

DPP - Daily Practice Problems

Chapter-wise Sheets

Date :

Start Time :

End Time :

BIOLOGY

CB03

SYLLABUS : Plant Kingdom

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. Floridean starch is found in
 - (a) Chlorophyceae
 - (b) Rhodophyceae
 - (c) Phaeophyceae
 - (d) Cyanophyceae
2. Peat moss is another name of
 - (a) *Sphagnum*
 - (b) *Marchantia*
 - (c) *Riccia*
 - (d) *Dryopteris*
3. Pteridophytes differ from mosses/bryophytes in possessing
 - (a) independent gametophyte
 - (b) well developed vascular system
 - (c) archegonia structure
 - (d) flagellate spermatozooids
4. Most plants are green in colour because
 - (a) the atmosphere filters out all the colours of the visible light spectrum except green.
 - (b) green light is the most effective wavelength region of the visible spectrum in sunlight for photosynthesis.
 - (c) chlorophyll is least effective in absorbing green light.
 - (d) green light allows maximum photosynthesis.
5. In Chlorophyceae, sexual reproduction occurs by
 - (a) isogamy and anisogamy
 - (b) isogamy, anisogamy and oogamy
 - (c) oogamy only
 - (d) anisogamy and oogamy

RESPONSE GRID

1. (a)(b)(c)(d)

2. (a)(b)(c)(d)

3. (a)(b)(c)(d)

4. (a)(b)(c)(d)

5. (a)(b)(c)(d)

Space for Rough Work

6. A water fern which is used as a green manure in rice fields is
(a) *Salvinia* (b) *Mucor*
(c) *Aspergillus* (d) *Azolla*
7. The largest flower found is known as
(a) *Rafflesia* (b) *Tecoma*
(c) *Musa* (d) Cauliflower
8. In fern, spores are formed in
(a) sporangium (b) oogonium
(c) archegonium (d) stomium
9. *Laminaria* (kelp) and *Fucus* (rock weed) are the examples of
(a) red algae
(b) brown algae
(c) green algae
(d) golden brown algae
10. People recovering from long illness are often advised to include the alga *Spirulina* in their diet because it
(a) makes the food easy to digest.
(b) is rich in proteins.
(c) has antibiotic properties.
(d) restores the intestinal microflora.
11. Which of the following cell organelle remains enveloped by a single unit membrane?
(a) Mitochondria (b) Lysosomes
(c) Nucleus (d) Chloroplast
12. Consider the following statements regarding the major pigments and stored food in the different groups of algae and choose the correct option.
(i) In Chlorophyceae, the stored food material is starch and the major pigments are chlorophyll-*a* and *d*.
(ii) In Phaeophyceae, laminarin is the stored food and major pigments are chlorophyll-*a* and *b*.
(iii) In Rhodophyceae, floridean starch is the stored food and the major pigments are chlorophyll-*a*, *d* and phycoerythrin.
(a) (i) is correct, but (ii) and (iii) are wrong.
(b) (i) and (ii) are correct, but (iii) is wrong.
(c) (i) and (iii) are correct, but (ii) is wrong.
(d) (iii) is correct, but (i) and (ii) are wrong.
13. Algae have cell wall made up of
(a) cellulose, galactans and mannans
(b) hemicellulose, pectins and proteins
(c) pectins, cellulose and proteins
(d) cellulose, hemicellulose and pectins.
14. Which plays an important role in the dispersal of spores in *Funaria*?
(a) Operculum
(b) Capsule
(c) Peristome and annulus
(d) Sporogonium
15. Read the following five statements (i – v) and answer the question.
(i) In *Equisetum* the female gametophyte is retained on the parent sporophyte.
(ii) In *Ginkgo* male gametophyte is not independent.
(iii) The sporophyte in *Riccia* is more developed than that in *Polytrichum*.
(iv) Sexual reproduction in *Volvox* is isogamous.
(v) The spores of slime molds lack cell walls.
How many of the above statements are correct?
(a) Two (b) Three
(c) Four (d) One
16. Which one of the following is common to multicellular fungi, filamentous algae and protonema of mosses?
(a) Diplontic life cycle
(b) Members of kingdom plantae
(c) Mode of Nutrition
(d) Multiplication by fragmentation
17. Which one of the following is a correct statement ?
(a) Pteridophyte gametophyte has a protonemal and leafy stage
(b) In gymnosperms female gametophyte is free-living
(c) Antheridiophores and archegoniophores are present in pteridophytes
(d) Origin of seed habit can be traced in pteridophytes

RESPONSE
GRID

6. (a)(b)(c)(d) 7. (a)(b)(c)(d) 8. (a)(b)(c)(d) 9. (a)(b)(c)(d) 10. (a)(b)(c)(d)
11. (a)(b)(c)(d) 12. (a)(b)(c)(d) 13. (a)(b)(c)(d) 14. (a)(b)(c)(d) 15. (a)(b)(c)(d)
16. (a)(b)(c)(d) 17. (a)(b)(c)(d)

Space for Rough Work

18. What is the similarity between gymnosperms and angiosperms ?
 (a) Phloem of both have companion cells.
 (b) Endosperm is formed before fertilization in both.
 (c) Origin of ovule and seed is similar in both.
 (d) Both have leaves, stem and roots.
19. In Chlorophyceae, sexual reproduction occurs by
 (a) isogamy and anisogamy
 (b) isogamy, anisogamy and oogamy
 (c) oogamy only
 (d) anisogamy and oogamy
20. In gymnosperms, the ovule is naked because
 (a) ovary wall is absent (b) integuments are absent
 (c) perianth is absent (d) nucellus is absent
21. How many meiotic division would be required to produce 101 female gametophytes in an angiosperm?
 (a) 101 (b) 26
 (c) 127 (d) None of these
22. Which one of the following is the major difference between mosses and ferns ?
 (a) Ferns lack alternation of generation while mosses show the same.
 (b) Mosses are facultative aerobes while ferns are obligate aerobes.
 (c) Vascular bundles of ferns show xylem vessels while those of mosses lack it.
 (d) Sporophytes of ferns live much longer as compared to the sporophytes of mosses.
23. Red snow causing alga is
 (a) *Chlamydomonas nivalis*
 (b) *Chlamydomonas reinhardtii*
 (c) *Chlamydomonas debaryanum*
 (d) *Chlamydomonas media*
24. Alginates (alginin), used as highly efficient gauze in internal operations are obtained from cell walls of
 (a) Cyanophyceae (b) Phaeophyceae
 (c) Rhodophyceae (d) All of these
25. Bryophytes resemble algae in the following aspects
 (a) Filamentous body, presence of vascular tissues and autotrophic nutrition
 (b) Differentiation of plant body into root, stem and leaves and autotrophic nutrition
 (c) Thallus like plant body, presence of root and autotrophic nutrition
 (d) Thallus like plant body, lack of vascular tissues and autotrophic nutrition
26. In sexual life cycle of *Agaricus*, dikaryotization ($n + n$) is brought about by
 (a) Fusion of male and female sex organs
 (b) Fusion of vegetative cells of different genotypes
 (c) Somatogamy between basidiospores
 (d) Fusion of motile gametes
27. Read the following features properly
 A. Free living
 B. Mostly photosynthetic
 C. Mostly parasitic
 D. Inconspicuous
 E. Unicellular
 How many of the given features are correct for prothallus of pteridophytes?
 (a) Three (b) Five
 (c) Four (d) Two
28. Identify the correctly matched pair:
- | | Class | Example | Feature |
|-----|-------------|--------------------|-------------|
| (a) | Psilopsida | <i>Lycopodium</i> | Seed habit |
| (b) | Sphenopsida | <i>Selaginella</i> | Strobilus |
| (c) | Lycopsida | <i>Psilotum</i> | Homosporous |
| (d) | Pteropsida | <i>Dryopteris</i> | Macrophylls |
29. Angiosperms have dominated the land flora primarily because of their
 (a) power of adaptability in diverse habitat
 (b) property of producing large number of seeds
 (c) nature of self pollination
 (d) domestication by man

**RESPONSE
GRID**

18. (a) (b) (c) (d) 19. (a) (b) (c) (d) 20. (a) (b) (c) (d) 21. (a) (b) (c) (d) 22. (a) (b) (c) (d)
 23. (a) (b) (c) (d) 24. (a) (b) (c) (d) 25. (a) (b) (c) (d) 26. (a) (b) (c) (d) 27. (a) (b) (c) (d)
 28. (a) (b) (c) (d) 29. (a) (b) (c) (d)

Space for Rough Work

30. Which out of the following are included under tracheophyta i.e., vascular plants?
(a) Pteridophytes (b) Gymnosperms
(c) Angiosperms (d) All of these
31. At least a half of the total CO₂ fixation on earth is carried out through photosynthesis by
(a) angiosperms (b) gymnosperms
(c) algae (d) bryophytes
32. The embryonic development in bryophytes takes place in the
(a) protonema (b) sporangium
(c) antheridium (d) archegonium.
33. The spread of living pteridophytes is limited and is restricted to narrow geographical region because of
(a) gametophytic growth needs cool, damp and shady places
(b) requirement of water for fertilization
(c) absence of stomata in leaf and absence of vascular tissue
(d) both (a) and (b)
34. Gymnosperm called as a living fossil is
(a) *Cycas* (b) *Ginkgo*
(c) *Juniperus* (d) Both (a) and (b).
35. The sporophyte is the dominant phase in
(a) pteridophytes (b) gymnosperms
(c) angiosperms (d) all of these.
36. Which kind of life-cycle pattern is exhibited by seed-bearing plants?
(a) Haplontic (b) Diplontic
(c) Haplo-diplontic (d) All of these
37. Plants reproducing by spores such as mosses and ferns are grouped under the general term
(a) Thallophytes (b) Cryptogams
(c) Bryophytes (d) Sporophytes
38. Angiosperms have dominated the land flora primarily because of their
(a) Power of adaptability in diverse habitat
(b) Property of producing large number of seeds
(c) Nature of self pollination
(d) Domestication by man
39. Many blue-green algae occur in thermal springs (hot water springs). The temperature tolerance of these algae have been attributed to their
(a) cell wall structure
(b) mitochondrial structure
(c) modern cell organization
(d) importance of homopolar bonds in their proteins
40. Which of the following occurs both in fresh as well as in marine water ?
(a) *Spirogyra* (b) *Cladophora*
(c) *Oedogonium* (d) *Cephaleuros*
41. The pyrenoids are made up of
(a) proteinaceous centre and starchy sheath
(b) core of protein surrounded by fatty sheath
(c) core of starch surrounded by sheath of protein
(d) core of nucleic acid surrounded by protein sheath
42. Blue green algae have
(a) chlorophyll (b) xanthophyll
(c) phycocyanin (d) fucoxanthin
43. Parasitic alga is
(a) *Volvox* (b) *Ulothrix*
(c) *Porphyra* (d) *Cephaleuros*
44. Which one of the following pairs of plants are not seed producers?
(a) *Funaria* and *Pinus* (b) Fern and *Funaria*
(c) *Funaria* and *Ficus* (d) *Ficus* and *Chlamydomonas*
45. Neck canal cells are absent in archegonia of –
(a) Bryophytes (b) Gymnosperms
(c) Pteridophytes (d) All of these

**RESPONSE
GRID**

30. (a)(b)(c)(d) 31. (a)(b)(c)(d) 32. (a)(b)(c)(d) 33. (a)(b)(c)(d) 34. (a)(b)(c)(d)
35. (a)(b)(c)(d) 36. (a)(b)(c)(d) 37. (a)(b)(c)(d) 38. (a)(b)(c)(d) 39. (a)(b)(c)(d)
40. (a)(b)(c)(d) 41. (a)(b)(c)(d) 42. (a)(b)(c)(d) 43. (a)(b)(c)(d) 44. (a)(b)(c)(d)
45. (a)(b)(c)(d)

Space for Rough Work

DAILY PRACTICE PROBLEM DPP CHAPTERWISE 3 - BIOLOGY

Total Questions	45	Total Marks	180
Attempted		Correct	
Incorrect		Net Score	
Cut-off Score	35	Qualifying Score	50
Success Gap = Net Score – Qualifying Score			
Net Score = (Correct × 4) – (Incorrect × 1)			

HINTS & SOLUTIONS

DPP/CB03

1. (b) Reserve food in red algae (Rhodophyceae) is floridean starch. In green algae (Chlorophyceae), reserve food is starch. In brown algae Phaeophyceae, reserve food is laminarin and mannitol. In Cyanophyceae, reserve food is cyanophycean starch.
2. (a) Peat moss is another name for *Sphagnum*. It is also known as famine food in China.
3. (b) Well developed vascular system is present in the members of pteridophytes but absent in mosses as the plant body is sporophyte which is distinguished into true root, stem and leaves.
4. (c) The leaves appear green because of the pigment chlorophyll which does not absorb green light rather reflects it back.
5. (b) In chlorophyceae, sexual reproduction takes place by all the three processes :
Isogamy – fusion of morphologically and physiologically similar gametes. Anisogamy – morphologically similar but physiologically dissimilar gametes. Oogamy – fusing gametes are dissimilar in all respect.
6. (d) *Azolla* has been used as a green manure crop in Vietnam and China for centuries. The ability of *Azolla* to shade out weeds in wetland rice and taro has been noted by farmers and researchers since the early 20th century.
7. (a) *Rafflesia* or Corpse flower is a total root parasite. It obtains the total nourishment from the root of the host plant. Its
8. (a) flowers only come out of the host plant and they have a diameter of 1 m and weight around 10 kg.
9. (b) *Laminaria* (kelp) and *Fucus* (rock weed) are marine algae. They are the members of class- phaeophyceae (brown) algae.
10. (b) Algae *Spirulina* is one of the richest sources of protein, containing 40–50 percent crude protein on dry weight basis which under favourable condition may reach upto 70 percent. So, the people recovering from long illness are advised to take it in the diet.
11. (b) The membrane surrounding a lysosome allows the digestive enzymes to work at the 4.5 pH they require. They are created by the addition of hydrolytic enzymes to early endosomes from the Golgi apparatus.
12. (d) 13. (a) 14. (c)
15. (a) Statement (i) and (ii) are correct.
Riccia is liverwort in which simplest sporophyte consists of capsule only while *Polytrichum* is moss in which sporophyte consists of foot, seta & capsule. *Volvox* is a fresh water green colonial alga. Reproduction is both sexual and asexual. Sexual reproduction is oogamous. Slime moulds are consumer decomposer protists. They possess characters of plants (cellulosic cell wall), animals (phagotrophic nutrition) and fungi (spores).
16. (d)
17. (d)
(a) Gametophyte of bryophytes bears protonemal & leafy stage.
(b) In gymnosperm female gametophyte is not free living.
(c) They are present in *Marchantia* or which is a bryophyte.
(d) Origin of seed habit started in pteridophyte *Selaginella*.
18. (d)
19. (b)
20. (a)
21. (a)
22. (d)
23. (a)
24. (b)
25. (d)
26. (b)
27. (a) Prothallus of pteridophytes is free-living, mostly photosynthetic small but multicellular and inconspicuous.
28. (d)
• Psilopsida – *Psilotum* – rootless
• Sphenopsida – *Equisetum* – Strobilus
• Lycopsidea – *Lycopodium* – Homosporous
• Lycopsidea – *Selaginella* – Heterosporous
29. (a) Angiosperms are highly evolved and well adapted land plants. They have both vessels and tracheids in xylem for better conduction of water. Roots are modified into tap roots, adventitious roots, pneumatophores etc. to suit the desired climate.
Sex organs are highly developed, sporophylls are organised into flowers and the flowers are highly coloured or modified to attract pollinators at different times and places. Insect pollination is more prevalent because it is more efficient and leads to less wastage of pollen grains as compared to wind pollination. So the flowers are made attractive to attract a variety of insects. Seed are more protected as they are enclosed inside a fruit.
All these adaptations have made angiosperms more adaptative in diverse habitats.
30. (d) Tracheophyta are those plants which possess conducting or vascular tissue, xylem and phloem. Xylem transports water and minerals while phloem conducts organic food. Tracheophytes include pteridophytes, gymnosperms and angiosperms.
31. (c) Nearly 50% of total carbon dioxide fixation of photosynthesis of world is carried out by algae.
Photosynthesis by algae releases oxygen in the immediate aquatic environment. It is essential for respiration of aquatic life. Algae are primary producers of food in large bodies of fresh, brackish and sea water.
32. (d) In bryophytes, the zygote develops into a multicellular, undifferentiated structure called embryo. The embryo, within venter of archegonium, by further segmentation and differentiation finally develops into a full fledged sporophyte called sporogonium.
33. (d)
34. (d) The gymnosperms are comparatively more ancient than the angiosperms in evolutionary terms. Most of the gymnosperms have now become extinct and the group is presently represented by only 900 living species. The living gymnosperms are widely distributed in the cold climates where snow is the source of water. *Cycas* and *Ginkgo* are referred to as living fossils.
35. (d) In gymnosperms, pteridophytes and angiosperms, the sporophytic phase is dominant and the gametophytic phase is dependent on sporophyte.
36. (b) In diplontic life cycle, the dominant free living phase is the diploid (2n). Sporophyte is photosynthetic. The gametophytic phase is represented by single to few-celled haploid gametophyte e.g., all seed-bearing plants i.e., gymnosperms and angiosperms.

37. (d) Algae and fungi are grouped under thallophyta. Bryophytes are non vascular embryophytes having an independent gametophyte and parasitic sporophyte.
38. (a) Angiosperms have adapted themselves to all kinds of habitat-terrestrial, aquatic, tropical, deciduous and alpine. Self pollination is seen in very few angiosperms. Production of large number of seeds ensure that at least some will germinate. Not all plants have been domesticated by man.
39. (d) Blue-green algae which grow in hot water springs (at about 70°C) are *Oscillatoria terebriformis*, *Oscillatoria brevis* etc. These blue-green algae are also called thermophytes. The temperature tolerance of these algae is due to the presence of homopolar bonds in their proteins.
40. (b) *Cladophora* is an autotrophic and filamentous algae which occurs in fresh as well as in marine water.
41. (a) The pyrenoids are small spherical protein bodies surrounded by starch deposition. They are found singly or in numbers embedded in the chloroplast of many algae and bryophytes.
42. (c) Phycocyanin pigment is found in blue-green algae (myxophyceae algae). The reserve food material is in the form of cyanophycean starch.
43. (c) *Cephaleuros virescens* grows as a parasite on the leaves of tea and causes red rust of tea. It is the common intercellular parasitic algae of chlorophyceae.
44. (b)
45. (b)