

## BOTANY :: 2003

1. Whose investigation provided support for 'Continental Drift Theory' ?  
(1) M.a.P. Iyengar (2) Birbal Sahni (3) Norman E. Borlaug (4) F.w. Went
2. Exstipulate leaves are present in :  
(1) *Althea rosea* (2) *Tridax procumbens*  
(3) *Hibiscus rosa-sinensis* (4) *Tephrosia purpurea*
3. The morphological nature of the organ, which helps in climbing in *Cardiospermum* is :  
(1) Inflorescence axis (2) Leaf apex  
(3) Terminal bud (4) Axillary bud
4. Which of the following statements is correct ?  
(1) Replum is found in the ovary of *Pisum*  
(2) The anthers are introse in *Hibiscus*  
(3) The ovules are pendulous in *Nelumbo*  
(4) Lateral style is found in *Ocimum*
5. What is the type of fruit that develops from the ovary of a monocarpellate gynoecium and breaks into several one seeded parts at maturity?  
(1) Cremocarp (2) Carcerulus (3) Regma (4) Lomentum
6. Which one of the following floral characters, is shared by *Ruscus* and ray florets of *Tridax* ?  
(1) Nature of Perianth (2) Unisexuality  
(3) Zygomorphy (4) Number of stigmas
7. One of the following has been observed for the first time by Treub :  
(1) Entry of the pollen tube into the ovule through the micropyle in *Ottelia*  
(2) Entry of the pollen tube into the ovule through chalaza in *Casuarina*  
(3) Entry of the pollen tube into the ovule through the integuments  
(4) Formation of many pollen tubes from a single pollen grain in *Hibiscus*
8. Which one of the following is a suitable reference to Xenogamy ?  
(1) Ripening of androecium earlier to gynoecium  
(2) Pollen grains of one flower reaching the stigma of another flower present on the same plant  
(3) Pollen grains of one flower reaching the stigma of another flower, present on a different plant of the same species  
(4) The inability of pollen to germinate on the stigma of the same flower
9. A plant is considered to possess all advanced morphological characters based on the evolutionary significance. Which one of the following sets of characters does the plant denote the same?  
(1) Dioecious condition, gamopetalous corolla and multiple fruit  
(2) Actinomorphic flowers, free stamens and endospermic seeds  
(3) Perennial life span, diclamydeous flower and simple fruit  
(4) Simple leaves, monoecious condition and apocarpous pistil
10. Which series ends with the cohort umbellales in Bentham and Hooker's system of classification ?  
(1) Thalamiflorae (2) Disciflorae (3) Heteromerae (4) Calyciflorae
11. Number of carpels in *Sida cordifolia* is always:  
(1) Equal to the number of styles (2) Equal to the number of locules

- (3) Double the number of styles                      (4) Half the number of locules
12. A botanist collected some fruits with hook-like spines and when the seeds of the same have been germinated they turned out to be Asteraceous tax 'a', bearing asepalous and wind pollinated flowers. The fruits he collected were of :
- (1) *Xanthium strumarium*                      (2) *Lactuca sativa*  
(3) *Carthamus tinctorius*                      (4) *Sphaeranthus indica*
13. A raceme inflorescence of *Tamarindus* bears 15 flowers. Each fertile anther lobe of its flower contains 215 pollen grains. What would be the total number of pollen grains does the inflorescence produce ?
- (1) 64500                      (2) 32250                      (3) 19350                      (4) 16125
14. Rice bran oil is used as an :
- (1) Antibiotic                      (2) Anticorrosive                      (3) Antihelmenthic                      (4) Insecticide
15. In a double helix of DNA molecule of 10 coils, if there are 30 adenine nitrogen bases, what is the number of guanine, nitrogen 'bases' :
- (1) 30                      (2) 60                      (3) 70                      (4) 80
16. Which one of the following is correct match?
- (1) Monarch-*Nicotiana tabacum*                      (2) Diarch-*Trapa natans*  
(3) Triarch-*Pisum sativum*                      (4) Tetrarch-*Ricinus communis*
17. The meristem in which the cells divide in several planes is :
- (1) Plate meristem                      (2) Rib meristem  
(3) Mass meristem                      (4) Lateral meristem
18. Non-articulated laticifers are found in:
- (1) *Nerium*                      (2) *Papaver*                      (3) *Hevea*                      (4) *Achras*
19. Compound sieve plates are found in :
- (1) *Cucurbita*                      (2) *Vitis*                      (3) *Magnolia*                      (4) *Corchorus*
20. The pollen are liberated in *Cassytha* by:
- (1) Porous dehiscence                      (2) Longitudinal dehiscence  
(3) Transverse dehiscence                      (4) Valvular dehiscence
21. Number of androcytes required to form 32 male gametes in the plant with dicyclic dictyostele belonging to Polypodiaceae is :
- (1) 4                      (2) 8                      (3) 6                      (4) 32
22. The terminal sterile portion of an organ, considered to be an equivalent of angiospermous stamen in *Cycas*, is known as:
- (1) Columella                      (2) Hapteron                      (3) paraphysis                      (4) Apophysis
23. The chemical substances responsible for the slimy nature of mermaids tresses is :
- (1) Pectin                      (2) Chitin                      (3) Lignin                      (4) Cellulose
24. The organism which causes pneumonia in human beings is
- (1) Atrichous                      (2) Monotrichous                      (3) Amphitrichous                      (4) Peritrichous
25. A pathogen accumulates its secretion in the xylem vessels of a plant, whose seed epidermal hairs are of great economic importance. Identify the pathogen,
- (1) *Fusarium oxysporum*                      (2) *Xanthomonas citri*  
(3) *Phytophthora infestans*                      (4) *Puccinia purpurea*
26. Which one of the following is useful in identifying the different strains of a causal microbe of an infectious disease?
- (1) Colchicine                      (2) *Agrobacterium*                      (3) Complementary DNA                      (4) Crystal violet

27. Choose the chemical used in artificial polyploidy :
- (1) Polyethylene glycol (2) Sodium alginate  
 (3) Acenapthene (4) Sodium hypochlorite
28. Which mushroom contains muscarine?
- (1) Agaricus bisporus (2) Volvariella volvacea  
 (3) Pleurotus sojar-kaju (4) Amanita virosa
29. How does the ephemeral Tribulus tide over the dry conditions?
- (1) By its tuberous stem  
 (2) By its serial stem  
 (3) By lying in the form of seeds  
 (4) By storing water in different parts of its body
30. The relationship among different types of soil water can be summed up by the following equation :
- (1) Chresard = echard + hollard (2) Chresard = hollard - echard  
 (3) Echard = hollard + chresard (4) Hollard = Chresard - echard
31. Which of the following reactions does not take place in the cell organelle, that is referred to as "Powerhouse of the cell" ?
- (1) Glycine decarboxylation  
 (2) Glyceraldehyde 3-phosphate dehydrogenation  
 (3) Fumaric acid hydration  
 (4) Cytochrome C oxidation
32. Identify the specific group, which carries out the following biochemical reaction. Aspartic acid +  $\infty$  - ketoglutaric acid  $\rightarrow$  Oxaloacetic acid + Glutamic acid
- (1) Synthetases (2) Peptidases (3) Transaminases (4) Lyases
33. When one molecule of glucose is completely oxidized during aerobic respiration, how many molecules of carbon dioxide are released due to tricarboxylic acid cycle ?
- (1) One (2) Two (3) Three (4) Four
34. During photo respiration, the conversion of, phospho glycolate to glycolate takes place in this cell organelle
- (1) Mitochondria (2) Glyoxysome (3) Peroxisome (4) Chloroplast
35. A plant with low CO<sub>2</sub> compensation point is :
- (1) Atriplex patula (2) Leucopoa kingii  
 (3) Gossypium' hirsutum (4) Tidestromia Oblongifolia
36. A bacterium which is capable of utilizing the most abundantly available gas in the atmosphere for one of its metabolic path ways, but cannot utilize the second most abundantly available for its another metabolic pathway is :
- (1) Azotobacter (2) Clostridium (3) Rhodomicrobitim (4) Xanthomonas
37. A phytohormone which increases the production of starch hydrolyzing enzymes during the germination of maize seeds, is employed for the following:
- (1) Increasing the vase - life period of flowers  
 (2) Induction of seedless fruits in grapes  
 (3) Acceleration of ripening of banana fruits  
 (4) Eradication of dicot weeds

38. During which phase of their replication, the bacteriophages release lysozyme ?  
 (1) Adsorption (2) Maturation (3) Eclipse (4) Penetration
39. Swollen and spongy petioles are characteristic of :  
 (1) Trapa (2) Wolffia (3) Ceratophyllum (4) Limnophila
40. The photoperiodic cycles of 6 hours of dark period and 18 hours of light period induce flower formation in :  
 (1) Xanthium (2) Tobacco (3) Soyabean (4) Beta

### ANSWERS

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

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