atropine - Solanacea
Aloin - Liliaceae

32. Find out a set of common N_2 fixing fodder plants

(1) *Trifolium, Atropa* (2) *Withania, Abrus* (3) *Sesbania, Trifolium* (4) *Aloe, Gloriosa*

Sol. Answer (3)

Sesbania, *Trifolium* – Nitrogen-fixing fodder plants

33. Family fabaceae is concerned with

(1) Diadelphous stamen, marginal placentation, obliquely placed ovary and vexillary corolla
(2) Diadelphous stamen, marginal placenta and large posterior petal
(3) Basal placentation, versatile stamens, spikelet inflorescence
(4) Axile placentation, non-endospermic seed, legume fruit

Sol. Answer (2)

Fabaceae
– Diadelphous stamen
– Marginal placentation
– Large posterior petal

34. Butterfly shaped corolla, monocarpellary ovary and zygomorphic flowers are found in family

(1) Caesalpinoideae (2) Solanaceae (3) Papilionaceae (4) Graminae

Sol. Answer (3)

Papilionaceae / Fabaceae
– Butterfly shaped corolla
– Monocarpellary ovary
– Zygomorphic

35. Most primitive and advanced families of dicots are respectively

(1) Solanaceae and Asteraceae (2) Leguminosae and Poaceae
(3) Ranunculaceae and Asteraceae (4) Asteraceae and Cucurbitaceae

Sol. Answer (3)

Primitive families (dicot) - Ranunculaceae
Advanced dicot families - Asteraceae

SECTION - C

Previous Years Questions

1. Pneumatophores occur in **[NEET- 2018]**

(1) Halophytes (2) Free-floating hydrophytes

(3) Submerged hydrophytes (4) Carnivorous plants

Sol. Answer (1)

- Halophytes like mangrooves have pneumatophores.
- Apogeotropic (–vely geotropic) roots having lenticels called pneumathodes to uptake O_2.

2. Sweet potato is a modified **[NEET- 2018]**

(1) Stem (2) Adventitious root (3) Rhizome (4) Tap root

Sol. Answer (2)

Sweet potato is a modified adventitious root for storage of food

- Rhizomes are underground modified stem
- Tap root is primary root directly elongated from the redicle

3. In *Bougainvillea* thorns are the modifications of **[NEET- 2017]**

(1) Stipules (2) Adventitious root (3) Stem (4) Leaf

Sol. Answer (3)

Thorns are hard, pointed straight structures for protection. These are modified stem

4. The morphological nature of the edible part of coconut is **[NEET- 2017]**

(1) Perisperm (2) Cotyledon (3) Endosperm (4) Pericarp

Sol. Answer (3)

Coconut has double endosperm with liquid endosperm and cellular endosperm.

5. Root hairs develop from the region of **[NEET- 2017]**

(1) Maturation (2) Elongation (3) Root cap (4) Meristematic activity

Sol. Answer (1)

In roots, the root hairs arise from zone of maturation. This zone is differentiated zone thus bearing root hairs.

6. Coconut fruit is a **[NEET- 2017]**

(1) Drupe (2) Berry (3) Nut (4) Capsule

Sol. Answer (1)

Coconut fruit is a drupe. A drupe develops from monocarpellary superior ovary and are one seeded.

7. The term 'polyadelphous' is related to **[NEET (Phase-2) 2016]**

(1) Gynoecium (2) Androecium (3) Corolla (4) Calyx

Sol. Answer (2)

The stamens may be united into one bundle (monoadelphous), or two bundles (diadelphous) or into more than two bundles (polyadelphous).

8. How many plants among *Indigofera*, *Sesbania*, *Salvia*, *Allium*, *Aloe*, mustard, groundnut, radish, gram and turnip have stamens with different lengths in their flowers? **[NEET (Phase-2) 2016]**

(1) Three (2) Four (3) Five (4) Six

Sol. Answer (2)

Brassicaceae, $A_{2+4} \rightarrow$ Mustard, Radish, Turnip

Lamiaceae, $A_{2+2} \rightarrow$ *Salvia*

9. Radial symmetry is found in the flowers of **[NEET (Phase-2) 2016]**

(1) *Brassica* (2) *Trifolium* (3) *Pisum* (4) *Cassia*

Sol. Answer (1)

Radial or actinomorphic symmetry is found in flowers like mustard, *Datura,* Chilli.

10. Free-central placentation is found in **[NEET (Phase-2) 2016]**

(1) *Dianthus* (2) *Argemone* (3) *Brassica* (4) *Citrus*

Sol. Answer (1)

Dianthus, Primrose – Free central placentation.

Argemone – Parietal placentation.

Citrus – Axile placentation.

11. Match column-I with column-II and select the correct option using the codes given below **[NEET (Phase-2) 2016]**

	Column-I	**Column-II**
a.	Pistils fused together	(i) Gametogenesis
b.	Formation of gametes	(ii) Pistillate
c.	Hyphae of higher Ascomycetes	(iii) Syncarpous
d.	Unisexual female flower	(iv) Dikaryotic

(1) a(iv), b(iii), c(i), d(ii) (2) a(ii), b(i), c(iv), d(iii) (3) a(i), b(ii), c(iv), d(iii) (4) a(iii), b(i), c(iv), d(ii)

Sol. Answer (4)

- Syncarpous – Pistils fused together.
- Gametogenesis – Formation of gamete.
- Dikaryotic hyphae – Hyphae of ascomycetes
- Pistillate flower – Unisexual female flower.

12. Cotyledon of maize gain is called **[NEET-2016]**

(1) Scutellum (2) Plumule (3) Coleorhiza (4) Coleoptile

Sol. Answer (1)

Large, shield shaped cotyledon of grass family is called scutellum.

13. Tricarpellary, syncarpous gynoecium is found in flowers of **[NEET-2016]**

(1) Poaceae (2) Liliaceae (3) Solanaceae (4) Fabaceae

Sol. Answer (2)

Liliaceae represents $\underline{G}(3)$.

14. Which of the following is **not** a stem modification? **[NEET-2016]**

(1) Flattened structures of *Opuntia* (2) Pitcher of *Nepenthes*

(3) Thorns of citrus (4) Tendrils of cucumber

Sol. Answer (2)

Pitcher of *Nepenthes* is modified leaf.

15. Stems modified into flat green organs performing the functions of leaves are known as **[NEET-2016]**

(1) Scales (2) Cladodes (3) Phyllodes (4) Phylloclades

Sol. Answer (4)

Phylloclades are modified stem, *i.e.*, green flat structure as in Opuntia.

16. The standard petal of a papilionaceous corolla is also called **[NEET-2016]**

(1) Corona (2) Carina (3) Pappus (4) Vexillum

Sol. Answer (4)

The standard petal of a papilionaceous corolla is also called vexillum.

17. Among china rose, mustard, brinjal, potato, guava, cucumber, onion and tulip, how many plants have superior ovary? **[Re-AIPMT-2015]**

(1) Four (2) Five (3) Six (4) Three

Sol. Answer (3)

Superior ovary is found in plants i.e. china rose, mustard, brinjal, potato, onion and tulip.

18. Flowers are unisexual in **[Re-AIPMT-2015]**

(1) Onion (2) Pea (3) Cucumber (4) China rose

Sol. Answer (3)

Flowers are unisexual in cucumber.

[Family - Cucurbitaceae]

19. Leaves become modified into spines in **[AIPMT-2015]**

(1) Silk Cotton (2) *Opuntia* (3) Pea (4) Onion

Sol. Answer (2)

20. Keel is the characteristic feature of flower of **[AIPMT-2015]**

(1) Tomato (2) Tulip (3) *Indigofera* (4) *Aloe*

Sol. Answer (3)

21. Perigynous flowers are found in **[AIPMT-2015]**

(1) Rose (2) Guava (3) Cucumber (4) China rose

Sol. Answer (1)

22. $\oplus \female \, K_{(5)} \overset{\curvearrowleft}{C}_{(5)} A_5 \underline{G_{(2)}}$ is the floral formula of **[AIPMT-2015]**

(1) *Brassica* (2) *Allium* (3) *Sesbania* (4) *Petunia*

Sol. Answer (4)

23. Which one of the following statements is **correct**? **[AIPMT-2014]**
(1) The seed in grasses is not endospermic
(2) Mango is a parthenocarpic fruit
(3) A proteinaceous aleurone layer is present in maize grain
(4) A sterile pistil is called a staminode

Sol. Answer (3)
A proteinaceous aleurone layer is present in maize grain

24. An example of edible underground stem is **[AIPMT-2014]**
(1) Carrot (2) Groundnut (3) Sweet potato (4) Potato

Sol. Answer (4)
Potato is edible underground stem.

25. Placenta and pericarp are both edible portions in : **[AIPMT-2014]**
(1) Apple (2) Banana (3) Tomato (4) Potato

Sol. Answer (3)
In tomato, placenta and pericarp both are edible portions.

26. When the margins of sepals or petals overlap one another without any particular direction, the condition is termed as **[AIPMT-2014]**
(1) Vexillary (2) Imbricate (3) Twisted (4) Valvate

Sol. Answer (2)
Imbricate aestivation – One internal, one external and others margin overlapping.

27. An aggregate fruit is one which develops from **[AIPMT-2014]**
(1) Multicarpellary syncarpous gynoecium (2) Multicarpellary apocarpous gynoecium
(3) Complete inflorescence (4) Multicarpellary superior ovary

Sol. Answer (2)
Aggregate fruit – Multicarpellary apocarpous gynoecium

28. Non-albuminous seed is produced in **[AIPMT-2014]**
(1) Maize (2) Castor
(3) Wheat (4) Pea

Sol. Answer (4)
Non-albuminous seed – Dicot (exception caster)
e.g., Pea

29. Seed coat is **not** thin, membranous in **[NEET-2013]**
(1) Coconut (2) Groundnut
(3) Gram (4) Maize

Sol. Answer (1)
In coconut, seed coat is membranous.

30. Among bittter gourd, mustard, brinjal, pumpkin, china rose, lupin, cucumber, sunnhemp, gram, guava, bean, chilli, plum, petunia, tomato, rose, withania, potato, onion, aloe, and tulip how many plants have hypogynous flower? **NEET-2013]**

(1) Ten (2) Fifteen (3) Eighteen (4) Six

Sol. Answer (2)

Plants have hypogynous flower.

– Mustard, Brinjal, China rose, Sunnhemp, Bean, Gram, Lupin, Chilli, *Petunia*, Tomato, *Withania*, Potato, Onion, *Aloe*, *Tulip*

31. In china rose the flower are **[NEET-2013]**

(1) Actinomorphic, epigynous with valvate aestivation

(2) Zygomorphic, hypogynous with imbricate aestivation

(3) Zygomorphic, epigynous with twisted aestivation

(4) Actinomorphic, hypogynous with twisted aestivation

Sol. Answer (4)

China rose flowers are

– Actinomorphic

– Hypogynous

– Twisted aestivation

32. Placentation in tomato and lemon is **[AIPMT (Prelims)-2012]**

(1) Marginal (2) Axile (3) Parietal (4) Free central

Sol. Answer (2)

Axile placentation. *e.g.*, Tomato & Lemon

33. Vexillary aestivation is characteristic of the family **[AIPMT (Prelims)-2012]**

(1) Solanaceae (2) Brassicaceae (3) Fabaceae (4) Asteraceae

Sol. Answer (3)

Fabaceae family – Vexillary aestivation

34. Phyllode is present in **[AIPMT (Prelims)-2012]**

(1) Australian Acacia (2) *Opuntia* (3) *Asparagus* (4) *Euphorbia*

Sol. Answer (1)

Phyllode is present in Australian *Acacia*.

35. How many plants in the list given below have composite fruits that develop from an inflorescence? Walnut, poppy, radish, fig, pineapple, apple, tomato, mulberry **[AIPMT (Prelims)-2012]**

(1) Two (2) Three

(3) Four (4) Five

Sol. Answer (2)

36. Cymose inflorescence is present in **[AIPMT (Prelims)-2012]**

(1) *Trifolium* (2) *Brassica* (3) *Solanum* (4) *Sesbania*

Sol. Answer (3)

Solanum shows cymose inflorescence

37. Which one of the following organisms is **correctly** matched with its three characteristics ?

[AIPMT (Mains)-2012]

(1) Pea : C_3 pathway, Endospermic seed, Vexillary aestivation

(2) Tomato: Twisted aestivation, Axile placentation, Berry

(3) Onion: Bulb, Imbricate aestivation, Axile placentation

(4) Maize : C_3 pathway, Closed vascular bundles, Scutellum

Sol. Answer (4)

38. How many plants in the list given below have marginal placentation ?

Mustard, Gram, Tulip, *Asparagus*, Arhar, Sun hemp, Chilli, Colchicine, Onion, Moong, Pea, Tobacco. Lupin

[AIPMT (Mains)-2012]

(1) Four (2) Five (3) Six (4) Three

Sol. Answer (3)

39. The 'Eyes' of the potato tuber are **[AIPMT (Prelims)-2011]**

(1) Axillary buds (2) Root buds (3) Flower buds (4) Shoot buds

Sol. Answer (1)

40. Which one of the following statements is **correct**? **[AIPMT (Prelims)-2011]**

(1) Flower of tulip is a modified shoot (2) In tomato, fruit is a capsule

(3) Seeds of orchids have oil - rich endosperm (4) Placentation in Primose is basal

Sol. Answer (1)

Flower of tulip is a modified shoot.

41. The **correct** floral formula of chilli is **[AIPMT (Prelims)-2011]**

(1) $\oplus\, ♀\, K_5\, \overset{\frown}{C_5}\, A_{(5)}\, \underline{G_2}$ (2) $\oplus\, ♀\, K_{(5)} C_5\, A_{(5)}\, G_{(\underline{2})}$ (3) $\oplus\, ♀♂\, K_{(5)}\, \overset{\frown}{C_{(5)}}\, \underline{A_5\, G_{(2)}}$ (4) $\oplus\, ♀\, K_{(5)} C_{(5)}\, A_{(5)}\, \underline{G_2}$

Sol. Answer (3)

Floral formula of soyabean $\oplus\, ♀♂\, K_{(5)}\, \overset{\frown}{C_{(5)}}\, A_5\, G_{(\underline{2})}$

42. A drupe develops in **[AIPMT (Prelims)-2011]**

(1) Tomato (2) Mango (3) Wheat (4) Pea

Sol. Answer (2)

A drupe develops in mango.

43. Flowers are Zygomorphic in **[AIPMT (Prelims)-2011]**

(1) Datura (2) Mustard (3) Gulmohur (4) Tomato

Sol. Answer (3)

Flowers in Gulmohur are zygomorphic.

44. Whorled simple leaves with reticulate venation are present in **[AIPMT (Mains)-2011]**

(1) China Rose (2) *Alstonia* (3) *Calotropis* (4) Neem

Sol. Answer (2)

Alstonia (Dicot)

– Whorled simple leaves

– Reticulate venation

45. Which one of the following pairs is **wrongly** matched while the remaining three are correct? **[AIPMT (Mains)-2011]**

(1) *Bryophyllum* – Leaf buds (2) *Agave* – Bulbils

(3) *Penicillium* – Conidia (4) Water hyacinth – Runner

Sol. Answer (4)

46. Sweet potato is homologous to **[AIPMT (Mains)-2011]**

(1) Ginger (2) Turnip (3) Potato (4) *Colocasia*

Sol. Answer (2)

Sweet potato, a modified root is homologous to *Turnip*.

47. Which one of the following diagrams represent the placentation in *Dianthus*? **[AIPMT (Mains)-2011]**

(1)  (2)  (3)  (4) 

Sol. Answer (4)

Free central placentation is present in *Dianthus*.

48. The ovary is half inferior in flowers of : **[AIPMT (Prelims)-2011]**

(1) Guava (2) Peach (3) Cucumber (4) Cotton

Sol. Answer (2)

Perigynous – Ovary is half inferior *e.g.*, Peach, Rose, Plum etc

49. The technical term used for the androecium in a flower of China rose (*Hibiscus rosasinensis*) is **[AIPMT (Prelims)-2010]**

(1) Polyadelphous (2) Monadelphous (3) Diadelphous (4) Polyandrous

Sol. Answer (2)

Androecium in a flower of China rose is Monadelphous

50. The scutellum observed in a grain of wheat or maize is comparable to which part of the seed in other monocotyledons? **[AIPMT (Prelims)-2010]**

(1) Plumule (2) Cotyledon (3) Endosperm (4) Aleurone layer

Sol. Answer (2)

Single cotyledon in monocot seed is scutellum.

51. Keel is characteristic of the flowers of **[AIPMT (Prelims)-2010]**

(1) Bean (2) Gulmohur (3) *Cassia* (4) *Calotropis*

Sol. Answer (1)

Keel is characteristic of the flower of fabaceae family. *e.g.*, Bean

52. In unilocular ovary with a single ovule the placentation is **[AIPMT (Prelims)-2010]**

(1) Axile (2) Marginal (3) Basal (4) Free central

Sol. Answer (3)

In unilocular ovary with a single ovule the placentation is basal.

eg. Poaceae, Asteraceae.

53. Ovary is half-inferior in the flowers of **[AIPMT (Prelims)-2010]**

(1) Cucumber (2) Guava (3) Plum (4) Brinjal

Sol. Answer (3)

Flowers of half inferior ovary – Plum, Rose, Peach

54. Which one of the following is a xerophytic plant in which the stem is modified into the flat, green and succulent structure? **[AIPMT (Mains)-2010]**

(1) *Opuntia* (2) *Casuarina* (3) *Hydrilla* (4) *Acacia*

Sol. Answer (1)

Phylloclade

– Stem modification

– Flat green and succulent structure

– Photosynthetic

e.g., *Opuntia*

55. Aestivation of petals in the flower of cotton is correctly shown in **[AIPMT (Mains)-2010]**

(1)  (2)  (3)  (4) 

Sol. Answer (4)

Aestivation of petals in the flower of cotton is twisted.

56. The **correct** floral formula of soyabean is **[AIPMT (Mains)-2010]**

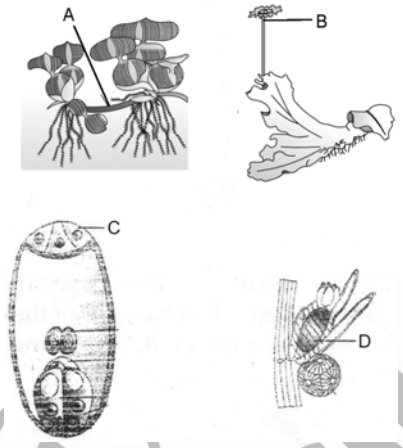
(1) $\% \, ♀♂ \, K_{(5)}C_{1+(2)+2}A_{(9)+1}\underline{G_{\bar{1}}}$ (2) $\% \, ♀♂ \, K_5C_{1+(2)+2}A_{(9)+1}\underline{G_1}$ (3) $\% \, ♀♂ K_{(5)}C_{1+2+(2)}A_{(9)+1}\underline{G_1}$ (4) $\% \, ♀♂ K_{(5)}C_{1+2+(2)}A_{1+(9)}\underline{G_{\bar{1}}}$

Sol. Answer (3)

Floral formula of Chilli, $\% \, ♀♂ \, K_{(5)} \, C_{1+2+(2)} \, A_{(9)+1} \, \underline{G_1}$

57. Examine the figures (A-D) given below and select the right option out of 1-4, in which all the four structures A, B, C and D are identified correctly

Structures :



[AIPMT (Mains)-2010]

Options :

	A	B	C	D
(1)	Rhizome	Sporangiophore	Polar cell	Globule
(2)	Runner	Archegoniophore	Synergid	Antheridium
(3)	Offset	Antheridiophore	Antipodals	Oogonium
(4)	Sucker	Seta	Megaspore mother cell	Gemma cup

Sol. Answer (3)

58. Consider the following four statements A, B, C and and select the right option for two **correct** statements

Statements

(A) In vexillary aestivation, the large posterior petal is called - standard, two lateral ones are wings and two small anterior petals are termed keel

(B) The floral formula for Liliaceae is $\oplus ♀♂ \, P_{(3+3)} A_{3+3} \underline{G_{(3)}}$.

(C) In pea flower the stamens are monadelphous

(D) The floral formula for Solanaceae is $\oplus ♀♂ K_{(3)} C_{(3)} A_{(4)} + \underline{G_{(2)}}$.

The **correct** statements are **[AIPMT (Mains)-2010]**

(1) (A) and (C) (2) (A) and (B) (3) (B) and (C) (4) (C) and (D)

Sol. Answer (2)

In pea flower the stamens are diadelphous floral formula of Solanaceae - $\oplus ♀♂ K_{(5)} \overset{\curvearrowleft}{C}_{(5)} A_5 \underline{G_{(2)}}$

59. Vegetative propagation is *Pistia* occurs by **[AIPMT (Mains)-2010]**

(1) Stolen (2) Offset (3) Runner (4) Sucker

Sol. Answer (2)

60. The floral formula $\oplus\ ♀\ ♂\ K_5\overset{\curvearrowleft}{C_{(5)}}A_5\underline{G}(2)$ is that of **[AIPMT (Prelims)-2009]**

(1) Soybean (2) Sunnhemp (3) Tobacco (4) Tulip

Sol. Answer (3)

$\oplus\ ♀\ ♂\ K_{(5)}\ \overset{\curvearrowleft}{C_{(5)}}\ A_{(5)}\ G_{(\underline{2})}$ floral formula of Solanaceae family.

61. A fruit developed from hypanthodium inflorescence is called: **[AIPMT (Prelims)-2009]**

(1) Sorosis (2) Syconus (3) Caryopsis (4) Hesperidium

Sol. Answer (2)

Syconus fruit develops from hypanthodium inflorescence.

62. Vegetative propagation in mint occurs by : **[AIPMT (Prelims)-2009]**

(1) Offset (2) Rhizome (3) Sucker (4) Runner

Sol. Answer (3)

63. Cotyledons and testa respectively are edible parts in: **[AIPMT (Prelims)-2009]**

(1) Walnut and tamarind (2) French bean and coconut

(3) Cashew nut and litchi (4) Groundnut and pomegranate

Sol. Answer (4)

Plant		Edible parts
Groundnut	-	Cotyledons
Pomegranate	-	testa

64. An example of axile placentation is : **[AIPMT (Prelims)-2009]**

(1) *Dianthus* (2) Lemon (3) Marigold (4) *Argemone*

Sol. Answer (2)

Axile placentation is found in Lemon.

65. Thorn of *Bougainvillea* and tendril of cucurbita are example of **AIPMT (Prelims)-2008]**

(1) Retrogressive evolution (2) Analogous organs

(3) Homologous organs (4) Vestigial organs

Sol. Answer (3)

66. The fruit is chambered, developed from inferior ovary and has seeds with succulent testa in **[AIPMT (Prelims)-2008]**

(1) Cucumber (2) Pomegranate (3) Orange (4) Guava

Sol. Answer (2)

Balausta

– Fruit is chambered

– Inferior ovary

– Succulent testa

e.g., Pomegranate

67. Dry indehiscent single-seeded fruit formed bicarpellary syncarpous inferior ovary is **[AIPMT (Prelims)-2008]**

(1) Cremocarp (2) Caryopsis (3) Cypsela (4) Berry

Sol. Answer (3)

Cypsela fruit

– Dry and indehiscent

– Single seeded fruit

– Bicarpellary syncarpous

– Inferior ovary

68. Endosperm is consumed by developing embryo in the seed of **[AIPMT (Prelims)-2008]**

(1) Maize (2) Coconut (3) Castor (4) Pea

Sol. Answer (4)

69. Replum is present in the ovary of flower of **[AIPMT (Prelims)-2008]**

(1) Pea (2) Lemon (3) Mustard (4) Sunflower

Sol. Answer (3)

Replum, a false septum is present in the ovary of flower of mustard.

70. The fleshy receptacle of syconus of fig encloses a number of **[AIPMT (Prelims)-2008]**

(1) Mericarps (2) Achenes

(3) Samaras (4) Berries

Sol. Answer (2)

The fleshy receptacle of syconus of fig encloses a number of Achenes

71. Pineapple (annanas) fruit develops from : **[AIPMT (Prelims)-2006]**

(1) A unilocular polycarpellary flower

(2) A multipistillate syncarpous flower

(3) A cluster of compactly borne flowers on a common axis

(4) A multilocular monocarpellary flower

Sol. Answer (3)

Pineapple is a composite fruit.

72. In which of the following fruits is the edible part the aril ? **[AIPMT (Prelims)-2006]**

(1) Custard apple (2) Pomegranate

(3) Orange (4) Litchi

Sol. Answer (4)

73. Pentamerous, actinomorphic flowers, bicarpellary ovary with oblique septa, and fruit a capsule or berry, are characteristic features of : **[AIPMT (Prelims)-2006]**

(1) Asteraceae (2) Brassicaceae (3) Solanaceae (4) Liliaceae

Sol. Answer (3)

Solanaceae family

– Pentamerous actinomorphic flowers

– Bicarpellary ovary with oblique septa.

– Fruit (Capsule/berry)

74. What type of placentation is seen in sweet pea ? **[AIPMT (Prelims)-2006]**

(1) Basal (2) Axile (3) Free central (4) Marginal

Sol. Answer (4)

Marginal placentation is seen in sweet pea

75. Which of the following represents the edible part of the fruit of litchi ? **[AIPMT (Prelims)-2005]**

(1) Pericarp (2) Mesocarp (3) Juicy aril (4) Endocarp

Sol. Answer (3)

76. Angiosperm, to which the largest flowers belong, is

(1) Total root parasite (2) Partial root parasite (3) Total stem parasite (4) Partial stem parasite

Sol. Answer (1)

Rafflesia is largest flowering plant, a total root parasite.

77. The plant, which bears clinging roots, is

(1) Screw pine (2) *Podostemon* (3) *Trapa* (4) Orchid

Sol. Answer (4)

Orchid is an epiphytes so for support it bears clinging roots / climbing roots.

78. Pneumatophores are found in

(1) The vegetation which is found in marshy and saline lake

(2) The vegetation which is found in acidic soil

(3) Xerophytes

(4) Epiphytes

Sol. Answer (1)

Pneumatophores are found in plant which is found in marshy and saline lake.

79. In a longitudinal section of a root, starting from the tip upward, the four zones occur in the following order

(1) Root cap, cell division, cell enlargement, cell maturation

(2) Root cap, cell division, cell maturation, cell enlargement

(3) Cell division, cell enlargement, cell maturation, root cap

(4) Cell division, cell maturation, cell enlargement, root cap

Sol. Answer (1)

Order of zones of root (from tip upward)

Root cap $\rightarrow$ Cell division $\rightarrow$ Cell enlargement $\rightarrow$ Cell maturation

80. A plant bears fruit, has a column of vascular tissue and a tap root system. This plant is a/an

(1) Angiosperm and dicot (2) Gymnosperm and dicot

(3) Angiosperm and monocot (4) Gymnosperm and monocot

Sol. Answer (1)

Dicot plant

– Bears fruit

– Vascular tissue

– Tap root system

81. What is the eye of potato?

(1) Axillary bud (2) Accessory bud (3) Adventitious bud (4) Apical bud

Sol. Answer (1)

Eye of potato is axillary bud.

82. How many plants among China rose, *Ocimum*, sunflower, mustard, *Alstonia,* guava, *Calotropis* and *Nerium* (Oleander) have opposite phyllotaxy?

(1) Two (2) Three (3) Four (4) Five

Sol. Answer (2)

Opposite phyllotaxy

– Guava

– *Calotropis*

– *Ocimum*

83. The lid of pitcher in pitcher plant, is the modification of

(1) Leaf apex (2) Leaf base (3) Petiole (4) Lamina

Sol. Answer (1)

Lid of pitcher in pitcher plant is modification of leaf apex.

84. A pair of insectivorous plants is

(1) *Dionaea* and *Viscum* (2) Venus fly trap and *Rafflesia*

(3) *Drosera* and *Rafflesia* (4) *Nepenthes* and bladderwort

Sol. Answer (4)

Nepenthes and Bladderwort – Insectivorous plants

85. The ability of the Venus Flytrap to capture insects is due to

(1) Specialized “muscle-like” cells

(2) Chemical stimulation by the prey

(3) A passive process requiring no special ability on the part of the plant

(4) Rapid turgor pressure changes

Sol. Answer (4)

Venus flytrap captures insects due to rapid turgor pressure changes.

86. In a cymose inflorescence the main axis

(1) Terminates in a flower

(2) Has unlimited growth

(3) Bears a solitary flower

(4) Has unlimited growth but lateral branches end in flowers

Sol. Answer (1)

The main axis terminates in a flower – Cymose inflorescence

87. Inflorescence is racemose in

(1) Soyabean (2) Brinjal

(3) Tulip (4) *Aloe*

Sol. Answer (1)

Soyabean (fabaceae) shows Racemose inflorescence.

88. Hypanthodium is a specialized type of

(1) Fruit (2) Inflorescence (3) Thalamus (4) Ovary

Sol. Answer (2)

Hypanthodium is a specialised type of inflorescence

89. Hairs found in the inflorescence of *Zea mays* are the modification of

(1) Style (2) Stigma (3) Spathe (4) Filaments

Sol. Answer (1)

Hairs found in the *Zea mays* are the modification of style.

90. Floral features are chiefly used in angiosperms, identification, because

(1) Flowers can be safely pressed

(2) Reproductive parts are more stable and conservative than vegetative parts

(3) Flowers are nice to work with

(4) Flowers are of various colours

Sol. Answer (2)

In angiosperms, floral features are chiefly used because reproductive parts are more stable and conservative than vegetative parts.

91. Tetradyanamous condition occurs in

(1) Cruciferae (2) Malvaceae

(3) Solanaceae (4) Liliaceae

Sol. Answer (1)

Tetradynamous condition occurs in cruciferae.

92. Anthesis is a phenomenon which refers to

(1) Reception of pollen by stigma (2) Formation of pollen

(3) Development of anther (4) Opening of flower bud

Sol. Answer (4)

Anthesis – Opening of flower bud.

93. Pappus in sunflower family is the modification of

(1) Hairs (2) Anthers (3) Calyx (4) Corolla

Sol. Answer (3)

Pappus in sunflower family is the modification of calyx.

94. How many plants in the list given below have composite fruits that develop from an inflorescence?

Walnut, poppy, radish, fig, pineapple, apple, tomato, mulberry.

(1) Two (2) Three (3) Four (4) Five

Sol. Answer (2)

Composite fruits are – fig, pineapple, mulberry etc.

95. Which of the following is a 'true fruit'?

(1) Banana (2) Pineapple (3) Apple (4) Pear

Sol. Answer (1)

True fruit – Banana

False fruit – Pineapple, apple, pear

96. Coir is the commercial product of coconut's

(1) Endocarp (2) Endosperm (3) Pericarp (4) Mesocarp

Sol. Answer (4)

Coir is the commercial product of coconut's mesocarp

97. Aril represents the edible part of

(1) Mango (2) Apple (3) Banana (4) Litchi

Sol. Answer (4)

Aril represents the edible part of litchi.

98. Which plant will lose its economic value, if its fruits are produced by induced parthenocarpy?

(1) Orange (2) Banana (3) Grape (4) Pomegranate

Sol. Answer (4)

Pomegranate will lose its economic value if its fruits are produced by induced parthenocarpy.

99. Edible part in coconut is

(1) Endosperm (2) Pericarp (3) Mesocarp (4) Fleshy aril

Sol. Answer (1)

Edible part in coconut is endosperm.

100. Geocarpic fruit is

(1) Carrot (2) Radish (3) Ground nut (4) Turnip

Sol. Answer (3)

Ground nut is geocarpic fruit.

101. Which is correct pair for edible part?

(1) Tomato-thalamus (2) Maize-cotyledons (3) Guava-mesocarp (4) Date palm-mesocarp

Sol. Answer (4)

Mesocarp is edible part in date palm.

102. Edible part of banana is

(1) Epicarp (2) Mesocarp and less developed endocarp

(3) Endocarp and less developed mesocarp (4) Epicarp and mesocarp

Sol. Answer (3)

Edible part of banana is endocarp and less developed mesocarp.

103. Edible part in mango is

(1) Mesocarp (2) Epicarp (3) Endocarp (4) Epidermis

Sol. Answer (1)

Edible part of mango is mesocarp.

104. Geocarpic fruit is

(1) Potato (2) Peanut (3) Onion (4) Garlic

Sol. Answer (2)

Peanut is geocarpic fruit.

105. Juicy hair-like structures observed in the lemon fruit develop from

(1) Exocarp (2) Mesocarp

(3) Endocarp (4) Mesocarp and endocarp

Sol. Answer (3)

Juicy hair-like edible structure in lemon is endocarp.

106. Select correct statement w.r.t. hard walled berry.

(1) Multiseeded fruit developing from superior ovary (2) Edible part is juicy unicellular hairs

(3) Develops from $\overline{G(3)}$ (4) Develops from $\underline{G(3)}$

Sol. Answer (3)

Hard walled berry develops from $\overline{G(3)}$.

107. Scutellum in a caryopsis represents

(1) Outermost layer of endosperm (2) A sheath that protects the radicle

(3) The place where the seed is attached to raphe (4) A cotyledon

Sol. Answer (4)

Single cotyledon in monocot is scutellum.

108. An example of a seed with endosperm, perisperm and caruncle is

(1) Castor (2) Cotton

(3) Coffee (4) Lily

Sol. Answer (1)

Caster seed

– Endospermic

– Perispermic

– Bears caruncle

109. Among flowers of *Calotropis*, tulip, *Sesbania, Asparagus,* Colchicine, Sweet pea, *Petunia, Indigofera,* Mustard, Soybean, Tobacco and groundnut how many plants have corolla with valvate aestivation?

(1) Five (2) Six (3) Seven (4) Eight

Sol. Answer (3)

110. Which is expressing right appropriate pairing?

(1) Brassicaceae - Sunflower (2) Malvaceae - Cotton

(3) Papilionaceae - Catechu (4) Liliaceae – Wheat

Sol. Answer (2)

Collon plants belong to Malvaceae family.

111. Bicarpellary gynoecium and oblique ovary occur in

(1) Mustard (2) Banana

(3) *Pisum* (4) Brinjal

Sol. Answer (4)

Bicarpellary gynoecium and oblique ovary occur in brinjal.

SECTION - D

Assertion-Reason Type Questions

1. A : In head inflorescence florets are arranged centrifugally.

R : There always occurs two types of florets in a head.

Sol. Answer (4)

In head inflorescence florets are arranged centripetally.

2. A : Staminal tube is present in Malvaceae.

R : It is due to monadelphous condition.

Sol. Answer (1)

Fact based and reason is correct explanation of assertion.

3. A : Prop roots are rope like showing oblique growth.

R : Prop roots are adventitious roots for extra-support and assimilation.

Sol. Answer (4)

Prop roots are rope-like showing vertical growth.

4. A : The storage region of maize grain is whitish or yellow.

R : It is rich in protein granules.

Sol. Answer (3)

The storage region of maize grain is rich in starch granules.

5. A : There are two alae in *Pisum sativum* flower.

R : Both alae are covered by largest petal.

Sol. Answer (2)

Fact based question.

6. A : Corm grows vertically beneath soil surface.

R : It bears nodes, internodes, buds & green leaves.

Sol. Answer (3)

Corm bears nodes, internodes, buds and scaly leaves

7. A : In *Smilax*, stipule changes into tendril & helps in climbing.

R : Parallel venation is found in this plant.

Sol. Answer (3)

Smilax is monocot but shows reticulate venation.

8. A : Androecium of *Cucurbita* is synandrous.

R : Anthers as well as filaments of stamens are united throughout their whole length.

Sol. Answer (1)

Fact based question.

9. A : Nucellus remains persistent in the seeds of black pepper

R : It is haploid parenchymatous tissue.

Sol. Answer (3)

Nucellus is diploid parenchymatous tissue.

10. A : Epiphyllous roots arise from the margins of leaf lamina.

R : Epiphyllous roots help in vegetative reproduction.

Sol. Answer (2)

Fact based question.

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