1. Fibrous root system is primarily found in:
A. Dicot plants
B. Monocot plants
C. Aquatic plants
D. Gymnosperms

✅Answer: B. Monocot plants

Explanation:
Monocots (e.g., wheat, maize) have fibrous roots, arising from the base of the stem.

2. Which of the following is a modification of adventitious roots for mechanical support?
A. Fusiform root of radish
B. Prop root of banyan
C. Tuberous root of sweet potato
D. Pneumatophore of Rhizophora

✅Answer: B. Prop root of banyan

Explanation:
Prop roots arise from branches and support large trees like banyan.

3. The stem of Opuntia is modified for:
A. Climbing
B. Photosynthesis
C. Storage
D. Protection

✅Answer: B. Photosynthesis

Explanation:
In Opuntia (cactus), stem becomes green and flattened, performing photosynthesis, while leaves are reduced to spines.

4. Which one of the following stems performs vegetative propagation?
A. Rhizome – Ginger
B. Bulb – Onion
C. Corm – Colocasia

D. All of these

✅Answer: D. All of these

Explanation:
Rhizome, bulb, and corm are underground stem modifications that aid in vegetative reproduction.

5. In which plant are leaves modified into tendrils for climbing?
A. Pumpkin
B. Pea
C. Cucumber
D. Grapevine

✅Answer: B. Pea

Explanation:
Pea plants have leaf tendrils for support, while others like pumpkin have stem tendrils.

6. Which of the following is an example of a phylloclade?
A. Opuntia
B. Bryophyllum
C. Citrus
D. Bougainvillea

✅Answer: A. Opuntia

Explanation:
Phylloclade is a stem modified to resemble and function as a leaf. Opuntia stem is flat and green.

7. Match the following modifications with their examples:

Modification Example

A. Pneumatophore 1. Rhizophora
B. Cladode 2. Asparagus
C. Tendril (stem) 3. Cucumber
D. Prop root 4. Banyan

Options:
A. A–1, B–2, C–3, D–4
B. A–2, B–1, C–4, D–3
C. A–3, B–2, C–1, D–4
D. A–4, B–3, C–2, D–1

✅Answer: A. A–1, B–2, C–3, D–4

Explanation:

Pneumatophores → Rhizophora

Cladode → Asparagus

Stem tendril → Cucumber

Prop root → Banyan

8. Which one of the following statements about stem modifications is correct?
A. Stem tubers store water only
B. Rhizomes are always aerial
C. Bulbs are modified roots
D. Corm is a condensed stem with internodes

✅Answer: D. Corm is a condensed stem with internodes

Explanation:
Corm (e.g., colocasia) is a short, thickened underground stem with distinct internodes and nodes.

9. Which part of the leaf shows the maximum photosynthesis?
A. Midrib
B. Petiole
C. Lamina
D. Stipule

✅Answer: C. Lamina

Explanation:
Lamina or leaf blade is the broad, flat part of the leaf where most photosynthesis occurs.

10. Reticulate venation is a characteristic of:
A. All monocots
B. All dicots
C. Some monocots
D. Both monocots and dicots

✅Answer: B. All dicots

Explanation:
Dicot leaves show reticulate venation, where veins form a net-like pattern.

11. Which of the following is an example of a racemose inflorescence?
A. Mustard
B. Gulmohar
C. China rose
D. Coral tree

✅Answer: A. Mustard

Explanation:
In racemose, the main axis grows continuously, and flowers develop in acropetal succession. Mustard shows this.

12. The type of aestivation in petals of Gulmohar is:
A. Valvate
B. Imbricate
C. Twisted
D. Vexillary

✅Answer: B. Imbricate

Explanation:
In imbricate aestivation, one petal is completely inside, one completely outside, and rest partially overlapped – seen in Gulmohar.

13. Identify the incorrect match:
A. China rose – Twisted
B. Pea – Vexillary
C. Calotropis – Valvate
D. Cassia – Vexillary

✅Answer: D. Cassia – Vexillary

Explanation:
Cassia shows imbricate aestivation, not vexillary (which is in pea).

14. Which part of the flower develops into fruit after fertilization?
A. Ovary
B. Ovule
C. Stigma
D. Style

✅Answer: A. Ovary

Explanation:
The ovary of the carpel develops into the fruit, while ovules become seeds.

15. A flower is described as epigynous when:
A. Ovary is superior
B. Ovary is inferior
C. Ovary is half-inferior
D. Ovary is absent

✅Answer: B. Ovary is inferior

Explanation:
In epigynous flowers, thalamus encloses the ovary, and other floral parts arise above it (e.g., guava).

16. Match the following:

Flower Type Example

A. Epigynous 1. Guava
B. Hypogynous 2. Mustard
C. Perigynous 3. Rose
D. Zygomorphic 4. Pea

Options:
A. A–1, B–2, C–3, D–4
B. A–3, B–4, C–1, D–2
C. A–2, B–1, C–4, D–3
D. A–4, B–3, C–2, D–1

✅Answer: A. A–1, B–2, C–3, D–4

Explanation:

Epigynous – Guava

Hypogynous – Mustard

Perigynous – Rose

Zygomorphic – Pea

17. The term actinomorphic means:
A. Bilateral symmetry
B. Radial symmetry
C. No symmetry
D. Irregular shape

✅Answer: B. Radial symmetry

Explanation:
Actinomorphic flowers can be divided into equal halves in multiple planes (e.g., Mustard, Datura).

18. Which floral part is always non-essential?
A. Androecium
B. Gynoecium
C. Calyx

D. Ovary

✅Answer: C. Calyx

Explanation:
Calyx (sepals) and corolla (petals) are non-essential parts – not directly involved in reproduction.

19. Identify the correct statement:
A. Androecium is the female reproductive part
B. Stamens are fused in polyandrous condition
C. Gynoecium includes ovary, style, and stigma
D. Corolla forms the outermost whorl

✅Answer: C. Gynoecium includes ovary, style, and stigma

Explanation:
Gynoecium = female part = ovary + style + stigma.

Androecium = male

Corolla = second whorl (after calyx)

20. Which of the following is correctly matched?
A. Mustard – Actinomorphic
B. Pea – Actinomorphic
C. Bean – Hypogynous
D. China rose – Zygomorphic

✅Answer: A. Mustard – Actinomorphic

Explanation:
Mustard is radially symmetrical, i.e., actinomorphic.
Pea and bean are zygomorphic, China rose is actinomorphic.

21. When stamens are attached to petals, the condition is called:
A. Epiphyllous
B. Epipetalous
C. Epiphyllous

D. Gynandrous

✅Answer: B. Epipetalous

Explanation:
Epipetalous stamens are attached to petals (e.g., Brinjal).
Epiphyllous = stamens on perianth (e.g., Lily).

22. Stamens are fused with each other by filaments, but anthers are free. This is called:
A. Monadelphous
B. Diadelphous
C. Polyadelphous
D. Syngenesious

✅Answer: A. Monadelphous

Explanation:
In monadelphous condition (e.g., China rose), filaments are united, but anthers are free.

23. The gynoecium of Papaver (poppy) shows:
A. Marginal placentation
B. Axile placentation
C. Parietal placentation
D. Free central placentation

✅Answer: C. Parietal placentation

Explanation:
In parietal placentation, ovules are borne on the inner wall of the ovary (e.g., poppy).

24. When the ovary is divided into many chambers and ovules are borne on the central axis, it is called:
A. Marginal
B. Axile
C. Parietal
D. Basal

✅Answer: B. Axile

Explanation:
In axile placentation (e.g., tomato, lemon), ovules are attached to central axis inside multilocular ovary.

25. Identify the mismatched pair:
A. Pea – Marginal placentation
B. Tomato – Axile placentation
C. Mustard – Parietal placentation
D. China rose – Free central placentation

✅Answer: D. China rose – Free central placentation

Explanation:
China rose has axile placentation, not free central.
Free central is seen in Dianthus.

26. A fruit that develops without fertilization is known as:
A. True fruit
B. False fruit
C. Parthenocarpic fruit
D. Dry fruit

✅Answer: C. Parthenocarpic fruit

Explanation:
Parthenocarpy = fruit formation without fertilization (e.g., banana). Such fruits are seedless.

27. Match the following fruits with their correct type:

Fruit	Type
A. Apple	1. True fruit
B. Mango	2. False fruit
C. Banana	3. Parthenocarpic
D. Guava	4. Simple fleshy fruit

Options:
A. A–2, B–1, C–3, D–4

B. A–1, B–2, C–3, D–4
C. A–4, B–3, C–2, D–1
D. A–3, B–2, C–1, D–4

✅Answer: A. A–2, B–1, C–3, D–4

Explanation:

Apple: False fruit (from thalamus)

Mango: True fruit (from ovary)

Banana: Parthenocarpic

Guava: Simple fleshy fruit

28. A typical fruit with pericarp differentiated into epicarp, mesocarp, and endocarp is found in:
A. Wheat
B. Coconut
C. Mango
D. Apple

✅Answer: C. Mango

Explanation:
Mango is a drupe, where the pericarp is clearly differentiated:

Epicarp (skin),

Mesocarp (fleshy),

Endocarp (stony).

29. Which part of the seed in monocots stores food?
A. Cotyledon
B. Plumule
C. Endosperm
D. Radicle

✅Answer: C. Endosperm

Explanation:
In monocot seeds (e.g., maize), food is stored in endosperm, and cotyledon (called scutellum) absorbs nutrients.

30. Which one of the following is a non-endospermic seed?
A. Castor
B. Maize
C. Wheat
D. Pea

✅Answer: D. Pea

Explanation:
In pea (a dicot), the endosperm is used up during development → non-endospermic seed.

31. Which of the following is a characteristic feature of the family Malvaceae?
A. Bicollateral vascular bundles
B. Monocarpellary ovary
C. Stamens in bundles (monadelphous)
D. Epiphyllous stamens

✅Answer: C. Stamens in bundles (monadelphous)

Explanation:
Malvaceae (e.g., Hibiscus) has monadelphous stamens (filaments united into one bundle) and axile placentation.

32. In which family do flowers typically show a characteristic cruciform corolla?
A. Malvaceae
B. Brassicaceae
C. Asteraceae
D. Poaceae

✅Answer: B. Brassicaceae

Explanation:
Brassicaceae (Cruciferae) flowers have four petals arranged in a cross → cruciform (e.g., mustard).

33. Which of the following floral formulae correctly represents Fabaceae?
A. ♀ ⊕ K(5), C1+2+(2), A(9)+1, G1
B. ♀ ↑ K(5), C(5), A(10), G(1)
C. ♀ ↑ K(4), C4, A4+2, G(2)
D. ♀ ↑ K(5), C(5), A5, G(1)

✅Answer: A. ♀ ⊕ K(5), C1+2+(2), A(9)+1, G1

Explanation:
This floral formula represents Fabaceae: zygomorphic, papilionaceous corolla, diadelphous stamens, superior ovary.

34. Identify the correct match for the family Asteraceae:

Characteristic Description

A. Inflorescence 1. Capitulum
B. Ovary 2. Inferior
C. Placentation 3. Basal
D. Fruit 4. Cypsela

Options:
A. A–1, B–2, C–3, D–4
B. A–4, B–3, C–2, D–1
C. A–2, B–1, C–4, D–3
D. A–3, B–4, C–2, D–1

✅Answer: A. A–1, B–2, C–3, D–4

Explanation:
Asteraceae shows:

Capitulum inflorescence

Inferior ovary

Basal placentation

Cypsela fruit (e.g., sunflower)

35. The grass family (Poaceae) shows all except:
A. Lodicules in place of petals
B. Caryopsis fruit
C. Reticulate venation
D. Zygomorphic flowers

✅Answer: C. Reticulate venation

Explanation:
Poaceae (e.g., wheat, rice) shows parallel venation, caryopsis fruit, and flowers with lodicules and zygomorphy.

36. Assertion (A): In legumes, the androecium is diadelphous.
Reason (R): In Fabaceae, 9 stamens are fused and 1 is free.
A. Both A and R are true, and R is the correct explanation
B. Both A and R are true, but R is not the correct explanation
C. A is true, R is false
D. A is false, R is true

✅Answer: A. Both A and R are true, and R is the correct explanation

37. Which of the following is a false fruit?
A. Mango
B. Banana
C. Apple
D. Tomato

✅Answer: C. Apple

Explanation:
False fruit = developed from parts other than ovary (e.g., thalamus in apple).

38. Match the modified stems with their type:

Structure	Type of Modification
A. Ginger	1. Rhizome
B. Colocasia	2. Corm
C. Onion	3. Bulb
D. Potato	4. Tuber

Options:
A. A–1, B–2, C–3, D–4
B. A–2, B–1, C–4, D–3
C. A–1, B–3, C–2, D–4
D. A–4, B–2, C–1, D–3

✅Answer: A. A–1, B–2, C–3, D–4

39. Identify the correct statement:
A. Reticulate venation is found only in monocots
B. In maize, the seed is non-endospermic
C. Rhizome is an underground root
D. Placenta bears ovules

✅Answer: D. Placenta bears ovules

Explanation:

Rhizome = modified stem

Monocots have parallel venation

Maize = endospermic seed

Placenta holds ovules

40. Which floral whorl is absent in male flower of cucurbits?
A. Calyx

B. Corolla
C. Androecium
D. Gynoecium

✅Answer: D. Gynoecium

Explanation:
Cucurbits are unisexual; male flowers lack gynoecium.

41. Which of the following is a reproductive stem modification?
A. Potato
B. Opuntia
C. Ginger
D. Bryophyllum

✅Answer: D. Bryophyllum

Explanation:
In Bryophyllum, leaves bear adventitious buds → asexual reproduction.

42. Which plant shows leaf tendrils as leaf modification?
A. Cucumber
B. Pea
C. Pumpkin
D. Watermelon

✅Answer: B. Pea

Explanation:
Pea shows leaf tendrils (for climbing). Cucumber and pumpkin have stem tendrils.

43. Which of the following shows a compound leaf?
A. Guava
B. Mango
C. Pea
D. Banana

✅Answer: C. Pea

Explanation:
Pea has compound leaves (leaflets with single axillary bud at base).

44. Select the correct pair for floral symmetry:
A. Mustard – Actinomorphic
B. Fabaceae – Actinomorphic
C. Datura – Zygomorphic
D. Brassica – Zygomorphic

✅Answer: A. Mustard – Actinomorphic

Explanation:

Mustard: Actinomorphic

Fabaceae: Zygomorphic

Datura: Actinomorphic

45. Which part of the ovule forms the seed coat?
A. Micropyle
B. Integument
C. Nucellus
D. Chalaza

✅Answer: B. Integument

Explanation:
Integuments develop into seed coat after fertilization.