Botany

1. **The type of compound leaves in *Coriander* is:**

   A) Unipinnate B) Bipinnate C) Tripinnate D) Decompound

2. **In Australian *Acacia*, the leaves are modified into:**

   A) Cladodes B) Phylloclades C) Phyllodes D) Tendrils

3. **Raceme of Racemes is also termed as:**

   A) Umbel B) Spadix C) Panicle D) Corymb

4. **The inflorescence in *Euphorbia* species is:**

   A) Verticillaster B) Cyathium C) Cymose headD) Capitulum

5. **Censer mechanism for dispersal of seeds occur in:**

   A) Poppy B) *Calotropis* C) *Sonchus* D) *Albizzia*

6. **The pericarp is not differentiated into epicarp, mesocarp and endocarp in:**

   A) Berries B) Drupes C) Pomes D) Coconut

7. **The example of leaf opposed stem tendrils is:**

   A) *Cucurbita* B) Grape-vine C) *Passiflora* D) *Antigonon*

8. **Katha is extracted from _____ of khair (*Acacia catechu*).**

   A) Bark B) Leaves C) Heartwood D) Sapwood

9. **Pollinia are present in the flowers of:**

   A) *Sonchus* B) *Ageratum* C) *Calotropis* *D) Antirrhinum*

10. **Which plant family store essential oils in oil cells?**

    A) Zingiberaceae B) Apiaceae C) Myrtaceae D) Lamiaceae

11. **The nature of crop grain is:**

    A) Aerodynamic B) Hygroscopic C) Wet and dry D) Humid

12. **The quality of coffee mainly depends upon:**

    A) Harvesting B) Processing
    C) Physiological maturity D) Ripening

13. **The literal meaning of word 'Locust' is:**

    A) Location B) Area C) Pests D) Plague

14. Leaf roots are found in:

A) *Sarsinia* B) *Rhynia* C) *Salvinia* D) *Puccinia*

15. A dew drop at the tip of tomato leaves on cool night is formed due to:

A) Atmospheric water
B) Evaporation of water from stomata
C) Secretion of water from hydathodes
D) Excessive water absorption at the root tips

16. Stone cells are also known as:

A) Brachysclereids B) Osteosclereids C) Macroschereids D) Trichoblasts

17. The amount of energy required to raise the temperature of a unit mass of a substance by 1°C is called its:

A) Latent heat B) Heat of vaporization
C) Specific heat D) Endothermic energy

18. In ribose moiety of a ribonucleoside, phoshorylation is possible only at _____ position/s in the furanose ring formation.

A) One (C5')
B) Two (C1', C4')
C) Three (C2', C3' C5')
D) Five (C1', C2', C3' C4', C5')

19. The rate of breakdown of carbohydrates _____ by a shift from anaerobic to aerobic condition.

A) Increases B) Decreases C) Doubles D) No change

20. The conversion of pyruvic acid to acetyl CoA is called:

A) Fermentation B) Glycolysis
C) Decarboxylation D) Anaerobic respiration

21. The amount of water retained by soil after the drainage of gravitational water is:

A) Field capacity B) Absorption capacity
C) Drainage capacity D) Capillary water

22. The value of water potential of pure water is:

A) Zero B) 0.987 atm C) 10^6 dynes m^2 D) 10^8 dynes m^2

23. Ammonia poisoning occurs in temperature sensitive plants at:

A) Low temperature B) High temperature
C) Moderate temperature D) Low light intensity

24. Opening and closing of flowers represents a kind of:

A) Autonomic movement
B) Nutation
C) Tropic movement
D) Nastic movement

25. The scutellum of grass embryo is:

A) Photosynthetic organ
B) Absorption organ
C) Reserve food storage organ
D) Vestigeal organ

26. Albuminous seeds are characterized by having:

A) Endosperm but absence of thick cotyledons
B) Thick cotyledons but lack of thick endosperm
C) Thick endosperm and thick cotyledons
D) Cotyledons but lack of endosperm

27. Which of the following in higher concentration favours growth of paddy crops?

A) Auxin
B) GA
C) ABA
D) Ethylene

28. In the respiratory chain of electron transport, which one of the following is the terminal cytochrome that reacts with oxygen?

A) Cytochrome b
B) Cytochrome b_6
C) Cytochrome a
D) Cytochrome a_3

29. Inhibition of enzyme cytochrome oxidase is an example of:

A) Competitive inhibition
B) Non-competitive inhibition
C) Feedback inhibition
D) Zymogen

30. Path of sugar translocation in dicot plants can be demonstrated by:

A) Girdling
B) Grafting
C) Defoliolation
D) Root pressure

31. Which of the following are important for nitrogen fixation?

A) Calcium and potassium
B) Sodium and phosphorus
C) Magnesium and boron
D) Iron and molybdenum

32. Statocysts are:

A) Air-cells
B) Chlorophyll cells
C) Fibre-cells
D) Sensory cells

33. The most efficient precursor of ethylene is:

A) Adenine
B) Thiocarbonate
C) Zeatin
D) Methionine

34. Deficiency of oxygen during mitosis:

A) Shortens the cycle period
B) Extends the cycle period
C) Has no effect on the process
D) Cause polyploidy

35. Tomato fruit becomes red due to:

A) Anthocyanin
B) Lycopen
C) Carotin
D) Xanthophyll

36. Carbon cycle involes

A) Helium and Hydrogen
B) Hydrogen and oxygen
C) Carbon and carbon dioxide
D) Oxygen and water

37. Volicitin molecule plays role in:

A) Defense
B) Tritrophic interactions
C) Plant reproduction
D) Allelopathy

38. Reactive oxygen species are NOT found in:

A) Mitochondria
B) Peroxisome
C) Chloroplast
D) Ribosomes

39. The pressure of water vapours nearly _____ for each 10 ^{o}C rise in temperature.

A) Equals
B) Doubles
C) Triples
D) Reduces to half

40. Genetic diversity refers to:

A) Intra and inter-specific variations
B) Intra and inter-generic variations
C) Intra and inter-varietal variations
D) Intra and inter-ordeal variations

41. Cryogenenic storage of germplasm is done at:

A) -4^{o}C
B) -100^{o}C
C) -196^{o}C
D) -273^{o}C

42. The first transgenic plant developed for phytoremediation purposes was:

A) *Brassica napus*
B) *Nicotiana tabaccum*
C) *Arabidopsis thaliana*
D) *Liriodendron tullpifera*

43. The gene which suppresses the action of a gene at other locus is called:

A) Lethal
B) Penetrance
C) Pleiotropic
D) Epistatic

44. The length of cobs in maize is determined by:

A) Single gene
B) One pair of genes
C) Two pairs of genes
D) Environmental factors

45. The starting point in the production of genetically superior seeds of a tree species is the selection of:

A) Multipurpose Tree Species (MPTS) B) Candidate Plus Trees (CPT)
C) High Yielding Trees (HYT) D) Early Maturing Trees (EMT)

46. Maximum exploitation of heterosis in crop plants is possible only through production of _____ with high degree of heterozygosity.

A) Sexually reproduced seeds B) F_1 hybrids
C) Bud propagules D) Protoplast culture

47. *Thermus aquaticus* is a source of:

A) Taq polymerase B) Vent polymerase
C) Both A and B D) Primase enzyme

48. Which cellular organelle is involved in the initiation of intrinsic pathway of apoptosis?

A) Endoplasmic reticulum B) Lysosomes
C) Mitochondria D) Peroxisomes

49. Which one of the following ions plays an important role in growth of pollen tube?

A) Calcium B) Chlorine C) Magnesium D) Sulphate

50. Which of the following gene is associated with cold stress tolerance in plants?

A) FAD7 B) FEP2 C) BADH D) *Bj*P15

x-x-x

Panjab University, Chandigarh
M.Phil./PHD - 2017
ANSWERS / KEY

Subject: **Botany(Ph.D. & M.Phil.)**

1	2	3	4	5	6	7	8	9	10
D	C	C	B	A	X	B	C	C	A
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
B	B	X	C	C	A	C	C	B	C
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
A	A	X	D	B	A	D	D	B	A
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
D	D	D	X	B	C	A	D	B	X
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
C	C	D	C	B	B	A	C	A	A

Note: An 'X' in the key indicates that either the question is ambiguous or it has printing mistake. All candidates will be given credit for this question