BOTANY : : 2008

1. Identify the scientists worked extensively on chlorophyllous and non-chlorophyllous Thallophytes, respectively

I. Iyengar II. Swaminathan III. Mehta IV. Maheswari

The correct pair is

(1) I, IV (2) I, III (3) II, III (4) III, IV

2. Study the following lists :

List – I	**List – II**
A. Training in landscaping	I. BSI
B. Establishment of Mycological herbarium	II. CIMAP
C. Research paper pulp	III. FRI
D. Introduction of *Salvia* into India	IV. IARI
	V. NBRI

The correct match is :

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

3. Which of the following two are the resultant of stipule modifications:

I. Spines in *Ziziphus* II. Tendrils in *Smilax*

III. Tendrils in *Nepenthes* IV. Spines in *Argemone*

V. Thorns in *Bougainvillea*

The correct pair is :

(1) I, III (2) I, II (3) II, V (4) III, V

4. Which one of the following conditions is seen in the roots of a plant having submerged assimilatory roots and spongy petioles.?

(1) Triarch (2) Monarch (3) Tetrarch (4) Diarch

5. Identify a pair of the following plants which show modification of axillary buds into tendrils and hooks respectively :

I. Hugonia II. Duranta III. Passiflora IV. Dioscorea

The correct pair is :

(1) I, II (2) II, III (3) III, I (4) IV, I

6. Study the following table :

I)	False whorl like inflorescence	Many sessile bisexual flowers	Leonotis
II)	Single flower inflorescence	Many stalked staminate and pistillate flowers	Poinsettia
III)	Fruit- like inflorescence	Many sessile staminate flowers on the top and pistillate flowers at the base and sterile flowers in between	Ficus
IV	Fleshy axis of inflorescence	Many stalked staminate flowers at the base and pistillate flowers on the top and sterile flowers in between	Colacacia

The correct pair is :

(1) I, III (2) I, IV (3) II, III (4) II, IV

7. Read the following lists :

List –I	**List –II**
A. Gall flowers	I. Theobroma
B. Sympodial axis	II. Bougainvillea
C. Achlamydeous	III. Ficus
D. Cauliflory	IV. Euphorbia
	V. Hemelia

The correct match is

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

8. In the flowers of a plant, the ovarian part is fused, but styles and stigmas are free. Its ovary becomes unilocular due to breakdown of partition wall and the ovules are attached to a central axis. Identify the plant.
(1) Dianthus (2) Abutilon (3) Nymphaea (4) Michelia

9. Arrange the following fruits in descending order based on the number of locules in the ovary from which it develops :
I. Carcerulus II. Schizocarp III. Cremocarp IV. Regma
The correct sequence is :
(1) II, I, IV, III (2) I,-IV, III, II (3) II, IV, III, I (4) II, III, I, IV

10. Identify the characters with reference to the plant in which eight nucleated embryo sac was first studied by Strasburger
I. Micropyle, Chalaza and funiculus are arranged in the same vertical line in the ovule.
II. Presence of both unisexual and bisexual flowers in the same plant.
III. Filiform apparatus helps in conduction of food materials from endosperm to egg apparatus.
IV. Long funiculus coils like a watch spring around the ovulue.
Identify the correct pair :
(1) I, IV (2) II, III (3) I, II (4) III, IV

11. From the following identify the two correct statements with reference to meiosis
I. Bead like structure are absent on chromosomes.
II. Displacement of chiasmata occurs in diakinesis.
III. Separation of two basic sets of chromosomes.
IV. No division of centromere.
The correct statements are :
(1) II, III 2) II, IV (3) III, IV (4) I, III

12. In a DNA segment having six coils, there are 22 nitrogen base pairs linked by two hydrogen bonds. How many cytosine bases are found in that segment?
(1) 22 (2) 38 (3) 44 (4) 76

13. G.H. Shull observed inbreeding depression in a plant. Miller and Letham isolated a hormone from the immature seeds of that plant. Which of the following character is NOT associated with that plant?
(1) Atactastelic condition in stem
(2) Bundle sheath in leaf
(3) Chromosomal number of endospermous cell is 30
(4) Medulla absent in the root

14. Read the following lists:

List – I	**List – II**
A. Extra foliar nectarines	I. Achras
B. Schizogenous cavities	II. Tropaeolum
C. Laticiferous ducts	III. Passiflora
D. Hydathodes	IV. Eucalyptus
	V. Pinus

The correct match is :

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

15. The tracheophyte characterized by habitual heterophylly, absence companion cells in phloem and presence of vessels in the xylem is

(1) Drimys (2) Pteris (3) Selaginella (4) Gnetum

16. Study the following lists:

List – I	**List – II**
A. Arachis	I. Basket making
B. Mangifera	II. Saky
C. Cajanus	III. Fixed oil
D. Oryza	IV. Diuretic
	V. Nitrocellulose

The correct match is

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

17. Study the following related to used plants and identify the correct match the sorghum and cotton respectively

I. Blood purification and organs fertilizer.
II. Animal feed and paper industry
III. 'B' Vitamin and cosmetics.
IV. Explosives and orgapic fertilizer.

The correct pair is :

(1) I, II (2) II, III (3) III, IV (4) II, IV

18. Which one of the following in Spirogyra is different based on its nucleus?

(1) Zygospore (2) Azygospore (3) Aplanospore (4) Akinete

19. ***Assertion· (A)*** : The life cycle in *Funaria* is called diplohaplontic.
Reason (R) : In *Funaria*, there is alternation of haploid gametophytic and diploid sporophytic phases, one becoming parent to the other.

The correct answer is

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

20. Read the following lists :

List –I	**List – II**
A. Exarch	I. Rhizome of *Pteris*
B. Endarch	II. Roots of *Pteris*
C. Mosarch	III. Pinnule of *Cycas*
D. Pseudo mesarch	IV.Primary stem of *Pteris*

The correct match is

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

21. Study the following lists :

List– I	**List –II**
A: M13 bacteriophage	I. ds RNA
B. Rice dwarf virus	II. ss RNA
C. Cauliflower mosaic virus	III. ss DNA
D. Polio virus	IV.ds DNA

The correct match is

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

22. Assign the following substances to the cell wall, flagella, 's' layer and pili of bacteria in correct sequence :

I. Glycoprotein II. Fimbrilin III. Teichoic acid IV. Flagellin

The correct sequence is

(1) III, I, IV, II (2) III, IV, I, II (3) II, IV, III, I (4) III, IV, II, I

23. Identify the fungus which produces chlamydospores from dikaryotic mycelium

(1) Sphecelotheca sorghi (2) Rhizopus stolonifer

(3) Pyricularia oryzae (4) Colletotrichum falcatum

24. Study the following lists :

List – I	**List – II**
A. Blast disease of Rice	I. Dikaryotic mycelium
B. Citrus canker	II. Single celled conidiphores
C. Grain smut of sorghum	III.Gram positive bacteria
D. Red rot of sugarcane	IV. Septate conidiophores
	V. Gram negative bacteria

The correct match is

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

25. Identify three of the following plants which exhibit the physiological process described as 'Necessary Evil' :

I. Potamogeton II. Sagittaria III. Limnophila IV.Nymphaea

The correct match is

(1) I, II, III (2) II, III, IV (3) I, II, IV (4) I, III ,IV

26. Study the following table :

I)	Peperomia	Leaf succulent	Leaf epidermal cells store water
II)	Calotropis	Non-succulent	Root cells with thickened cell walls
III)	Tribulus	Ephemeral	Stem stores water
IV)	Ammophila	Dicot plant	Rolling in of leaves to check water loss

Identify the correct pair of answers.

(1) I, II (2) I, III (3) II, III (4) II, IV

27. Study the following lists :

List –I	**List –II**
A. Mutation breeding	I. W.L. Johannsen
B. Inbreeding depression	II. Karpechenko
C. Pureline selection	III. Charles Darwin
D. Intergeneric hybridization	IV. L.J. Staddler
	V. G.H. Shull

The correct match is

	A	B	C	D
(1)	IV	II	V	I
(2)	IV	V	II	I
(3)	IV	V	I	II
(4)	V	IV	I	II

28. ***Assertion (A) :*** Citrullus vulgaris is produced from a cross between 4n male and 2n Female plants.
Reason (R) : These triploid sterile plants do not bear seeds.
The correct answer is
(1) Both A and R are true and R is the correct explanation of A
(2) Both A and R are true, but R is not the correct explanation of A
(3) A is true, but R is false
(4) A is false, but R is true

29. Study the following table showing the components of water potential in closely arranged mesophyll cells namely A, Band C

Cell	**Osmotic potential (MPa)**	**Pressure potential (MPa)**
A	– 0.21	0.05
B	– 0.22	0.02
C	– 0.23	0.05

Identify two of the following which show correct direction of water movement between two cells.

I. $A \rightarrow B$ II. $B \rightarrow C$ III. $C \rightarrow A$ IV. $C \rightarrow B$

The correct pair is

(1) I, II (2) II, III (3) I, IV (4) II,IV

30. In photoactive plants, during day time the following ionic flux of guard cell is directly involves the expenditure of energy:
(1) Outward movement of malate
(2) Inward movement of potassium ions .
(3) Outward movement of protons
(4) Inward movement of chloride

31. **Assertion (A) :** Salt resistant plants survive in saline habitats by maintaining low internal Na^{1} levels.
Reason (R) : Salt resistant plants get rid off excess Na^{-} by ATP energized anti porter.
The correct answer is
(1) Both A and R are true and R is the correct explanation of A
(2) Both A and R are true, but R is not the correct explanation of A
(3) A is true, but R is false
(4) A is false, but R is true

32. The net requirement of assimilator power for the formation of 6 hexose molecules in maize plant is
(1) 72 ATP, 48 NADPH (2) 90 ATP, 60 NAQPH
(3) 108 ATp,72 NADPH (4) 180 ATP, 72 NADPH

33. The reaction which is catalyzed by a protein that is, not found in the matrix of mitochondria is
(1) Conversion of pyruvic acid to acetyl coenzyme A
(2) Oxidative decarboxylation of α-ketoglutaric acid
(3) Oxidation of succinic acid
(4) Cleavage of succinyl coenzyme A

34. Identify the triplet codons which code for the amino acids serine and proline
I. UCC II. CCA III. AAG IV.GGG
The correct pair is :
(1) I, III (2) II, IV (3) III,IV (4) I, II

35. Identify two of the following phytohormones which regulate the stomatal movements :
I. IAA II. GA_3 III. Zeatin IV.ABA.
The correct pair is :
(1) I, III (2) II, III (3) III, IV (4) II, IV

36. Identify the pair of physiological effects of two phytohormones which are synthesized from different amino acids
I. Formation of perennating buds in *Lemna.*
II. Simultaneous flowering in pineapple.
III. Bolting in cabbage.
IV. Apical dominance in *Polyalthia.*
The correct pair is :
(1) II, IV (2) I, IV (3) II, III (4) I, II

37. Identify the plants in correct sequence which exhibit marcescent calyx, herkogamy, mucilaginous cavities and inferior ovary respectively
I. *Sphaeranthus* II. *Capsicum* III. *Gloriosa* IV. *Kydia*
The correct sequence is
(1) I, III, II, IV (2) II, I, III, IV (3) II, III, I, IV (4) II, III, IV, I

38. In an inflorescence, two types of small, sessile flowers were observed. They are arranged in centripetal manner and have reduced hair like sepals. Which pair of the following characters are NOT associated with such flowers ?
I. Nector glands at the base of the corolla. II. Axile placentation.
III. Superior ovary. IV. Scaly bracts.
The correct pair is :
(1) II, III (2) III, IV (3) I, II (4) I, IV

39. Study the following :

List –I	**List – II**
A. Arachis	I. Swolen placenta
B. Cichorium	II. Epicalyx
C. Lilium	III. Fasciculate tuberous roots .
D. Physalis	IV. Geocarpy
	V. Bulbils

The correct match is

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

40. Which one shows the correct descending sequence with reference to the number of cohorts?

(1) Thalamiflorae, Calyciflorae, Disciflorae, Inferae
(2) Heteromerae, Inferae, Disciflorae, Calyciflorae
(3) Bicarpellatae, Disciflorae, Heteromerae, Calyciflorae
(4) Disciflorae, Thalamiflorae, Calyciflorae, Heteromerae

ANSWERS

(1) 2	(2) 4	(3) 2	(4) 2	(5) 3	(6) 1	(7) 4	(8) 1	(9) 1	(10) 3
(11) 1	(12) 2	(13) 4	(14) 3	(15) 3	(16) 1	(17) 4	(18) 1	(19) 4	(20) 3
(21) 1	(22) 2	(23) 1	(24) 2	(25) 2	(26) 1	(27) 3	(28) 4	(29) 3	(30) 3
(31) 1	(32) 4	(33) 3	(34) 4	(35) 3	(36) 1	(37) 4	(38) 1	(39) 4	(40) 1