

12 - Std

ACHIEVEMENT TEST 2023-24

BOTANY

Time : 1 30 Hrs

Marks : 100

Choose the most appropriate answer:-

1. Pond is a type of
 - a) Forest ecosystem
 - b) Grassland ecosystem
 - c) Marine ecosystem
 - d) Fresh water ecosystem
2. Solar energy used by green plants for photosynthesis is only
 - a) 2 - 8%
 - b) 2 - 10%
 - c) 3-10%
 - d) 2-9%
3. Which of the following ecosystem has the highest primary productivity?
 - a) Pond ecosystem
 - b) Lake ecosystem
 - c) Grassland ecosystem
 - d) Forest ecosystem
4. Ecosystem consists of
 - a) Decomposers
 - b) Producers
 - c) Consumers
 - d) All of the above
5. Significance of food web is / are
 - a) It does not maintain stability in nature
 - b) It shows patterns of energy transfer
 - c) It explains species interaction
 - d) b and c
6. Which of the following is not a sedimentary cycle?
 - a) Nitrogen cycle
 - b) Phosphorous cycle
 - c) Sulphur cycle
 - d) Calcium cycle
7. Which of the following would most likely help to slow down the greenhouse effect?
 - a) Converting tropical forests into grazing land for cattle.
 - b) Ensuring that all excess paper packaging is buried to ashes.
 - c) Redesigning landfill dumps to allow methane to be collected.
 - d) Promoting the use of private rather than public transport.
8. With respect to Eichhornia

Statement I : It drains off oxygen from water and is seen growing in standing water.

Statement II : It is an indigenous species of our country.

 - a) Statement I is correct and Statement II is wrong
 - b) Both Statements I and II are correct
 - c) Statement I is wrong Statement II is correct
 - d) Both statements I and II are wrong.
9. Find the wrongly matched pair.
 - a) Endemism - Species confined to a region and not found anywhere else.
 - b) Hotspots - Western ghats
 - c) Ex-situ Conservation - Zoological parks
 - d) Sacred groves - Saintri hills of Rajasthan
10. Depletion of which gas in the atmosphere can lead to an increased incidence of skin cancer?
 - a) Ammonia
 - b) Methane
 - c) Nitrous oxide
 - d) Ozone
11. The unit for measuring ozone thickness
 - a) Joule
 - b) Kilos
 - c) Dobson
 - d) What
12. People's movement for the protection of environment in Sirsi of Karnataka is
 - a) Chipko movement
 - b) Amirtha Devi Bishwas movement
 - c) Appiko movement
 - d) None of the above
13. Assertion : Genetic variation provides the raw material for selection
Reason : Genetic variations are differences in genotypes of the individuals.
 - a) Assertion is right and reason is wrong
 - b) Assertion is wrong and reason is right.
 - c) Both reason and assertion are right
 - d) Both reason and assertion are wrong.
14. The quickest method of plant breeding is
 - a) Introduction
 - b) Selection
 - c) Hybridization
 - d) Mutation breeding
15. Assertion : Turmeric fights various kinds of cancer
Reason : Curcumin is an anti-oxidant present in turmeric
 - a) Assertion is correct, Reason is wrong
 - b) Assertion is wrong, Reason is correct
 - c) Both are correct
 - d) Both are wrong
16. The active principle trans-tetra hydro cannabinol is present in
 - a) Opium
 - b) Curcuma
 - c) Marijuana
 - d) Andrographis
17. ----- is called the King of Bitter
 - a) Nilavembu
 - b) Basil
 - c) Adathoda
 - d) Turmeric
18. Initiation codon in
 - a) UUU
 - b) UGA
 - c) AUG
 - d) UAG
19. An eminent Indian embryologist is
 - a) S.R. Kashyap
 - b) P. Maheswari
 - c) M.S Swaminathan
 - d) K.C.Mehta
20. Pollen tube was discovered by
 - a) J.G. Kolreuter
 - b) G.B. Amici
 - c) E. Strasburger
 - d) E. Hanning
21. Size of pollen grain in Myosotis
 - a) 10 micrometers
 - b) 20 micrometers
 - c) 200 micrometers
 - d) 2000 micrometer
22. First cell of male gametophyte in angiosperm is
 - a) Microspore
 - b) Megaspore
 - c) Nucleus
 - d) Primary Endosperm Nucleus
23. Ruminant endosperm is found in
 - a) Cocos
 - b) Areca
 - c) Vallisneria
 - d) Arachis
24. Test cross involves
 - a) Crossing between two genotypes with recessive trait
 - b) Crossing between two FL hybrids
 - c) Crossing the F1 hybrid with a double recessive genotype
 - d) Crossing between two genotypes with dominant trait

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25. The genes controlling the seven pea characters studied by Mendel are known to be located on how many different chromosomes?
 a) Seven b) Six c) Five d) Four
26. Due to incomplete linkage in maize, the ratio of parental and recombinants are
 a) 50:50 b) 7:1:1:7 c) 96:4:3:6 d) 1:7:7:1
27. Changing the codon AGC to AGA represents
 a) Missense mutation b) Nonsense mutation c) Frameshift mutation d) Deletion mutation
28. Plasmids are
 a) Circular protein molecules b) Required by bacteria
 c) Tiny bacteria d) Confer resistance to antibiotics
29. pBR 322. BR stands for
 a) Plasmid Bacterial Recombination b) Plasmid Bacterial Replication
 c) Plasmid Boliver and Rodriguez d) Plasmid Baltimore and Rodriguez
30. In which techniques Ethidium Bromide is used?
 a) Southern Blotting techniques b) Western Blotting techniques
 c) Polymerase Chain Reaction d) Agrose Gel Electrophoresis
31. Assertion: *Agrobacterium tumefaciens* is popular in genetic engineering because this bacterium is associated with the root nodules of all cereals and pulse crops.
 Reason: A gene incorporated in the bacterial chromosomal genome gets automatically transferred to the cross with which bacterium is associated.
 a) Both assertion and reason are true. But reason is correct explanation of assertion.
 b) Both assertion and reason are true. But reason is not correct explanation of assertion.
 c) Assertion is true, but reason is false. d) Both assertion and reason are false.
32. Which one of the following is not correct statement?
 a) Ti plasmid causes the bunchy top of Banana disease
 b) Multiple cloning site is known as Polylinker c) Non-viral method transfection of Nucleic acid in cell
 d) Polylactic acid is a kind of biodegradable and bioactive thermoplastic.
33. An analysis of chromosomal DNA using the southern hybridization technique does not use
 a) Electrophoresis b) Blotting c) Autoradiography d) Polymerase Chain Reaction
34. Some of the characteristics of Bt cotton are
 a) Long fibre and resistant to aphids b) Medium yield, long fibre and resistant to beetle pests
 c) High yield and production of toxic protein crystals which kill dipteran pests.
 d) High yield and resistant to boll worms
35. Totipotency refers to
 a) Capacity to generate genetically identical plants,
 b) Capacity to generate a whole plant from any plant cell /explant.
 c) Capacity to generate hybrid protoplasts. d) Recovery of healthy plants from diseased plants.
36. The time duration for sterilization process by using autoclave is minutes and the temperature is-----
 a) 10 to 30 minutes and 125°C b) 15 to 30 minutes and 121°C
 c) 15 to 20 minutes and 125°C d) 10 to 20 minutes and 121°C
37. Which of the following statement is correct?
 a) Agar is not extracted from marine algae such as seaweeds.
 b) Callus undergoes differentiation and produces somatic embryos.
 c) Surface sterilization of explants is done by using mercuric bromide d) PH of the culture medium is 5.0 to 6.0
38. Select the incorrect statement from given statement
 a) A tonic used for cardiac arrest is obtained from *Digitalis purpurea*
 b) Medicine used to treat Rheumatic pain is extracted from *Capsicum annum*
 c) An anti-malarial drug is isolated from *Cinchona officinalis*.
 d) Anti-carcinogenic property is not seen in *Catharanthus roseus*.
39. Virus free plants are developed from
 a) Organ culture b) Meristem culture c) Protoplast culture d) Cell suspension culture
40. Cryopreservation means it is a process to preserve plant cells, tissues or organs
 a) At very low temperature by using ether b) At very high temperature by using liquid nitrogen
 c) at very low temperature of -196 by using liquid nitrogen d) at very low temperature by using liquid nitrogen
41. Solidifying agent used in plant tissue culture is
 a) Nicotinic acid b) Cobaltous chloride c) EDTA d) Agar
42. Arrange the correct sequence of ecological hierarchy starting from lower to higher level.
 a) Individual organism ' Population Landscape ' Ecosystem b) Landscape ' Ecosystem ' Biome ' Biosphere c)
 Community ' Ecosystem ' Landscape ' Biome d) Population ' organism ' Biome ' Landscape
43. Ecology is the study of an individual species is called
 i) Community ecology ii) Autecology iii) Species ecology iv) Synecology
 a) i only b) ii only c) i and iv only d) ii and iii only
44. A specific place in an ecosystem, where an organism lives and performs its functions is
 a) Habitat b) Niche c) Landscape d) Biome
45. Read the given statements and select the correct option
 i) Hydrophytes possess aerenchyma to support themselves in water
 ii) Seeds of *Viscum* are positively photoblastic as they germinate only in presence of light.

- iii) Hygroscopic water is the only soil water available to roots of plant growing in soil as it is present inside the micropores
 iv) High temperature reduces use of water and solute absorption by roots
 a) i and iii only b) iii and iv only c) ii and iii only d) i and ii only
46. Which of the given plant produces cardiac glycosides?
 a) Calotropis b) Acacia c) Nepenthes d) Utricularia
47. Read the given statements and select the correct option.
 Statement A: Cattle do not graze on weeds of Calotropis.
 Statement B: Calotropis have thorns and spines, as defense against herbivores
 a) Both statements A and B are incorrect. b) Statement A is correct but statement B is incorrect
 c) Both statements A and B are correct but statement B is not the correct explanation of statement A
 d) Both statements A and B are correct and statement B is the correct explanation of statement A
48. Read the following statements and fill up the blanks with correct option.
 i) Total soil water content in soil is called ii) Soil water not available to plants is called
 iii) Soil water available to plants is called
 a) Holard Echard Chresard b) Echard Holard Chresard
 c) Chresard Echard Holard d) Holard Chresard Ehard
49. The plant of this group is adapted to live partly in water and partly above substratum and free from water
 a) Xerophytes b) Mesophytes c) Hydrophytes d) Halophytes
50. Ophrys an orchid resembling the female of an insect so as to be able to get pollinated is due to phenomenon of
 a) Myrmecophily b) Ecological equivalents c) Mimicry d) None of these
51. A free-living nitrogen fixing cyanobacterium which can also form symbiotic association with the water fern Azolla
 a) Nostoc b) Anabaena c) Chlorella d) Rhizobium
52. Pedogenesis refers to a) Fossils b) Water c) Population d) Soil
53. Mycorrhiza promotes plant growth by
 a) Serving as a plant growth regulator b) Absorbing inorganic ions from soil
 c) Helping the plant in utilizing atmospheric nitrogen d) Protecting the plant from infection
54. In a fresh water environment like pond, rooted autotrophs are
 a) Nymphaea and typha b) Ceratophyllum and Utricularia c) Wolffia and pistia d) Azolla and lemna
55. Match the following:

Column I (Interaction)	Column-II (Examples)	
I. Mutualism	i) Trichoderma and Penicillium	a) I-(i), II-(ii), III-(iii), IV-(iv), V-(v)
II. Commensalism	ii) Balanophora, Orobanchae	b) I-(ii), II-(iii), III-(iv), IV-(v), V-(i)
III. Parasitism	iii) Orchids and Ferns	c) I-(iii), II-(iv), III-(v), IV-(i), V-(ii)
IV. Predation	iv) Lichen and Mycorrhiza	d) I-(iv), II-(iii), III-(ii), IV-(v), V-(i)
V. Amensalism	v) Nepenthes and Diaonaea	
56. Arrange the layers of anther wall from locus to periphery
 a) Epidermis, middle layers, tapetum, endothecium b) Tapetum, middle layers, epidermis, endothecium
 c) Endothecium, epidermis, middle layers, tapetum d) Tapetum, middle layers, endothecium, epidermis
57. Which of the following represent megagametophyte
 a) Ovule b) Embryo sac c) Nucellus d) Endosperm
58. In Haplopappus gracilis, number of chromosomes in cells of nucellus is 4. What will be the chromosome number in Primary endosperm cell?
 a) 8 b) 12 c) 6 d) 2
59. The scar left by funiculus in the seed is
 a) tegmen b) radicle c) epicotyl d) hilum
60. Coelorrhizae is found in
 a) Paddy b) Bean c) Pea d) Tridax
61. Caruncle develops from
 a) funicle b) nucellus c) integument d) embryo sac
62. In majority of plants pollen is liberated at
 a) 1 celled stage b) 2 celled stage c) 3 celled stage d) 4 celled stage
63. Extra nuclear inheritance is a consequence of presence of genes in
 a) Mitochondria and chloroplasts b) Endoplasmic reticulum and mitochondria
 c) Ribosomes and chloroplast d) Lysosomes and ribosomes
64. In order to find out the different types of gametes produced by a pea plant having the genotype AaBb, it should be crossed to a plant with the genotype
 a) aaBB b) AaBB c) AaBB d) aabb
65. Which one of the following is an example of polygenic inheritance?
 a) Flower colour in Mirabilis jalapa
 b) Production of male honey bee c) Pod shape in garden pea d) Skin Colour in humans
66. Which Mendelian idea is depicted by a cross in which the F1 generation resembles both the parents
 a) Incomplete dominance b) Law of dominance c) Inheritance of one gene d) Co-dominance
67. Fruit colour in squash is an example of
 a) Recessive epistasis b) Dominant epistasis
 c) Complementary genes d) Inhibitory genes
68. Which of the following explains how progeny can possess the combinations of traits that none of the parent possessed?
 a) Law of segregation b) Chromosome theory c) Law of independent assortment d) Polygenic inheritance
69. "Gametes are never hybrid". This is a statement of
 a) Law of dominance b) Law of independent assortment c) Law of segregation d) Law of random fertilization
70. The dominant epistasis ratio is
 a) 9:3:3:1 b) 12:3:1 c) 9:3:4 d) 9:6:1
71. If haploid number in a cell is 18. The double monosomic and trisomic number will be
 a) 34 and 37 b) 34 and 35 c) 37 and 35 d) 17 and 19.

72. Which one of the following pairs of codons correctly matched with their function or the signal for the particular amino acid?
 a) UUA, UCA - Leucine b) GUU, GCU - Alanine c) UAG, UGA - Stop d) AUG, ACG - Start / Methionine
73. If one strand of DNA has the nitrogenous base sequence as AICTG, what would be the complementary RNA strand sequence?
 a) ATCGU b) TIAGU c) UAGAC d) AACTG
74. In DNA dependent RNA polymerase catalyzed transcription on one strand of the DNA which is called the
 a) Alpha strand b) Anti strand c) Template strand d) Coding strand
75. Which of the following correctly represents the flow of genetic information?
 a) DNA - RNA - Protein b) RNA - DNA - Protein c) RNA - Protein - DNA d) Protein - RNA - DNA
76. Codon - anticodon interactions occur by
 a) Covalent bond b) Electrostatic interactions c) Hydrogen bonds d) Hydrophobic interaction
77. Which of the following RNA polymerases is responsible for the transcription of protein coding genes in eukaryotes?
 a) RNA Pol I b) RNA Pol II c) RNA Pol III d) RNA Pol IV
78. A complex of ribosome attached to a single strand of RNA is known as
 a) Polysome b) Polymer c) Polypeptide d) Okazaki fragment
79. Micro propagation involves
 a) vegetative multiplication of plants by using micro-organisms. b) vegetative multiplication of plants by using small explants. c) vegetative multiplication of plants by using microspores. d) Non-vegetative multiplication of plants by using microspores and megaspores.
80. Match the following :
- | Column A | Column B |
|----------------------|---|
| 1) Totipotency | A) Reversion of mature cells into meristem |
| 2) Dedifferentiation | B) Biochemical and structural changes of cells |
| 3) Explant | C) Properties of living cells develop into entire plant |
| 4) Differentiation | D) Selected plant tissue transferred to culture medium |
- a) C A D B b) A C B D c) B A D C d) D B C A
81. The prevention of large scale loss of biological integrity
 a) Biopatent b) Bioethics c) Biosafety d) Biofuel
82. Which of the following is / are not a natural ecosystem?
 a) Forest ecosystem b) Rice field c) Grassland ecosystem d) Desert ecosystem
83. Profundal zone is predominated by heterotrophs in a pond ecosystem, because of
 a) with effective light penetration b) no effective light penetration c) complete absence of light d) a and b
84. Which of the following is / are not the mechanism of decomposition
 a) Eluviation b) Catabolism c) Anabolism d) Fragmentation
85. One green house gas contributes 20% of total global warming and another contributes 60%. These are respectively identified as
 a) N_2O and CO_2 b) CFCs and N_2O c) CH_4 and CO_2 d) CH_4 and CFCs
86. Deforestation does not lead to
 a) Quick nutrient cycling b) soil erosion
 c) alternation of local weather conditions d) Destruction of natural habitat weather conditions
87. IUCN red list categories has developed criteria for threatened species. The criteria 'C' refers to
 a) Geographic range b) Quantitative analysis c) Small population size and declined population reduction
88. Desired improved variety of economically useful crops are raised by
 a) Natural Selection b) hybridization c) mutation d) biofertilisers
89. Plants having similar genotypes produced by plant breeding are called
 a) clone b) haploid c) autopolyploid d) genome
90. Importing better varieties and plants from outside and acclimatising them to local environment is called
 a) cloning b) heterosis c) selection d) introduction
91. Dwarfing gene of wheat is
 a) *pal 1* b) *Atomita 1* c) *Norin 10* d) *pelita 2*
92. Crosses between the plants of the same variety are called
 a) interspecific b) inter varietal c) intra varietal d) inter generic
93. Progeny obtained as a result of repeat self-pollination a cross pollinated crop to called
 a) pure line b) pedigree line c) inbreed line d) heterosis
94. A wheat variety, Atlas 66 which has been used as a donor for improving cultivated wheat, which is rich in
 a) iron b) carbohydrates c) proteins d) vitamins
95. Groundnut is native of _____
 a) Philippines b) India c) North America d) Brazil
96. Statement A: Coffee contains caffeine. Statement B: Drinking coffee enhances cancer
 a) A is correct, B is wrong b) A and B - Both are correct c) A is wrong, B is correct d) A and B - Both are wrong
97. *Tectonagrandis* is coming under family
 a) Lamiaceae b) Fabaceae c) Dipterocarpaceae d) Ebenaceae
98. Find out the correctly matched pair.
 a) Rubber Shorea robusta b) Dye Indigofera annecta c) Timber Cyperus papyrus d) Pulp Hevea brasiliensis
99. New world species of cotton
 a) *Gossipium arboretum* b) *G. herbaceum* c) Both a and b d) *G. barbadense*
100. Select the mismatch.
 a) *Andrographis* - hepato protective
 b) *Adhatada* - bronchodialator
 c) *Phyllanthus* - anti-diabetic
 d) *Curcumin* - anti-oxidant
101. The only cereal that has originated and domesticated from the New world
 a) *Oryza sativa* b) *Liticum setivum* c) *Liticum durum* d) *Zea mays*