

DEPARTMENT OF EDUCATION  
CENTRAL TIBETAN ADMINISTRATION, DHARAMSHALA  
ENTRANCE EXAMINATION-2009.

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.

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Roll No. \_\_\_\_\_  
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Marks obtained by the candidate:

\_\_\_\_\_  
Signature of Examiner

- Q.1. True species are
- (a) Interbreeding (b) Sharing the same niche  
(c) Feeding on the same food (d) Reproductively isolated
- Q.2. ICBN stands for
- (a) International classification of biological nomenclature  
(b) International code of botanical nomenclature  
(c) International classification of biological naming  
(d) International class of biological nomenclature
- Q.3. Which of the following is common to both prokaryotes and eukaryotes?
- (a) Mitotic apparatus (b) Histones  
(c) Mitochondria (d) Genetic code
- Q.4. Angiosperms have dominated the land flora primarily because of their
- (a) Property of producing large number of seeds  
(b) Nature of self pollination  
(c) Domestication by man  
(d) Power of adaptability in diverse habitat
- Q.5. Which of the following contain xylem vessels?
- (a) Bryophyta (b) Pteridophyta  
(c) Angiosperm (d) Gymnosperm
- Q.6. Phylloclades are
- (a) Green, photosynthetic, succulent stems of indefinite growth  
(b) One internode long nonphotosynthetic stems  
(c) Leaf modifications with one node  
(d) None of these
- Q.7. Which of the following represents the edible part of the fruit litchi?
- (a) Mesocarp (b) Endocarp  
(c) Pericarp (d) Juicy aril

- Q.8. In dicot stem, vascular bundles are  
(a) Numerous scattered (b) Arranged in a ring  
(c) Without cambium (d) Surrounded by bundle sheath
- Q.9. Vascular cambium and extra stelar cambium together constitute  
(a) Primary meristem (b) Apical meristem  
(c) Intercalary meristem (d) Lateral meristem
- Q.10. Which of the following is not present in prokaryotes?  
(a) Ribosomes (b) Cell wall  
(c) Nuclear membrane (d) Plasma membrane
- Q.11. In which of the following solutions, volume of a cell increases?  
(a) Hypotonic (b) Isotonic  
(c) Hypertonic (d) Supertonic
- Q.12. Anthocyanin occurs in  
(a) Chloroplasts (b) Leucoplasts  
(c) Chromoplasts (d) Vacuoles
- Q.13. Coenzymes FMN and FAD are derived from vitamin  
(a) C (b) B6  
(c) B1 (d) B2
- Q.14. The unsaturated fatty acids are made saturated by the process of  
(a) Hydrogenation (b) Dehydrogenation  
(c) Hybridization (d) Polymerization
- Q.15. Which form of RNA has a structure resembling clover leaf?  
(a) *hn* RNA (b) *m* RNA  
(c) *t* RNA (d) *r* RNA
- Q.16. Chromosomes of higher plants are made of  
(a) DNA + histones (b) DNA only  
(c) RNA + DNA (d) DNA + pectins
- Q.17. Stomata of a plant open due to  
(a) Influx of hydrogen ions (b) Efflux of potassium ions  
(c) Influx of calcium ions (d) Influx of potassium ions

- Q.18. If by radiation all nitrogenase enzymes are inactivated then there will be no
- Fixation of atmospheric nitrogen
  - Conversion from nitrate to nitrite in legumes
  - Conversion from ammonium to nitrate in soil
  - Fixation of nitrogen in legumes
- Q.19. Acid concentration in CAM plants is more at
- Night
  - Day time
  - Dawn
  - Dusk
- Q.20. Dark reaction of Photosynthesis occurs
- Only in light
  - Only in the absence of light
  - Independent of light
  - All of these
- Q.21. Respiratory quotient is
- $\frac{CO_2}{O_2}$
  - $\frac{O_2}{CO_2}$
  - $\frac{N_2}{CO_2}$
  - $\frac{CO_2}{N_2}$
- Q.22. Which hormone is maximum in coconut milk?
- Gibberellins
  - Ethylene
  - Cytokinin
  - Auxin
- Q.23. IN plants, meiosis occurs in
- Root tip
  - Pollen grain
  - Stem tip
  - Anther
- Q.24. A monocarpic plant is one which
- Has only one carpel
  - Flowers and fruits only once in life and there after dies
  - Produce only one seed in their life span
  - None of the above
- Q.25. Insect pollinated flowers are characterized by
- Large number of pollens
  - Dry and smooth pollens
  - Sticky and rough pollens
  - Heavy and winged pollens

- Q.26. In some plants, anthers and stigma grow and mature at same time. This phenomenon is called
- (a) Homogamy (b) Syngamy  
(c) Allogamy (d) Fusion
- Q.27. Heterozygous purple flower is crossed with recessive white flower. The progeny has the ratio:
- (a) 75% purple and 25% white (b) 50% purple and 50% white  
(c) All purple (d) All white
- Q.28. Superiority of hybrid over parents is
- (a) Zigantism (b) Lethality  
(c) Heterosis (d) Dwarfism
- Q.29. Synthesis of DNA is called
- (a) Replication (b) Transcription  
(c) Translation (d) Amination
- Q.30. Triplet codon refers to sequence of three bases on
- (a) *m* RNA (b) *t* RNA  
(c) *r* RNA (d) All of the above
- Q.31. Jumping genes given by Barbara Mclintoc are also called
- (a) Transposons (b) Mutons  
(c) Cistrans (d) Vectors
- Q.32. Beadle and Tatum did classical experiments on *Neurospora crassa* to prove
- (a) One enzyme can correct one gene  
(b) One gene produces one enzyme  
(c) Many genes produce one enzyme  
(d) One gene regulates all polypeptides
- Q.33. Which of the following is a living fossil?
- (a) Sphagnum (b) Saccharomyces  
(c) Spirogyra (d) Cycas

- Q.34. A bacterial culture is treated with streptomycin and a cast is made. A few columns are able to survive due to
- (a) Selection (b) Adaptation  
(c) Induced mutation (d) Mimicry
- Q.35. Marijuana is extracted from
- (a) Dried leaves and flowers of hemp plant  
(b) Roots and bark of hemp plant  
(c) Leaves of cocoa plant  
(d) Ergot fungus
- Q.36. The technique of obtaining large number of plantlets by tissue culture method is called
- (a) Organ culture (b) Micropropagation  
(c) Macropropagation (d) Plantlet culture
- Q.37. *Triticum aestivum*, the common bread wheat is
- (a) Triploid with 21 chromosomes (b) Tetraploid with 28 chromosomes  
(c) Hexaploid with 42 chromosomes (d) Diploid with 14 chromosomes
- Q.38. *Bacillus thuringiensis* (Bt) strains have been used for designing novel
- (a) Bio-fertilizers (b) Bio-metallurgical techniques  
(c) Bio-mineralization processes (d) Bio-insecticidal plants
- Q.39. Two microbes found to be very useful in genetic engineering are
- (a) Crown gall bacterium and *coenorhabditis elegans*  
(b) *Escherichia coli* and *Agrobacterium tumefaciens*  
(c) *Vibrio cholerae* and a tailed bacteriophage  
(d) *Diplococcus* species and *Pseudomonas* sp
- Q.40. Golden rice is a transgenic crop of the future with the following improved traits
- (a) Insect resistance (b) High lysine content  
(c) High protein content (d) High vitamin-A content

- Q.41. Niche overlap indicates
- (a) Mutualism between two species
  - (b) Active cooperation between two species
  - (c) Two different parasites on the same host
  - (d) Sharing of resources between the two species
- Q.42. Photosynthetically active radiation (PAR) represents the following range of wavelength
- (a) 450 – 950 nm
  - (b) 340 – 450 nm
  - (c) 400 – 700 nm
  - (d) 500 -600 nm
- Q.43. Keystone species in an ecosystem are those
- (a) Present in maximum number
  - (b) That are not frequent
  - (c) Attaining a large biomass
  - (d) Contributing to ecosystem properties
- Q.44. Which of the following is expected to have the highest value ( $\text{gm}/\text{m}^2/\text{yr}$ ) in a grassland ecosystem?
- (a) Tertiary production
  - (b) Gross production
  - (c) Net production
  - (d) Secondary production
- Q.45. Which one of the following is not used for disinfection of drinking water?
- (a) Chlorine
  - (b) Ozone
  - (c) Chloramine
  - (d) Phenyl
- Q.46. Which of the following is a secondary pollutant?
- (a) NO
  - (b) NO<sub>2</sub>
  - (c) SO<sub>2</sub>
  - (d) PAN
- Q.47. The Montreal Protocol refers to
- (a) Persistent organic pollutants
  - (b) Global warming and climatic change
  - (c) Substances that deplete the ozone layer
  - (d) Bio safety of genetically modified organisms
- Q.48. Which of the following is considered a hot spot of biodiversity in India?
- (a) Aravali hills
  - (b) Western ghats
  - (c) Indogangetic plain
  - (d) Eastern ghats

Q.49. Biosphere reserves differ from national parks and wildlife sanctuaries because in the former

- (a) Human beings are not allowed to enter
- (b) People are an integral part of the system
- (c) Plants are paid greater attention than the animals
- (d) Living organisms are brought from all over the world and preserved for posterity

Q.50. A compound which is produced by an organism and inhibit the growth of other organism is called

- (a) Antibody
- (b) Antigen
- (c) Antiallergic
- (d) Antibiotic

