

SET -1

COMMON P.G. ENTRANCE TEST 2021
SUBJECT – BOTANY

1. The alga with multinucleated and siphonous vegetative thallus is
 - A) *Oedogonium*
 - B) *Vaucheria*
 - C) *Fucus*
 - D) *Polysiphonia*
2. When the DNA of a phage is transmitted to the host, there is a temporary period of disappearance of infectivity. Such period is called
 - A) Eclipse period
 - B) Incubation period
 - C) Latent period
 - D) Lag period
3. The sexual reproduction in lichen involves
 - A) Both algal and fungal partners
 - B) Fungal partner only
 - C) Algal partner only
4. Which of the following is a function of the suspensor of an embryo
 - A) Provide mechanical support to the developing embryo
 - B) Push the embryo deep into the endosperm
 - C) Absorb nutrients
 - D) Develop additional proembryo
5. In an aquatic ecosystem, the highest population of organisms belongs to
 - A) Phytoplankton
 - B) Aquatic weeds
 - C) Small fish
 - D) Zooplankton
6. In a plant cell, the non-cellulosic polycaccharides, pectins, lignins and phenolic substances are present in
 - A) The primary cell wall
 - B) The middle lamella
 - C) The inter-wall space
 - D) The entire cell wall
7. The “primary centres of origin” and “secondary centres of diversity” of crop plants were proposed by
 - A) N.I.Vavilov
 - B) G. Harlan
 - C) L.I. Zukovski
 - D) G.W.Hawkes
8. The effects of ethylene can be inhibited by increasing the

- A) Light intensity
 - B) CO₂ concentration
 - C) Water stress
 - D) Nutrient supply
9. Crossing over in diploid organisms is responsible for
- A) Dominance of genes
 - B) Appearance of parental types in the next generation
 - C) Segregation of alleles
 - D) Recombination of linked alleles
10. Two bacteria found to be very useful in genetic engineering experiments are
- A) *Nitrosomonas* and *Escherichia*
 - B) *Escherichia* and *Agrobacterium*
 - C) *Agrobacterium* and *Nitrobacter*
 - D) *Rhizobium* and *Agrobacterium*
11. The sexual reproduction is of isogamous type in some species of the genus
- A) *Chlamydomonas*
 - B) *Vaucheria*
 - C) *Oedogonium*
 - D) *Chara*
12. Amphithecial origin of sporogenous tissues is seen in the sporophytes of
- A) *Riccia*
 - B) *Marchantia*
 - C) *Pellia*
 - D) *Funaria*
13. The cortex of dicot stem is derived from
- A) Dermatogens
 - B) Periblem
 - C) Plerome
 - D) Calyptrogens
14. A taxonomic key, that is prepared dichotomously taking one or more character(s) dichotomy is called a
- A) Single access key
 - B) Double access key
 - C) Multi-access key
 - D) Characterized key
15. In a distribution with a mean and standard deviation of 40 and 2, respectively, the coefficient of variation will be
- A) 5%
 - B) 8%
 - C) 2.8%
 - D) 0.8
16. In ground nut seeds, the food is reserved as protein and oil droplets in the
- A) Endosperm
 - B) Seed coat

C) Cotyledons

D) Embryonal axis

17. The activation of a fatty acid through ATP-dependent conversion to fatty acyl CoA is catalyzed by

A) Lipokinase

B) Fatty acyl ATPase

C) Thiokinase

D) Acyl-CoA kinase

18. Which of the following is a class of simple proteins?

A) Phosphoproteins

B) Scleroproteins

C) Glycoproteins

D) Flavoproteins

19. Which of the following is a strong mutagen?

A) Methane

B) Caffeine

C) Opium

D) Carbon tetrasulphide

20. Which of the following statements is not true about the DNA replication processes?

A) DNA polymerase α synthesizes primer in eukaryotes

B) DnaG synthesizes primer in prokaryotes

C) Loading and activation of helicase in G1 phase

D) The new DNA is synthesized semiconservatively

21. Which of the following is not caused by *Rhizopus*?

A) Spoilage of food

B) Deterioration of articles

C) Degradation of litters

D) Production of antibiotics

22. During the sexual reproduction cycle of *Marchantia*, reduction division takes place at the time of

A) Gametogenesis

B) Antherial and archegonial development

C) Sporogenesis

D) Spore germination

23. Two neighbouring tracheids and vessels exchange sap flow through

A) Perforated end walls

B) Intercellular spaces

C) Parenchyma

D) Pits

24. When more than one specimen or illustration are cited by an author as the nomenclatural types, without designation of a holotype, such designated types are called

A) Isotypes

- B) Epitype
 - C) Syntype
 - D) Lectotype
25. In a sample with 25 replicates and a standard error of 0.16, the variance of the sample will be
- A) 0.04
 - B) 1.60
 - C) 0.80
 - D) 2.56
26. Which of the following characters is not useful for identification of an individual chromosome?
- A) Length of the chromosome
 - B) Arm ratio
 - C) Position of the secondary constriction
 - D) Mitotic index
27. The amino acids, that is coded by a single codon, is
- A) Methionine
 - B) Phenylalanine
 - C) Tyrosine
 - D) Asparagine
28. Which of the following is not required during β -oxidation of fatty acids?
- A) FADH₂
 - B) NADH+H⁺
 - C) ATP
 - D) CoASH
29. When chromosomal aberration occurs in both the homologues, it is classified as
- A) Homosomal
 - B) Homobranched
 - C) Heterosomal
 - D) Allelosomal
30. Presence of an Internal Ribosome Entry Site (IRES) in eukaryotic mRNA
- A) Stop translation
 - B) Promotes its translation under adverse condition by recruiting new ribosomes
 - C) Stimulates RNA editing of newly synthesized mRNA
 - D) Block the entry of ribosome when the translation process is on
31. The ascus develops from the tip of an ascogoneous hyphae by crozier formation in
- A) *Mucor*
 - B) *Rhizopus*
 - C) *Penicillium*
 - D) *Neurospora*
32. The leaves of *Pteris* is
- A) Simple
 - B) Scaly and membranous

- C) Pinnately compound
D) Fleshy and succulent
33. The adaptive anomalous secondary growth of stem is seen in
A) *Bignonia*
B) *Dracaena*
C) *Mirabilis*
D) *Chenopodium*
34. The variance among the replicates of a sample is not required to be determined for estimation of
A) F –value
B) coefficient of variation
C) t –value
D) Chi square value
35. Which of the following provides the signal to the ribosome for the attachment of the release factor?
A) The terminal amino acid
B) The length of the polypeptide
C) The termination codon
D) The t-RNA that brings in the last amino acid
36. During photorespiration, oxygen is consumed in
A) Cytosol
B) Chloroplast
C) Peroxisome
D) Mitochondria
37. Which of the following pigments is not responsible for harvesting light for photosynthesis?
A) Chlorophylls
B) Phycobiliproteins
C) Carotenes
D) Cryptochromes
38. The enzymes of TCA cycle are located in
A) Cytoplasm
B) Mitochondrial matrix
C) Inner mitochondrial membrane
D) Perimitochondrial space
39. Which of the following methods of chemical transfectants is not used for transfection?
A) Calcium phosphate
B) DEAE dextran
C) Cation lipids
D) Pyrophosphate
40. Adelphous stamens, superior ovary and actinomorphic flowers are the characteristics of the family
A) Fabaceae

B) Rosaceae

C) Poaceae

D) Malvaceae

41. Which of the following group of bacteria grow like branched fungal mycelia structures?

A) Actinomycetes

B) Cocci

C) Spirillum

D) Bacilli

42. The sporangia in the sporophylls of *Selaginella* are

A) Homosporous and sporophytic

B) Heterosporous and sporophytic

C) Homosporous and gametophytic

D) Heterosporous and gametophytic

43. Formation of the middle layer of the anther wall by the secondary parietal tissues is the characteristics of

A) Dicots

B) Orchids

C) Grasses

D) Commelinids

44. Dicots have been segregated into Lignosae and Herbaceae in the classification proposed by

A) Bentham and Hooker

B) Hutchinson

C) APG

D) Engler and Prantl

45. Which of the following reaction step is an energy yielding step during glycolytic break down of glucose to pyruvate?

A) 1,3- bisphosphoglycerate to 3-phosphoglycerate

B) 3- phosphoglycerate to 2-phosphoglycerate

C) Glucose-6-phosphate to fructose-6-phosphate

D) 2-phosphoglycerate to enolpyruvate

46. A sense strand with sequence AATGCGATGGCT will code for a m-RNA with codons

A) UUA CGG UAG CGA

B) UUA CGC UAC CGA

C) UUA CGG UAC CGT

D) UUA CGG UGA CGU

47. In C_3 cycle, the energy utilization for conversion of one carbon dioxide molecule to organic carbon is

A) 2 ATP and 1 NADPH

B) 18 ATP and 12 NADPH

C) 3 ATP and 2 NADPH

D) 2 ATP and 2 NADPH

48. The types of genotypes in the offspring by selfing of parents with allelic constitution AaBbccDdEE will be
- A) 243
 - B) 32
 - C) 27
 - D) 8
49. The *Pneumococcus* experiment proved that
- A) DNA is the genetic material
 - B) RNAS are involved in DNA replication
 - C) Proteins are contagious
 - D) Pneumococci do not reproduce sexually
50. A bacterial chromosome contains 100 kbp DNA and six restriction sites. By restriction digestion and gel electrophoresis, the fragments would be ~24kbp, ~22kbp, ~21kbp, 17 kbp, 11kbp and
- A) 4kbp and 1 kbp
 - B) 5kbp
 - C) 3kbp and 2 kbp
 - D) 4 kbp
51. Mycoplasma differs from bacteria in not possessing the
- A) Cell wall
 - B) Filamentous structure
 - C) DNA as genetic material
 - D) Penicillin resistance
52. The helical symmetry of capsids is seen in
- A) T2-phage
 - B) Poliovirus
 - C) Retrovirus
 - D) Tobacco mosaic virus
53. Which of the following statement is not correct for *Cycas*?
- A) The zygote forms the free nuclear pro-embryo
 - B) The endosperm contains the female gametophytic cells
 - C) The suspensor pushes the proembryo deep into the endosperm
 - D) Embryo differentiates several cotyledons
54. Formation of winged pollen grains is the characteristic feature of
- A) *Cycas*
 - B) *Gnetum*
 - C) *Ephedra*
 - D) *Pinus*
55. A sixteen nucleated embryo sac with three celled egg apparatus and eleven antipodals is of
- A) Plumbago type
 - B) Drusa type
 - C) Peperomia type
 - D) Plumbagella type

56. The outermost layer of endosperm of maize grain is called

- A) Tapetum
- B) Periplasm
- C) Epidermis
- D) Aleurone

57. The study of the ecological behaviour of a group of species in an ecosystem is called

- A) Autoecology
- B) Synecology
- C) Population dynamics
- D) Community dynamics

58. Which of the following is a negative interaction between populations?

- A) Competition
- B) Synergism
- C) Commensalism
- D) Syntrophy

59. The *Albugo* infection causes

- A) Rust in wheat leaves
- B) Rust in rice stem
- C) White rust in crucifers
- D) Leaf spot in ground nut

60. Which of the following is not a functional group in biomolecules?

- A) $-\text{COO}-$
- B) $\text{C}=\text{O}$
- C) $-\text{SH}$
- D) $\text{C}=\text{C}$

61. During active transport in plant cells, the ions are transported across the membrane by

- A) A concentration gradient
- B) An electrochemical gradient
- C) The function of the carriers
- D) Diffusion

62. The rate of absorption of water is slow at a temperature near the freezing point because

- A) Cell membrane becomes more viscous
- B) Water around root zone freezes
- C) Transpiration is retarded
- D) Soil nutrients form complexes

63. A cell was measured as 600 μm in diameter under microscope with 40x objective and 10x eye piece. The actual diameter of the cell was

- A) 1.5 μm
- B) 15 μm
- C) 25 μm
- D) 2.5 μm

64. The molar mass of a macromolecule can be determined by
- A) HPLC
 - B) GLC
 - C) SDS-PAGE
 - D) AAS
65. Which of the following statements is true about RNA?
- A) mRNA is the most unstable form
 - B) mRNA is largest among RNAs
 - C) tRNA is largest among RNAs
 - D) rRNA undergoes dynamic changes
66. The prerequisites for biotechnological production of transgenics does not include
- A) Identification of the target gene
 - B) Isolation of the target gene
 - C) Integration of the gene to the vector
 - D) Artificial production of the gene
67. Nucleic acid labelling and identification can be done by the following except
- A) ^{32}P
 - B) Texas red
 - C) Fluorescein
 - D) Ribose sugar
68. Pribnow box is the -10 box in the bacterial promoter region having the consensus sequence
- A) TATAAT
 - B) GATAAG
 - C) ATAATA
 - D) AGTAAG
69. Which of the following is a gaseous biogeochemical cycle?
- A) Nitrogen
 - B) Sulphur
 - C) Potassium
 - D) Phosphorus
70. The transition zone between two different communities is called
- A) Biome
 - B) Ecotone
 - C) Ecotype
 - D) Transition block