**Sample Paper- 03**

**Class 11th NEET (2024)**

# BOTANY

## SECTION-A

**1.** Which of the following match is **incorrect**?
(1) Fungi – Spore formation
(2) *Hydra* – Budding
(3) Planaria – Regeneration
(4) Yeast – Conidia

**2.** The biological concept of species was given by;
(1) John Ray
(2) Linnaeus.
(3) Aristotle
(4) Ernst Mayr.

**3.** According to binomial nomenclature, every living organism has;
(1) two scientific name with single component.
(2) one scientific name with two components.
(3) two names, one Latin and other common.
(4) one common name with three components.

**4.** The equivalent rank of Carnivora in taxonomic categories of man and housefly is respectively;
(1) *Homo* and *Musca*.
(2) Hominidae and Muscidae.
(3) Mammalia and Insecta.
(4) Primata and Diptera.

**5.** Which of the following statements is correct about *Trypanosoma*?
(1) They are flagellated protozoan.
(2) They are parasite.
(3) They cause sleeping sickness.
(4) All of these.

**6.** A system of classification, in which external and internal features are considered, is
(1) natural system
(2) phylogenetic system
(3) artificial system
(4) synthetic system

**7.** Which of the following environmental conditions are essential for optimum growth of Mucor on a piece of bread?
(a) Temperature of about 25°C
(b) Temperature of about 5°C
(c) Relative humidity of about 5%
(d) Relative humidity of about 95%
(e) A shady place
(f ) A brightly illuminated place
(1) (b), (c) and (f)
(2) (a), (c) and (e)
(3) (a), (d) and (e)
(4) (b), (d) and (e)

**8.** Pathogen of white rust disease belongs to the group
(1) Ascomycetes (2) Basidiomycetes
(3) Phycomycetes (4) Deuteromycetes

**9.** Natural system of classification differs from artificial system in;
(1) employing only one floral trait
(2) taking only one vegetative trait
(3) bringing out similarities and dissimilarities
(4) developing evolutionary trends

**10.** The major pigments in green algae are _____ and _____; and stored food is _____.
(1) Chl *a*; Chl *d*; Starch
(2) Chl *a*; Chl *c*; Floridean starch
(3) Chl *a*; Chl *b*; Starch
(4) Chl *a*; Chl *c*; manitol

**11.** Which of the following is regarded as giant algae?
(1) *Porphyra*
(2) *Gelidium*
(3) *Polysiphonia*
(4) *Nereocystis*

**12.** Protonema is
(1) a fossil pteridophyte.
(2) the juvenile phase of a moss gametophyte.
(3) a part of the sporophyte of Funaria.
(4) None of these.

**13.** Choose the **correct** statement for bryophytes.
(1) Their sporophytic generation is smaller than gametophytic and is generally parasite
(2) Meiosis takes place in reproductive organs and results in the formation of gametes
(3) Their roots function for both conduction and support
(4) Their gametophytic generation is the dominant phase which produces spores and each spore gives rise to a new gametophytic plant.

**14.** According to phylogenetic classification organisms belonging to same taxa
(1) are same in anatomy
(2) have same genetic constituent
(3) have a common ancestor
(4) have all characteristics same.

**15.** In which group of organisms the cell walls form two thin overlapping shells which fit together?
(1) Dinoflagellates
(2) Slime moulds
(3) Chrysophytes
(4) Euglenoids

**16.** Natural classification systems developed were based on;
(1) natural affinities amongst organism.
(2) ultrastructure and anatomy.
(3) embryology.
(4) All of these.

**17.** Match Column-I with Column-II and select the **correct** option.

| Column-I | | Column-II | |
|---|---|---|---|
| **(A)** | Tap root system | **(I)** | *Monstera* |
| **(B)** | Prop root | **(II)** | Mustard |
| **(C)** | Fibrous root system | **(III)** | Banyan |
| **(D)** | Adventitious roots | **(IV)** | Wheat |

(1) (A) – (I); (B) – (IV); (C) – (III); (D) – (II)
(2) (A) – (IV); (B) – (I); (C) – (III); (D) – (II)
(3) (A) – (II); (B) – (III); (C) – (IV); (D) – (I)
(4) (A) – (I); (B) – (II); (C) – (III); (D) – (IV)

**18.** Secondary and tertiary roots develop from primary root in
(1) acropetal succession.
(2) basipetal succession.
(3) irregularly.
(4) Both (1) and (2).

**19.** Select the **wrong** statement.
(1) Cell wall is present in members of fungi and plantae.
(2) Mushrooms belong to basidiomycetes.
(3) Pseudopodia are locomotory and feeding structures in sporozoans.
(4) Mitochondria are the powerhouse of the cell in all kingdoms except monera.

**20.** In Pinus/gymnosperms, the haploid structure are;
(1) megaspore, endosperm and embryo
(2) megaspore, pollen grain and endosperm
(3) megaspore, integument and root
(4) pollen grain, leaf and root.

**21.** Which of the following is **correct** about leaf?
(1) It has originated from root apical meristem.
(2) It is arranged in basipetal order.
(3) It arises from axillary bud.
(4) It bears a bud in its axil.

**22.** Leaf base is swollen to form pulvinus in;
(1) some leguminous plants.
(2) some crucifers.
(3) some monocots.
(4) some cycads.

**23.** What is the function of thin flexible petiole?
(1) It helps the plant to climb.
(2) It increases the rate of respiration.
(3) It allows lamina to flutter in wind there by cooling the leaf and bringing fresh air to leaf surface.
(4) It decreases the rate of transpiration.

**24.** Which of the following is the endospermic seed?
(1) Bean
(2) Gram
(3) Pea
(4) Castor

**25.** Aleurone layer in maize seed is rich in _____.
(1) proteins
(2) carbohydrates
(3) lipids
(4) All of these

**26.** Select the option showing the **correct** match.

| | | | | | |
|---|---|---|---|---|---|
| **(a)** | Br | **(i)** | Bracteate | | |
| **(b)** | K | **(ii)** | Calyx | | |
| **(c)** | C | **(iii)** | Corolla | | |
| **(d)** | A | **(iv)** | Gynoecium | | |
| **(e)** | G | **(v)** | Androecium | | |
| **(f)** | G | **(vi)** | Superior ovary | | |
| **(g)** | ♂ | **(vii)** | Male | | |
| **(h)** | ⚥ | **(viii)** | Bisexual | | |
| **(i)** | ⊕ | **(ix)** | Actinomorphic | | |
| **(j)** | % | **(x)** | Zygomorphic | | |
| **(k)** | ♀ | **(xi)** | Female | | |

(1) (a) – (ii); (b) – (iii); (c) – (v); (d) – (xi); (e) – (i); (f ) – (x); (g) – (i); (h) – (vi); (i) – (viii); (j) – (iv); (k) – (vii)

(2) (a) – (iii); (b) – (i); (c) – (ii); (d) – (v); (e) – (iv); (f ) – (vii); (g) – (i); (h) – (viii); (i) – (vi); (j) – (x); (k) – (xi)

(3) (a) – (xi); (b) – (x); (c) – (i); (d) – (viii); (e) – (vii); (f ) – (vi); (g) – (iv); (h) – (v); (i) – (iii); (j) – (ii); (k) – (i)

(4) (a) – (i); (b) – (ii); (c) – (iii); (d) – (v); (e) – (iv); (f ) – (vi); (g) – (vii); (h) – (viii); (i) – (ix); (j) – (x); (k) – (xi)

**27.** In a cymose inflorescence the main axis;

(1) has unlimited growth
(2) bears a solitary flower
(3) has unlimited growth but lateral branches end in flowers
(4) terminates in a flower

**28.** The end walls of sieve tube elements are perforated in a sieve-like manner to form the;

(1) metaxylem
(2) protoxylem
(3) companion cells
(4) sieve plates

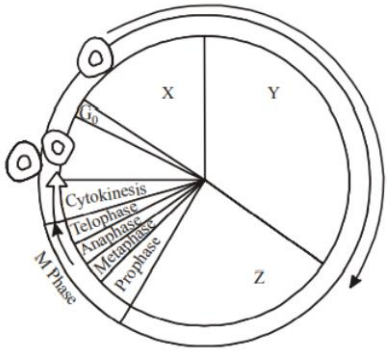
**29.** **Assertion (A):** Chemotaxonomy classify organism at molecular level.
**Reason (R):** Cytotaxonomy classify organisms at cellular level.

**(1)** Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is the correct explanation of **Assertion (A)**.
**(2)** Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not the correct explanation of **Assertion (A)**.
**(3)** **Assertion (A)** is true but **Reason (R)** is false.
**(4)** Both **Assertion (A)** and **Reason (R)** are false.

**30.** A major characteristic of monocot root is the presence of

(1) vasculature without cambium
(2) cambium sandwiched between phloem and xylem along the radius
(3) open vascular bundles
(4) scattered vascular bundles.

31. The following diagram is of a typical cell cycle.




Mark the **correct** option

(1) X – $G_1$; Y – S; Z – $G_2$
(2) X – $G_2$; Y – S; Z – $G_1$
(3) X – $G_0$; Y – S; Z – $G_2$

32. PS-I the reaction centre Chl *a* has absorption maxima at _____, while in PS-II the reaction centre Chl *a* has absorption maxima at _____.

(1) $P_{680}$, $P_{700}$ (2) $P_{700}$, $P_{680}$
(3) $P_{800}$, $P_{600}$ (4) $P_{700}$, $P_{900}$

**33.** Presence of carotenes in chloroplast helps in:-

(1) ATP synthesis
(2) Conversion of radiant energy into chemical energy
(3) Protecting chlorophyll molecules from photooxidation
(4) Absorption of longer wavelength of light

**34.** Which of the following class of Algae is mostly found in salt water?

(1) Phaeophyceae (2) Rhodophyceae
(3) Chlorophyceae (4) Both (1) and (2)

**35.** The core of cilia and flagella is called;

(1) axoneme.
(2) protoplasmic sheath.
(3) granum.
(4) spoke.

## SECTION-B

**36.** Mark the **correct** match.

| | Stage | Ploidy | DNA content |
|---|---|---|---|
| (1) | $G_1$ phase | n | 2C |
| (2) | S phase | 2n | 4C |
| (3) | $G_2$ phase | 4n | 4C |
| (4) | Prophase | 2n | 2C |

**37.** The plane of alignment of the chromosomes at metaphase is referred to as;

(1) attachment plate
(2) cell plate
(3) metaphase plate
(4) furrow

**38.** At anaphase I, each chromosome has _____ chromatids.

(1) two (2) one
(3) four (4) three

**39.** Which of the following statements is **correct** for meiosis?

(1) First division is equational and second reductional.
(2) First division is reductional and second equational.
(3) Both divisions are equational.
(4) Both divisions are reductional.

**40.** The main difference between a dividing animal and plant cell lies in

(1) cell plate formation.
(2) chromosome movement.
(3) coiling of chromosome.
(4) chromosome division.

**41.** **Assertion (A)**: Majority of pteridophytes are heterosporous.

**Reason (R):** *Sellaginella* and *Salvinia* are homosporous

**(1)** Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is the correct explanation of **Assertion (A)**.
**(2)** Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not the correct explanation of **Assertion (A)**.
**(3)** **Assertion (A)** is true but **Reason (R)** is false.
**(4)** Both **Assertion (A)** and **Reason (R)** are false.

**42.** **Assertion (A):** Meiosis has evolutionary significance because it results in variation in genetic material.

**Reason (R)**: Variation in genetic material is due to crossing over.

**(1)** Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is the correct explanation of **Assertion (A)**.
**(2)** Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not the correct explanation of **Assertion (A)**.
**(3)** **Assertion (A)** is true but **Reason (R)** is false.
**(4)** Both **Assertion (A)** and **Reason (R)** are false.

**43.** Who showed that sunlight is essential to the plant process that purifies the air fouled by burning candles or breathing animals?

(1) Engelman
(2) Joseph Priestley
(3) Ingenhousz
(4) Van Niel

**44.** **Assertion (A):** PEP is the primary carbon di acceptor in $C_4$ plants

**Reason (R):** RUBP is the primary carbon do oxide acceptor in $C_3$ plants.

**(1)** Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is the correct explanation of **Assertion (A)**.
**(2)** Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not the correct explanation of **Assertion (A)**.
**(3)** **Assertion (A)** is true but **Reason (R)** is false.
**(4)** Both **Assertion (A)** and **Reason (R)** are false.

**45.** In $C_4$ plants

(1) Calvin cycle occurs in mesophyll.
(2) Calvin cycle occurs in bundle sheath cells.
(3) sugar is formed in mesophyll cells.
(4) $C_3$ acid is transported from mesophyll to bundle sheath.

**46.** **Statement-I**: Under water stress, the rate of photosynthesis declines because of stomatal closure leading to decrease in $CO_2$ supply.

**Statement-II:** Reduced water potential decrease leaf surface area for photosynthesis. Causes decline in the rate of photosynthesis.

(1) Statement I and Statement II both are correct.
(2) Statement I is correct and Statement II is incorrect.
(3) Statement I is incorrect and Statement II is correct.
(4) Statement I and Statement II is incorrect.

**47.** The equation for the process of glycolysis is;

(1) $C_6H_{12}O_6 \rightarrow 2C_3H_4O_3 + 4H$

(2) $C_6H_{12}O_6 + 6CO_2 \rightarrow 6CO_2 + 6H_2O$

(3) $6H_2O + 6CO_2 \rightarrow C_6H_{12}O_6 + 6O_2$

(4) None of these.

**48.** Which of the following statements is **not** true for stomatal apparatus?

(1) Guard cells invariably possess chloroplasts and mitochondria.

(2) Guard cells are always surrounded by subsidiary cells.

(3) Stomata are involved in gaseous exchange.

(4) Inner wall of guard cells are thick

**49.** How does pruning help in making the hedge dense?

(1) It releases wound hormones.

(2) It induces the differentiation of new shoots from the rootstock.

(3) It frees axillary buds from apical dominance.

(4) The apical shoot grows faster after pruning

**50.** Which of the following growth hormones has specific effect on cytokinesis?

(1) Cytokinins

(2) Gibberellins

(3) Auxins

(4) Ethylene