

DEPARTMENT OF EDUCATION
CENTRAL TIBETAN ADMINISTRATION, DHARAMSHALA
ENTRANCE EXAMINATION-2008.

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

- Q.1. Removal of apical bud in a flowering plant during its pruning results in
- (a) Early flowering
 - (b) Formation of new apical bud
 - (c) Formation of adventitious roots on the cut site
 - (d) Promotion of lateral branching
- Q.2. Lakes that are deficient in nutrients and consequently low in productivity are called
- (a) Mesotrophic
 - (b) Eutrophic
 - (c) Metatrophic
 - (d) Oligotrophic
- Q.3. The enzyme catalyzing CO_2 fixation in C_4 plants is
- (a) Rubisco
 - (b) PEP carboxylase
 - (c) Carboxydismutase
 - (d) Hexokinase
- Q.4. The transition zone between two ecosystems is called
- (a) Ecotype
 - (b) Ecad
 - (c) Ecotone
 - (d) Mycotrophy
- Q.5. The biogenetic law of Haeckel
- (a) *Omnis vivum-e-vivum*
 - (b) *Omnis cellula-e-cellula*
 - (c) Ontogeny repeats phyllogeny
 - (d) Phyllogeny repeats ontogeny
- Q.6. Embden Meyerhof Parnas pathway deals with
- (a) Glycolysis
 - (b) TCA
 - (c) Glucuronic acid pathway
 - (d) Red drop effect
- Q.7. Colchicine interact with the cell division by
- (a) Forming spindle
 - (b) Inhibiting spindle formation
 - (c) Duplicating chromosomes
 - (d) Duplicating DNA
- Q.8. Symbiotic nitrogen fixation in the root nodules of some leguminous plants is caused by
- (a) Azoto bacter
 - (b) Nitro bacter
 - (c) Nitrosomonas
 - (d) Rhizobium

- Q.9. Who was awarded Nobel prize for the discovery of mobile genetic elements?
(a) Mc clintock (b) Sutherland
(c) Swaminathan (d) Morgan
- Q.10. Food chain never operates as isolated sequences in natural condition but are interconnected with each other producing interlocking pattern termed as
(a) Community (b) Biotic community
(c) Food web (d) Succession
- Q.11. The preparation of recombinant DNA requires
(a) Restriction enzymes (b) RNA polymerase
(c) DNA polymerase (d) Nitro reductase
- Q.12. In flowering plants, a megaspore develops into an embryo sac containing
(a) 6 – cells, one of which is an egg (b) 4 – cells, one of which is an egg
(c) 8 – cells, one of which is an egg (d) None of the above
- Q.13. A nutritionally wild type of organism, which does not require any additional growth supplement is known as
(a) Holotype (b) Auxotroph
(c) Prototroph (d) Phenotype
- Q.14. Vaccine produced by recombinant DNA (r DNA) technology are known as
(a) 4th generation (b) 3rd generation
(c) 2nd generation (d) 1st generation
- Q.15. Which of the following pigment absorb red and far red light
(a) Cybochrome (b) Carotene
(c) Xanthophyll (d) Phytochrome
- Q.16. 'Chilgoza' is a fruit obtained from a Gymnospermic plant namely
(a) Pinus roxburghii (b) Pinus gerardiana
(c) Cycas revoluta (d) Texus buccata
- Q.17. Phytotron is a device by which
(a) Electrons are donated in ETS
(b) Leaf fall occurs on abscission layer
(c) Mutations are produced in plants
(d) Plants are grown in controlled environment

- Q.18. Which of the following is considered a hot-spot of biodiversity in India?
- (a) Aravali hills (b) Western ghats
(c) Indo-gangetic plain (d) Eastern ghats
- Q.19. Meselson and Stahl tested the
- (a) Watson and crick's model of DNA replication
(b) Chargaffs rule
(c) Watson and crick's model of DNA
(d) Ringing experiment
- Q.20. Hybridization through protoplast fusion is known as
- (a) Clonal selection (b) Pure line selection
(c) Emasculation (d) Somatic hybridization
- Q.21. True species are
- (a) Inter breeding (b) Sharing the same niche
(c) Feeding on the same food (d) Reproductively isolated
- Q.22. Viral genome incorporated and integrates with bacterial genome is referred to as
- (a) Prophages (b) RNA
(c) DNA (d) Both (b) and (c)
- Q.23. A scion is grafted to a stock. The quality of fruits produced will be determined by the genotype of
- (a) Stock (b) Scion
(c) Both stock and scion (d) Neither stock nor scion
- Q.24. Thorn is modified branch because
- (a) It is hard, straight and pointed
(b) It is a defensive organ of the plant
(c) It arises in the axil of a leaf
(d) It arises from the leaf base
- Q.25. A plant cell has full potential to develop into a mature plant. This property of a plant cell is called
- (a) Tissue culture (b) Totipotency
(c) Pluripotency (d) Gene cloning

- Q.26. Chemiosmotic theory of ATP synthesis in the chloroplasts and mitochondria is based on
- (a) Membrane potential (b) Accumulation of Na^+
(c) Accumulation of k^+ (d) Proton gradient
- Q.27. Main function of leghemoglobin in the root nodules of leguminous plants is to
- (a) Promote oxygen availability to nodules
(b) Generate ATP for nitrogen fixation
(c) Generate hydrogen ions for ammonia formation
(d) Scavange oxygen
- Q.28. Which of the following concerns photo phosphorylation?
- (a) $\text{ADP} + \text{AMP} \xrightarrow{\text{lightenergy}} \text{ATP}$
(b) $\text{ADP} + \text{inorganic PO}_4 \xrightarrow{\text{lightenergy}} \text{ATP}$
(c) $\text{ADP} + \text{inorganic PO}_4 \longrightarrow \text{ATP}$
(d) $\text{AMP} + \text{inorganic PO}_4 \xrightarrow{\text{lightenergy}} \text{ATP}$
- Q.29. Which one among the following chemicals is used for causing defoliation of forest trees?
- (a) 2, 4 Dichloro phenoxy acetic Aicd (b) Amo 1618
(c) Phosphon – D (d) Malic hydrazide
- Q.30. A beet root slice first washed and then placed in cold water and it does not lose its anthocyanin. This shows that the plasma membrane is
- (a) Impermeable to anthocyanin
(b) Permeable to anthocyanin
(c) Differentially permeable to anthocyanin
(d) Dead
- Q.31. Semi autonomous organelle in the cell is
- (a) Per oxisome (b) Chloroplast
(c) Endoplasmic reticulum (d) Golgi bodies
- Q.32. Photochemical smog pollution does not contain
- (a) PAN (peroxy acyl nitrate) (b) Carbon dioxide
(c) Ozone (d) Nitrogen dioxide

- Q.33. Red rust of tea is caused by
(a) Puccinia (b) Cephaleuros
(c) Batrachospermum (d) Nostoc
- Q.34. Moss protonema resembles an algal filament but can be distinguished from lator
in
(a) Lacking chloroplast (b) Oblique septa
(c) Cellulosic cell wall (d) Coenocytic
- Q.35. The water fern Azolla is a Biofertilizer because it
(a) has rhizobium (b) has cyanobacteria
(c) is fast growing in humus (d) has mycorrhizal roots
- Q.36. Angiosperms have which of the following without exception
(a) Secondary Growth (b) Double fertilization
(c) Presence of vessels (d) Autotrophic nature
- Q.37. An aquatic plant introduced from America to check pollution has become
troublesome weed in India
(a) Opuntia (b) Pistia
(c) Eichhornia (d) Aegilops
- Q.38. Opium, bhang and tobacco are obtained from
(a) Papaver, Cannabis and Nicotiana (b) Cannabis, Papaver and Nicotiana
(c) Nicotiana, Cannabis and Papaver (d) Papaver, Nicotiana and Cannabis
- Q.39. Four radial vascular bundles are found in
(a) Monocot root (b) Dicot root
(c) Monocot stem (d) Dicot stem
- Q.40. Root pressure is due to
(a) More transpiration and less absorption
(b) Less transpiration and less absorption
(c) Less transpiration and more absorption
(d) More transpiration and more absorption

- Q.41. In a population, if certain individuals are better adapted, then the possible explanation is
- (a) Natural selection (b) Genetic drift
(c) Gene flow (d) Mutation
- Q.42. Polyploidy is induced by
- (a) Colchicine (b) Agricine Dyes
(c) Phosphorus (d) Chlorine
- Q.43. $\oplus o'_+ k_{(5)} \overbrace{c_{(5)} A_5} G_2$ is the floral formula of family
- (a) Malvaceae (b) Compositae
(c) Solanaceae (d) Leguminosae
- Q.44. A unicellular organism, often considered a connecting link between plants and animals, is
- (a) Paramecium (b) Entamoeba
(c) Monocystis (d) Euglena
- Q.45. Deforestation generally decreases
- (a) Rainfall (b) Soil erosion
(c) Draught (d) Global Warming
- Q.46. The major component of the cell wall in bacterial prokaryotes is a polymer named
- (a) Cellulose (b) Chitin
(c) Xylan (d) Peptidoglycan
- Q.47. Keystone species deserve protection because these
- (a) Are capable of surviving in harsh environmental conditions
(b) indicate presence of certain minerals in the soil
(c) have become rare due to over-exploitation
(d) Play an important role in supporting other species
- Q.48. Bacteria can not survive in a highly salted Pickle because
- (a) Salt inhibits reproduction of bacteria
(b) Enough light is not available for photosynthesis
(c) They become plasmolysed and death occurs
(d) Nutrients in the pickle medium can not support life

Q.49. Which bacteria is used as biopesticide first on the commercial scale in the world

(a) Escherichia coli

(b) Agrobacterium tumefaciens

(c) Bacillus thuringiensis

(d) Pseudomonas aeruginosa

Q.50. In Bryophyllum and Kalanchoe, vegetative propagation occurs by

(a) Bulbils

(b) Leaves

(c) Rhizome

(d) Tubers

