DPP - Daily Practice Problems

Chapter-wise Sheets

Date : _____ **Start Time :** _____ **End Time :** _____

BIOLOGY CB05

SYLLABUS : Morphology of Flowering Plants

Max. Marks : 180 **Marking Scheme :** + 4 for correct & (–1) for incorrect **Time : 60 min.**

INSTRUCTIONS : This Daily Practice Problem Sheet contains 45 MCQs. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.

1. Which one of the following is a true fruit?
(a) Apple (b) Pear
(c) Cashew nut (d) Coconut

2. Pulses are belong to the family
(a) fabaceae (b) asteraceae
(c) poaceae (d) solanaceae

3. In a cereal grain the single cotyledon of embryo is represented by
(a) scutellum (b) prophyll
(c) coleoptile (d) coleorrhiza

4. Perisperm is
(a) remnant of endosperm
(b) persistant nucellus
(c) remnant of embryo
(d) part of endosperm

5. The mode of catching insects in *Drosera* plants is by means of
(a) sensitive glandular hairs which secrete a sweet, viscous, shining substance.
(b) specially sensitive trigger hairs.
(c) leaves which are modified into pitcher.
(d) leaf segments modified into bladder.

6. Insectivorous plants grow in
(a) calcium deficient soil
(b) carbon deficient soil
(c) magnesium deficient soil
(d) nitrogen deficient soil

7. Which part of the coconut produces coir?
(a) Seed coat (b) Mesocarp
(c) Epicarp (d) Pericarp

RESPONSE GRID					
1. ⓐⓑⓒⓓ	**2.** ⓐⓑⓒⓓ	**3.** ⓐⓑⓒⓓ	**4.** ⓐⓑⓒⓓ	**5.** ⓐⓑⓒⓓ	
6. ⓐⓑⓒⓓ	**7.** ⓐⓑⓒⓓ				

Space for Rough Work

8. Pineapple (ananas) fruit develops from
(a) a multipistillate syncarpous flower
(b) a cluster of compactly borne flowers on a common axis
(c) a multilocular monocarpellary flower
(d) a unilocular polycarpellary flower

9. Scutellum is a/an
(a) protective covering of radicle
(b) protective covering of plumule
(c) endosperm of gymnosperms
(d) shield-shaped cotyledon

10. Fibrous root system is better adopted than tap root system for
(a) transport of organic matter
(b) absorption of water and minerals
(c) storage of food
(d) anchorage of plant to soil

11. Velamen is found in
(a) roots of screwpine
(b) aerial and terrestrial roots of orchids
(c) leaves of *Ficus elastica*
(d) only aerial roots of orchids

12. Hypanthodium is
(a) thalamus (b) fruit
(c) inflorescence (d) ovary

13. Which of the following statement (s) is/are incorrect?
(i) Calyx and corolla are reproductive organs of a flower.
(ii) Zygomorphic flower can be divided into two equal radial halves in any radial plane.
(iii) Flowers without bracts are termed as bracteate.
(iv) Parthenocarpic fruit is formed after fertilization of the ovary.
(v) In legumes, seed is non-endospermic.
(vi) Radical buds develop on roots.
(a) (i), (ii), (iii) and (iv) (b) (i), (ii) and (v)
(c) (iii), (iv) and (vi) (d) (i), (iv) and (v)

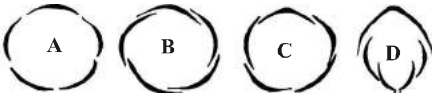
14. Milky water of green coconut is
(a) liquid nucellus
(b) liquid of female gametophyte
(c) liquid endosperm
(d) liquid embryo

15. Clove is
(a) flower bud (b) axillary bud
(c) thalamus (d) ovule

16. When gynoecium is present in the top most position of thalamus, the flower is known as
(a) inferior (b) epigynous
(c) perigynous (d) hypogynous

17. Which is not a stem modification ?
(a) Rhizome of ginger (b) Corm of *Colocasia*
(c) Pitcher of *Nepenthes* (d) Tuber of potato

18. Which option is correctly matched with the diagrams?

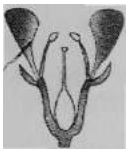
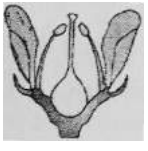
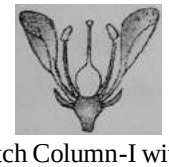


(a) A-Valvate B-Twisted, C-Imbricate, D-Vexillary
(b) A-Vexillary, B-Valvate, C-Twisted, D-Imbricate
(c) A-Imbricate, B-Vexillary, C-Valvate, D-Twisted
(d) A-Twisted, B-Imbricate, C-Vexillary, D-Valvate

RESPONSE GRID					
	8. ⓐⓑⓒⓓ	**9.** ⓐⓑⓒⓓ	**10.** ⓐⓑⓒⓓ	**11.** ⓐⓑⓒⓓ	**12.** ⓐⓑⓒⓓ
	13. ⓐⓑⓒⓓ	**14.** ⓐⓑⓒⓓ	**15.** ⓐⓑⓒⓓ	**16.** ⓐⓑⓒⓓ	**17.** ⓐⓑⓒⓓ
	18. ⓐⓑⓒⓓ				

Space for Rough Work

19. Given below are the diagrammatic representation of position of floral parts on thalamus, condition of ovary and example. Find the correctly matched combination?

	Position of floral parts on thalamus	Condition of ovary	Example
(a)		$\overline{G}$	Cucumber
(b)		G–	Brinjal
(c)		$\underline{G}$	Plum
(d)		$\overline{G}$	Rose

20. Match Column-I with Column-II and select the correct option from the codes given below.

	Column-I		Column-II
A.	Thorns	I.	Vegetative propagation
B.	Phylloclades	II.	Defensive mechanism
C.	Runners	III.	Mechanical support
D.	Stilt roots	IV.	Absorption of nutrition
E.	Haustoria	V.	Photosynthesis

(a) A-I; B-IV; C-III; D-II; E-I
(b) A-II; B-V; C-III; D-I; E-IV
(c) A-II; B-V; C-I; D-III; E-IV
(d) A-III; B-V; C-IV; D-I; E-II

21. Maize grain is a fruit known as
(a) cypsela (b) caryopsis
(c) legume (d) achene

22. Monocotyledonous root differs from dicot root in which of the following internal features (a to d)?
(a) Presence of parenchymatous pericycle.
(b) Absence of fewre xylem bundle.
(c) Presence of large and well-developed pith.
(d) Presence of parenchymatous cortex without intercellular spaces.

23. Select correct match w.r.t column I & II.

	Column I		Column II
A.	Modified tap root for respiration	I.	Zea mays
B.	Storage tap root	II.	ipomoea
C.	Modified aventitious root for mechanical support	III.	Rhizophora
D.	Modified adventitious root for food storge	IV.	Turnip

(a) A-III; B-IV; C-I; D-II
(b) A-III; B-IV; C-II; D-I
(c) A-IV; B-II; C-I; D-III
(d) A-III; B-II; C-I; D-IV

24. The modified stem in some plants of arid region is
(a) Tendril for climbring as in *Passiflora*
(b) Spines for defence mechanism
(c) Phylloclade for food synthesis
(d) Phyllode for food synthesis

25. The modified stem in grasses, strawberry and *Crysanthemum* is concerned with special functions i.e.,
i. Food storage
ii. Vegetative propagation
iii. Assimilation
iv. Spread to new niches
v. Perennation
(a) ii, iv (b) i, ii, v
(c) ii, iv, v (d) iii, iv, v

RESPONSE GRID					
	19. ⓐⓑⓒⓓ	**20.** ⓐⓑⓒⓓ	**21.** ⓐⓑⓒⓓ	**22.** ⓐⓑⓒⓓ	**23.** ⓐⓑⓒⓓ
	24. ⓐⓑⓒⓓ	**25.** ⓐⓑⓒⓓ			

Space for Rough Work

26. In which of the following type of flowers stamens are superior in position?
(a) Hypogynous (b) Perigynous
(c) Epigynous (d) Protogynous

27. Inner layer of pericarp is hard and stony in
(a) Dateplam, Almond (b) Wood, apple, Pea
(c) Mango, Coconut (d) Pear, Litchi

28. Find out the incorrect match.
(a) Sterile stamen – Staminode
(b) Stamens attached to petals – Epipetalous
(c) Stamens attached to perianth – Episepalous
(d) Free stamens – Polyandrous

29. Ovary is said to be half inferior in which of the following conditions?
(a) Hypogynous (b) Perigynous
(c) Epigynous (d) Both (b) and (c)

30. Identify the family which shows the following diagnostic features.
Flowers pentamerous, gynoecium-bicarpellary, syncarpous, ovary placed obliquely, placentation axile, placenta swollen.
(a) Solanaceae (b) Le guminosae
(c) Papilionaceae (d) Liliaceae

31. Select the pair which contains monocotyledonous families.
(a) Solanaceae and Brassicaceae
(b) Fabaceae and Asteraceae
(c) Liliaceae and Poaceae
(d) None of these

32. In Nepenthes (pitcher plant), the pitcher is formed due to modification of
(a) leaf petiole (b) leaf lamina
(c) tendril (d) leaflet

33. Example for tuberous adventitious roots
(a) Dahlia (b) Carrot
(c) Radish (d) Beet

34. A root-cap is usually absent in the roots of
(a) Hydrophytes (b) Epiphytes
(c) Parasites (d) All of the above

35. An example of negatively geotropic root
(a) Coralloid root of *Cycas*
(b) Pneumatophore of mangroves
(c) Assimilatory roots *of Trapa*
(d) More than one of the above.

36. *Santalum album* is normally considered as a
(a) Complete root parasite
(b) Partial root parasite
(c) Complete stem parasite
(d) Partial stem parasite

37. An example of tuberous root that is a modification of tap foot
(a) Radish (b) *Mirabilis*
(c) Sweet Potato (d) *Ipomoea*

38. Ginger is a stem and not a root because
(a) It stores food
(b) It is bitter in taste
(c) It has nodes and internodes
(d) It is non-green in colour.

39. In *Allium*, the leafless part of the stem which bears flower is called
(a) Culm (b) Scape (c) Caudex (d) Bulb

40. Sweet Potato is a modification of
(a) Root (b) Stem
(c) Bud (d) Flowering axis

41. Epiphyllous buds serve the function of
(a) Respiration (b) Nutrition
(c) Reproduction (d) Absorption

42. In a potato plant the tubers develop on
(a) Primary root (b) Secondary root
(c) Tertiary root (d) Stolon

43. Root is the prolongation of
(a) Plumule (b) Radicle
(c) Stem (d) Branches

44. Food stored in a bulb is within
(a) A swollen stem (b) Swollen leaf-bases
(c) Enlarged roots (d) In the inflorescence

45. Cladode is the modification of
(a) Whole stem (b) Axillary bud
(c) Leaf (d) Leaflets.

RESPONSE GRID					
	26. ⓐⓑⓒⓓ	**27.** ⓐⓑⓒⓓ	**28.** ⓐⓑⓒⓓ	**29.** ⓐⓑⓒⓓ	**30.** ⓐⓑⓒⓓ
	31. ⓐⓑⓒⓓ	**32.** ⓐⓑⓒⓓ	**33.** ⓐⓑⓒⓓ	**34.** ⓐⓑⓒⓓ	**35.** ⓐⓑⓒⓓ
	36. ⓐⓑⓒⓓ	**37.** ⓐⓑⓒⓓ	**38.** ⓐⓑⓒⓓ	**39.** ⓐⓑⓒⓓ	**40.** ⓐⓑⓒⓓ
	41. ⓐⓑⓒⓓ	**42.** ⓐⓑⓒⓓ	**43.** ⓐⓑⓒⓓ	**44.** ⓐⓑⓒⓓ	**45.** ⓐⓑⓒⓓ

Space for Rough Work

DAILY PRACTICE PROBLEM DPP CHAPTERWISE 5 - BIOLOGY			
Total Questions	45	Total Marks	180
Attempted		Correct	
Incorrect		Net Score	
Cut-off Score	45	Qualifying Score	60
Success Gap = Net Score – Qualifying Score			
Net Score = (Correct × 4) – (Incorrect × 1)			

HINTS & SOLUTIONS

DPP /CB05

1. (d) The fruit is a mature or ripened ovary. When a fruit develops exclusively from the ovary, it is said to be true fruit. When in addition to the ovary, some other floral part also participates in the formation of fruits, then it is known as false fruit. Apple, pear, cashewnut, mulberry etc. are all false fruits.

2. (a)

3. (a) Single cotyledon of embryo in cereal grain is represented by scutellum. Coleoptile represents the covering of stem. Coleorrhiza represents the covering of root.

4. (d) Desert plants have well developed root system so that they can absorb water from the deeper layers of soil. They have sunken stomata and reduced leaves which reduce the rate of water loss through transpiration.

5. (a)

6. (d) Insectivorous plants grown in nitrogen deficient soil. Therefore, these plants capture insects and have the ability to digest them (their protein). Since proteins are made up of amino acids, having nitrogen in their structure (amino group), these plants overcome the deficiency of nitrogen which is essential for their growth.

7. (b) **8. (b)** **9. (d)** **10. (d)** **11. (d)**

12. (c) **13. (a)**

14. (c) In *Cocos nucifera* (coconut) milky endosperm is found in which many nuclei, vitamins and growth hormone e.g., cytokinins, auxin and induced cytokinin is found.

15. (a) **16. (d)** **17. (c)** **18. (a)**

19. (a) Epigynous flower $\Rightarrow \overline{G}$ e.g. Cucumber
Perigynous flower $\Rightarrow$ G – e.g. Rose and plum
Hypogynous flower $\Rightarrow \underline{G}$ e.g. Brinjal

20. (c)

21. (b) Caryopsis is a small, indehiscent, one seeded fruit developing from a monocarpellary ovary in which the pericarp is fused with the seed coat. The seed completely fills the chamber, e.g., wheat, maize.

22. (c) Polyarch condition

23. (a)

24. (c) Opuntia has phylloclade for food synthesis.

25. (a) Sub-aerial stem

26. (c) Inferior ovary

27. (c) Drupe is the fruit type in mango & coconut.

28. (c) When stamens are attached to the perianth, they are known as epiphyllous, e.g., Asparagus, lily.

29. (b) In perigynous condition of a flower, the gynoecium is situated in the centre and other floral parts are located on the rim of the thalamus almost at the same level. Ovary is said to be half-inferior, e.g., *Rosa* (Flask-shaped thalamus), *Prunus* (Cup-shaped thalamus).

30. (a) The given floral diagram is of family Solanaceae (potato family). Its flower is bisexual and actinomorphic, abracteate or bracteate, pentamerous, cyclic. Calyx 5, gamosepalous, persistent. Corolla 5, gamopetalous, often plicate in bud. Androecium 5, polyandrous and epipetalous. Gynoecium bicarpellary and syncarpous. Ovary superior, placed obliquely, placentation axile with swollen-placenta. Fruit is berry or capsule.

31. (c) Liliaceae (Lily family) and Poaceae (= Gramineae, gross family) are the two monocot families.

32. (b) In *Nepenthes*, the pitchers are meant for catching and digesting insects. The lamina is modified into pitcher. The leaf apex gives rise to a coloured lid for attracting the insects.

33. (a) In Dahlia, roots do not originate from radicles and are therefore, adventitious. These roots are fleshy having no definite shape, i.e. tuberous in nature. The tuberous roots occur in group or fascicle and are also called fasciculated. Roots of radish, carrot and beet that originate from radicle are the examples of modified tap root.

34. (d) The main function of root-cap is to protect the growing apex from soil particles. Plant growing in water (hydrophytes) or on another plant (epiphytes) or in another plant (parasites) are devoid of root-cap.

35. (d) The coralloid root of *Cycas* and pneuamatophores of mangroves (like *Rhizophora*) become negatively geotropic i.e., come above the soil surface, due to bacterial infection and for aeration, respectively.

36. (b) *Santalum album* (Sandal wood plant) is a small tree, but at the young stage remains as a parasite on the roots of other plants.

37. (b) For storage, tap roots are modified into four ways i. e., napiform, fusiform, conical and tuberous. In the latter form there is no definite shape, as found in *Mirabilis*. A point to note that tuberous root may develop either from tap root or from adventitious root.

38. (c)

39. (b) In many monocots, the stem is represented by underground modifications. However, the flowers are developed on a axis called scape or pseudostem. Such type of development is found in onion, aroids, banana etc.

40. (a) Sweet potato represents the adventitious modified root of *Ipomoea* plant.

41. (c) Epiphyllous bud is a type of adventitious bud, i.e, not originating from stem apex or axil of a leaf. Usually it develops from margin (or leaf surface) of leaf as in *Bryophytlum, Kalanchoe etc*. It serves the function of vegetative propagation.

42. (d) Tuber is a modified stem. A stem can not be developed on root. In potato plant, tubers develop on a special branch of the stem called stolon.

43. (b) **44. (b)**

45. (b) Like phylloclade, cladode is also a modification of stem. But here the branch or axillary bud is only modified into a flat, tree like structure with only one internode.