

DEPARTMENT OF EDUCATION
CENTRAL TIBETAN ADMINISTRATION, DHARAMSHALA
ENTRANCE EXAMINATION-2010.

BOTANY

Time : 1 hours

Max. Marks 50.

INSTRUCTIONS:

There are fifty questions in this paper. All the questions are of Multiple Choice type and carry equal marks. Each question is followed by four responses marked (a), (b), (c) and (d). Select the one, which is the best in each case and record it clearly against the question number on the answer sheets provided with the paper.

More than one response indicated against an item or overwriting in the answer sheet would deem as incorrect response and no mark will be granted on that.

Question paper along with the answer sheet of the paper should be returned to the invigilator after the completion of the paper or when the time is over which ever is earlier.

Roll No. _____

Marks obtained by the candidate:

Signature of Examiner

BOTANY-2010

- Q.1. A system of classification which is based on ancestry of plants is
(a) Natural system (b) Phylogenetic system
(c) Artificial system (d) Practical system
- Q.2. The accumulated food reserve in fungi is
(a) Protein (b) Laminarin
(c) Glycogen (d) Fat
- Q.3. Agar agar is produced by
(a) Bacteria (b) Bryophytes
(c) Fungi (d) Algae
- Q.4. *Cycas circinalis* is a source of
(a) Resin (b) Timber
(c) Starch (d) Essential oil
- Q.5. Potato and sweet potato
(a) Have edible parts which are homologous organs
(b) Have edible parts which are analogous organs
(c) Have been introduced in India from the same place
(d) Are two species of the same genus
- Q.6. Trimerous flower, Superior ovary, and axile placentation is characteristic of
(a) Cucurbitaceae (b) Solanaceae
(c) Compositae (d) Liliaceae
- Q.7. Wood is
(a) Secondary xylem (b) Primary xylem
(c) Secondary phloem (d) Cambium
- Q.8. Cork cambium results in the formation of cork which becomes impermeable to water due to the accumulation of
(a) Resin (b) Suberin
(c) Lignin (d) Pectin

- Q.9. Eukaryotic cells are different from prokaryotic cells in having
- (a) Nucleoid
 - (b) 80 S ribosomes
 - (c) Mitochondria in mesosome form
 - (d) Only smooth endoplasmic reticulum
- Q.10. Which of the following is not a correct match?
- (a) Protoplasm – Huxley
 - (b) Cell – Schwann
 - (c) Vitamin – Funk
 - (d) Chromosome – Mendel
- Q.11. Which group exclusively consists of polysaccharides?
- (a) Glycogen, Starch, Cellulose
 - (b) Agar-ager, Maltose, Starch
 - (c) Lactose, Chitin, Starch
 - (d) Lactose, Maltose, Fructose
- Q.12. One turn of B – DNA double helix spans a distance of
- (a) 3.4 nm
 - (b) 2.46 nm
 - (c) 20 \AA^0
 - (d) 4.26 nm
- Q.13. The phase of cell cycle in which replication of DNA occurs is
- (a) G_1
 - (b) G_2
 - (c) M
 - (d) S
- Q.14. The water potential and osmotic potential of pure water are
- (a) 100 and Zero
 - (b) Zero and Zero
 - (c) 100 and 100
 - (d) Zero and 100
- Q.15. A cell when dipped in 0.5 M sucrose solution has no effect but when the same cell is dipped in 0.5 M *NaCl* solution. The cell will –
- (a) Increase in size
 - (b) Decrease in size
 - (c) Will be turgid
 - (d) Will get plasmolysed
- Q.16. Which of the following mineral elements play an important role in biological nitrogen fixation?
- (a) Calcium
 - (b) Manganese
 - (c) Zinc
 - (d) Molybdenum

- Q.17. In C_4 plants
- (a) Grana present in mesophyll cells and absent in bundle sheath cells
 - (b) Grana absent in mesophyll cells and present in bundle sheath cells
 - (c) Grana present in both mesophyll and bundle sheath cells
 - (d) Grana absent in both mesophyll and bundle sheath cells
- Q.18. The law of limiting factors was proposed by
- (a) R. Emerson
 - (b) Robert Hill
 - (c) D. Arnon
 - (d) F.F. Blackmann
- Q.19. In kreb's cycle, FAD participants as electron acceptor during the conversion of
- (a) Succinyl $Co \sim A$ to succinic acid
 - (b) α ketogluterate to succinyl $Co \sim A$
 - (c) Succinic acid to fumaric acid
 - (d) Fumaric acid to malic acid
- Q.20. Which one of the following compounds links glycolysis and kreb's cycle?
- (a) Oxaloacetic acid
 - (b) Pyruvic acid
 - (c) Lactic acid
 - (d) Acetyl $Co \sim A$
- Q.21. Leaf falls occurs in a tree when there is an increase in the concentration of
- (a) Abscissic acid
 - (b) Auxins
 - (c) Gibberellins
 - (d) Cytokinins
- Q.22. What will happen if terminal bud is removed from a plant?
- (a) The plant will die
 - (b) The lateral buds will grow profusely
 - (c) The root will grow profusely
 - (d) The shoot will die
- Q.23. Which one of the following is not a characteristic feature of bryophytes?
- (a) Dominant gametophytic generation
 - (b) Filamentous rhizoids
 - (c) Amphibious habitat
 - (d) Vascular tissue

- Q.24. Sexual reproduction is absent in
(a) Deuteromycetes (b) Phycomycetes
(c) Ascomycetes (d) Basidiomycetes
- Q.25. Mosses and ferns are found in moist and shady places because both
(a) Require presence of water for fertilization
(b) Do not need sunlight for photosynthesis
(c) Depend for their nutrition on manures formed at low temperature
(d) Can not compete with heliophytes
- Q.26. Plants are made disease resistant through
(a) X – ray treatment (b) Breeding with wild relatives
(c) Hormone treatment (d) Colchicine treatment
- Q.27. In an angiosperm, male plant is diploid and female plant tetraploid, endosperm will be
(a) Haploid (b) Triploid
(c) Tetraploid (d) Pentaploid
- Q.28. Double fertilization was first discovered by Nawaschin (1898) in
(a) Liliium and Fritillaria (b) Mango and Sugarcane
(c) Papaya and Pea (d) Brassica and Caudituft
- Q.29. A gene of operon which synthesizes a repressor protein is
(a) Regulator gene (b) Operator gene
(c) Structural gene (d) Promotor gene
- Q.30. Which is not involved in protein synthesis?
(a) Transcription (b) Initiation
(c) Elongation (d) Termination
- Q.31. A unicellular organism which is often considered a connecting link between plants and animals, is
(a) Bacterium (b) Entamoeba
(c) Monocystis (d) Euglena
- Q.32. Birbal Sahni Institute of palaeobotany is located at
(a) Delhi (b) Lucknow
(c) Dehradun (d) Kolkata

- Q.33. The gases used in spark – discharged apparatus were
(a) NH_3 , NH_4 and O_2 (b) O_2 , CO_2 and NH_3
(c) CO_2 , NH_3 and CH_4 (d) H_2 , CH_4 and NH_3
- Q.34. De vries gave his mutation theory on organic evolution while working on
(a) *Pisum sativum* (b) *Drosophila melanogaster*
(c) *Oenothera lamarckiana* (d) *Lathyrus odoratus*
- Q.35. Opiates (opium, heroin) are obtained from
(a) *Papaver somniferum* (b) *Cannabis sativa*
(c) *Theobroma* (d) *Cannabis indica*
- Q.36. Which one of the following is the common hexaploid wheat?
(a) *Triticum turgidum* (b) *Triticum durum*
(c) *Triticum monococcum* (d) *Triticum aestivum*
- Q.37. Somaclonal variation can be obtained by
(a) Application of Colchicine (b) Hybridisation
(c) Tissue culture (d) Irradiation with gamma rays
- Q.38. Formation of vinegar from alcohol is caused by
(a) *Bacillus subtilis* (b) *Closteridium* sps
(c) *Acetobacter aceti* (d) *Azotobacter*
- Q.39. Golden rice is a promising transgenic crop. When released for cultivation, it will help in
(a) Producing a protein like fuel from rice
(b) Alleviation of vitamin – A
(c) Pest resistance
(d) Herbicide tolerance
- Q.40. If by radiation all nitrogenase enzymes are inactivated, then there will be no
(a) Fixation of atmospheric nitrogen
(b) Conversion from nitrate to nitrite in legumes
(c) Conversion from nitrate to ammonia in soil
(d) Fixation of nitrogen in legumes

- Q.41. Common indicator organism of water pollution is
- (a) *Eichhornia crassipes* (b) *Escherichia coli*
(c) *Entamoeba histolytica* (d) *Lemna paucicostata*
- Q.42. In your opinion, which is the most effective way to conserve the plant diversity of an area?
- (a) By creating biosphere reserve
(b) By creating botanical gardens
(c) By developing seed banks
(d) By tissue culture methods
- Q.43. Vegetative reproduction takes place in potato, ginger and agave respectively by
- (a) Eyes, bulbil and rhizome
(b) Rhizome, eyes and bulbil
(c) Bulbil, eyes and rhizome
(d) Eyes, rhizome and bulbil
- Q.44. Filiform apparatus occurs in
- (a) Antipodals (b) Synergids
(c) Secondary nucleus (d) Egg nucleus
- Q.45. Tallness (T) is dominant over dwarfness (t) and red flower colour (R) is dominant over white flower colour (r). A plant having genotype TtRr is crossed with plant of genotype ttrr. What percentage of progeny having tall plants with red flowers will be obtained?
- (a) 100% (b) 75%
(c) 50% (d) 25%
- Q.46. A self fertilizing trihybrid plant forms
- (a) 4 different gametes and 16 different zygotes
(b) 8 different gametes and 32 different zygotes
(c) 8 different gametes and 64 different zygotes
(d) 8 different gametes and 8 different zygotes
- Q.47. Mutations are generally induced by
- (a) Alpha rays (b) Beta rays
(c) UV rays (d) Gamma rays

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ANSWER SHEET FOR
 BOTANY

Roll No.

Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.
1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	
21		22		23		24		25	
26		27		28		29		30	
31		32		33		34		35	
36		37		38		39		40	
41		42		43		44		45	
46		47		48		49		50	