

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2011.

Ph.D. (BOTANY)

COURSE CODE : 136

Register Number :

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*Signature of the Invigilator*  
(with date)

COURSE CODE : 136

Time : 2 Hours

Max : 400 Marks

*Instructions to Candidates :*

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you -1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. What Robert Hooke had discovered in the thin section of cork as a "cell" was really
  - (A) Cellulose
  - (B) Nucleus
  - (C) Protoplasm
  - (D) Cell walls
2. Tonoplast is a differentially permeable membrane surrounding the
  - (A) Mitochondria
  - (B) Cytoplasm
  - (C) Vacuole
  - (D) Nucleus
3. When a ripe tomato is pricked with a needle, a watery fluid comes out. This fluid is stored in
  - (A) Cytoplasm
  - (B) Plastid
  - (C) Nucleus
  - (D) Vacuole
4. A nucleoside is
  - (A) Base + Sugar
  - (B) Base + Phosphate
  - (C) Sugar + Phosphate
  - (D) Base + Sugar + Phosphate
5. In DNA, when AGCT occur, their association is part as per the following pairs
  - (A) AG - CT
  - (B) AC - GT
  - (C) AT - CG
  - (D) All are possible
6. A heteropolysaccharide is
  - (A) Starch
  - (B) Cellulose
  - (C) Glycogen
  - (D) Chitin
7. Electron microscope was invented by
  - (A) Knoll & Ruska
  - (B) Schlieden & Schwann
  - (C) Zigmondy
  - (D) Flemming & Brown
8. Fuelgen reaction is employed for the detection of
  - (A) DNA alone
  - (B) RNA alone
  - (C) DNA & RNA
  - (D) Proteins
9. Microsomes are formed from
  - (A) Endoplasmic reticulum
  - (B) Ribosomes
  - (C) Golgi complex
  - (D) Mitochondria

10. The non-protein part of enzyme is called
  - (A) Holoenzyme
  - (B) Prosthetic group
  - (C) Apoenzyme
  - (D) None of the above
11. The enzyme bromelain is obtained from
  - (A) Papaya
  - (B) Pineapple
  - (C) Saliva
  - (D) Witches broom
12. Which among the following has highest turnover number?
  - (A) Urease
  - (B) Carbonic anhydrase
  - (C) Catalase
  - (D) Pepsin
13. Which one of the following is a prokaryote?
  - (A) Chlamydomonas
  - (B) Anabaena
  - (C) Rhizopus
  - (D) Agaricus
14. Yellow and orange colour of petals is due to
  - (A) Chloroplasts
  - (B) Anthocyanins
  - (C) Chromoplasts
  - (D) Leucoplasts
15. Raphides are found in
  - (A) Citrus
  - (B) Nerium
  - (C) Mango
  - (D) Colocasia
16. Triticale a cereal was formed by hybridization between
  - (A) Wheat & Barley
  - (B) Rice & Rye
  - (C) Wheat & Rye
  - (D) Wheat & Maize
17. If the haploid number of chromosome is 12. What shall be the number of chromosomes in monosomic?
  - (A) 22
  - (B) 23
  - (C) 25
  - (D) 26
18. The alkaloid from colchicum autumnale of family Liliaceae induces
  - (A) Sterility
  - (B) Dormancy
  - (C) Cell division
  - (D) Polyploidy
19. In which stage DNA duplication occurs?
  - (A) G<sub>1</sub>
  - (B) G<sub>2</sub>
  - (C) S
  - (D) All of these

20. Best material for the study of mitosis in laboratory is  
(A) anther (B) root tip  
(C) leaf tip (D) ovary
21. Mitotic spindle is mainly composed by which protein?  
(A) actin (B) myosin  
(C) actomycin (D) mycoglobin
22. The lac operon concept in gene regulation was proposed by  
(A) Jacob & Monod (B) Watson & Crick  
(C) H.G. Khorana (D) Kornberg
23. Binomial system of nomenclature was first suggested by  
(A) Darwin (B) Hutchinson  
(C) Malthus (D) Linnaeus
24. Bunchy top of Banana is caused by  
(A) Mycoplasma (B) Deuteromycetes  
(C) Xanthomonas (D) Viruses
25. Nodules with Nitrogen fixing bacteria are present in  
(A) Mustard (B) Wheat  
(C) Gram (D) Cotton
26. The cell wall of bacteria is composed of  
(A) Murein (B) Chitin  
(C) Cellulose (D) Suberin
27. The branches of Botany which deals with fungi is  
(A) Phycology (B) Mycology  
(C) Microbiology (D) Embryology
28. Heterothallism was discovered by  
(A) Alexopoulos (B) K.C. Mehta  
(C) Louis Pasteur (D) Blakeslee

29. Which one of the following is commonly called 'blue mold'?
- (A) *Penicillium* (B) *Peziza*  
(C) *Aspergillus* (D) *Erysiphe*
30. Reindeer moss is a
- (A) Pteridophyte (B) Bryophyte  
(C) Lichen (D) Gymnosperm
31. Parasite alga is
- (A) *Chara* (B) *Oedogonium*  
(C) *Anabaena* (D) *Cephaleuros*
32. Carragenin is produced by
- (A) Red algae (B) Brown algae  
(C) Green algae (D) Blue green algae
33. Water bloom is generally caused by
- (A) *Hydrilla* (B) Bacteria  
(C) Bluegreen algae (D) Green algae
34. Palmella stage is observed in
- (A) *Ulothrix* (B) *Spirogyra*  
(C) *Chlamydomonas* (D) *Chara*
35. Chantransia stage is seen in
- (A) *Polysiphonia* (B) *Batrochospermum*  
(C) *Gelidium* (D) *Gracillaria*
36. Synzoospore is formed in
- (A) *Vaucheria* (B) *Spirogyra*  
(C) *Oedogonium* (D) *Ulva*
37. Elaters help in dispersal of spores of
- (A) *Riccia* (B) *Marchantia*  
(C) *Dryopteris* (D) *Funaria*

38. Protonema is seen in  
 (A) Funaria (B) Riccia  
 (C) Anthoceros (D) Marchantia
39. Peat moss is  
 (A) Anthoceros (B) Funaria  
 (C) Sphagnum (D) Riccia
40. Development of sporophyte directly from gametophyte tissue is called  
 (A) Apogamy (B) Apospory  
 (C) Syngamy (D) Parthenogenesis
41. Which one of the following is not formed in Selaginella?  
 (A) Heterophylly (B) Heterospory  
 (C) Ligulate leaf (D) Homospory
42. One of the following is a bio-fertilizer.  
 (A) Azolla (B) Selaginella  
 (C) Salvinia (D) Marselia
43. Fern prothallus is normally  
 (A) Diploid (B) Haploid (C) Triploid (D) Tetraploid
44. One of the following is a fossil.  
 (A) Salvinia (B) Adiantum  
 (C) Rhynia (D) Azolla
45. Sporocarp is seen in  
 (A) Salvinia (B) Isoetes  
 (C) Marattia (D) Lycopodium
46. Which one of the following is called 'maidens hair fern'?  
 (A) Pteris (B) Pteridium  
 (C) Ophioglossum (D) Adiantum
47. Which one of the following is known as tallest Gymnosperm?  
 (A) Ginkgo (B) Sequoia (C) Pinus (D) Cycas

48. The stem of female cycas plant is  
 (A) Monopodium (B) Sympodium  
 (C) Rhizomatous (D) Dichotomous
49. Which one of these is known as living fossil?  
 (A) Pinus (B) Ginkgo  
 (C) Ephedra (D) Gnetum
50. Vessels are found in  
 (A) Pinus (B) Cycas  
 (C) Araucaria (D) Gnetum
51. The endosperm in Gymnosperm is  
 (A) Haploid (B) Diploid  
 (C) Triploid (D) Polyploid
52. Winged pollen grains are found in  
 (A) Pteris (B) Cycas  
 (C) Pinus (D) Selaginella
53. Birbal Sahni discovered a fossil plant from Raj Mahal hills. It belongs to  
 (A) Angiosperm (B) Gymnosperm  
 (C) Bryophyta (D) Pteridophyta
54. The plant which bears clinging root is  
 (A) Trapa (B) Screwpine  
 (C) Podostemon (D) Orchid
55. Eyes on potato tubers represent  
 (A) internodes (B) scars  
 (C) root base (D) nodes with buds
56. Penetrating roots in cuscuta are  
 (A) Haustoria (B) Epiphytes  
 (C) Stilt roots (D) Clinging roots

57. Companion cells are composition of  
(A) Xylem (B) Phloem  
(C) Parenchyma (D) Tracheids
58. Tyloses are seen in  
(A) Phloem cells (B) Collenchyma  
(C) Xylem cells (D) Aerenchyma
59. Duramen is  
(A) Periderm (B) Bark  
(C) Sapwood (D) Heartwood
60. The most primitive type of stele is  
(A) Eustele (B) Solenostele  
(C) Protostele (D) Siphonostele
61. The grittiness in apple and pear is due to  
(A) Carotenoids (B) Lignin  
(C) Areolar tissues (D) Sclerenchyma
62. Syconus fruit develops from  
(A) Coenanthium (B) Verticillaster  
(C) Hypanthodium (D) Cyathium
63. Potatoes are cultivated by  
(A) seeds (B) cutting roots  
(C) foliar buds (D) buds on tubers
64. Parietal placentation is seen in  
(A) Fabaceae (B) Cucurbitaceae  
(C) Tiliaceae (D) Rhamnaceae
65. Geocarpic fruit is seen in  
(A) Potato (B) Peanut  
(C) Onion (D) Garlic

66. Monadelphous condition of stamen is found in  
 (A) Malvaceae (B) Cyperaceae  
 (C) Brassicaceae (D) Solanaceae
67. The edible part of coconut is  
 (A) Epicarp (B) Mesocarp  
 (C) Endocarp (D) Endosperm
68. Which one of the following is a monocarpic plant?  
 (A) Bambusa (B) Sesamum  
 (C) Lavandula (D) Pinus
69. Double fertilization is discovered by  
 (A) Brown (B) Koch  
 (C) Stasburger (D) Nawaschin
70. Four sepals K 4 or (2 + 2) is the characteristic feature of  
 (A) Solanaceae (B) Fabaceae  
 (C) Malvaceae (D) Brassicaceae
71. Syngenesious stamen is seen in  
 (A) Asteraceae (B) Anonaceae  
 (C) Apocyanaceae (D) Asclepiadaceae
72. Cyathium inflorescence is seen in  
 (A) Convolvulaceae (B) Solanaceae  
 (C) Euphorbiaceae (D) Amaranthaceae
73. Gynostegium is seen in  
 (A) Aristolociaceae (B) Asclepiadaceae  
 (C) Orchidaceae (D) All of these
74. Cleistogamy is seen in  
 (A) Commelinaceae (B) Bromeliaceae  
 (C) Typhaceae (D) Pandanaceae

75. Verticillaster inflorescence is produced by  
 (A) Lamiaceae (B) Fabaceae  
 (C) Solanaceae (D) Cucurbitaceae
76. Oblique ovary is found in  
 (A) Liliaceae (B) Solanaceae  
 (C) Lamiaceae (D) Asteraceae
77. Cocaine is obtained from  
 (A) Atropa (B) Streptomyces  
 (C) Erythroxylon (D) Chrysanthemum
78. Which plant will lose its economic value if its fruits are produced by induced parthenocarpy?  
 (A) Banana (B) Orange  
 (C) Grape (D) Pomegranate
79. Coir of commerce is obtained from which part of the coconut?  
 (A) Epicarp (B) Mesocarp  
 (C) Endocarp (D) Seed coat
80. Guttation occurs through  
 (A) Stomata (B) Hydathodes  
 (C) Root hairs (D) Flower buds
81. Premature leaf fall is due to deficiency of  
 (A) Phosphorous (B) Nitrogen (C) Iron (D) Calcium
82. Which of the following organelle is related with photorespiration?  
 (A) Peroxisome (B) Chloroplast  
 (C) Mitochondria (D) Lysosome
83. Who first demonstrated that light absorbed by chloroplast releases oxygen?  
 (A) Hill (B) Blackman  
 (C) Englemen (D) Arnon

84. How many ATP molecules are produced by aerobic oxidation of one molecule of glucose?  
 (A) 2 (B) 4 (C) 38 (D) 34
85. R.Q. of sprouting potato tubers will be  
 (A) 1 (B)  $< 1$  (C)  $> 1$  (D) 0
86. The 2, 4 - D is an effective  
 (A) Fungicide (B) Rodenticide  
 (C) Weedicide (D) Wormicide
87. Movement in leaves of mimosa pudica is  
 (A) Photonastic (B) Seismonastic  
 (C) Nyctinastic (D) Epinastic
88. Which of the following is a gaseous plant growth hormone?  
 (A) Auxin (B) Cytokinin  
 (C) Ethylene (D) Gibberellin
89. Germplasm theory was proposed by  
 (A) Lamarck (B) Weisman  
 (C) Darwin (D) Hugo de Vries
90. Savannahs are  
 (A) Tropical rain forests (B) Grassland with scattered trees  
 (C) Deserts (D) Halophytes
91. The minamata disease is caused by  
 (A) Mercury (B) Nitrites  
 (C) CFC (D) DDT
92. The scientist who first carried out experiments on hybrid vigour in maize was  
 (A) Mendel (B) Skull  
 (C) Johansen (D) Kolreuter
93. Potato is native to  
 (A) South America (B) North America  
 (C) South East Asia (D) Australia

94. Pyrethrin is obtained from  
(A) Carthamus (B) Chrysanthemum  
(C) Azadirachta (D) Amaranthus
95. Bordeaux mixture is used as a  
(A) fertilizer (B) fungicide  
(C) rodenticide (D) soil testing chemical
96. Most of the petro crops belong to the family  
(A) leguminosae (B) euphorbiaceae  
(C) rutaceae (D) malvaceae
97. First hormone produced by culturing bacteria is  
(A) insulin (B) throxin  
(C) testoterone (D) aderenaline
98. 'Molecular scissors' used in genetic engineering is  
(A) DNA polymerase (B) DNA ligase  
(C) Restriction endonuclease (D) Helicase
99. PCR technique was invented by  
(A) Kary Mullis (B) E.M. Southern  
(C) Sanger Etal (D) Arber
100. Rennin used in cheese industry is  
(A) antibiotic (B) alkaloid  
(C) enzyme (D) inhibitor
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