60213

ROLL No. | | | | | |

TEST BOOKLET No. 125

TEST FOR POST GRADUATE PROGRAMMES

BOTANY

Time: 2 Hours Maximum Marks: 450

INSTRUCTIONS TO CANDIDATES

1. You are provided with a Test Booklet and an Optical Mark Reader (OMR) Answer Sheet to mark your responses. Do not soil the Answer Sheet. Read carefully all the instructions given on the Answer Sheet.

2. Write your Roll Number in the space provided on the top of this page.

3. Also write your Roll Number, Test Code, and Test Subject in the columns provided for the same on the Answer Sheet Darken the appropriate bubbles with a Ball Point Pen.

4. The paper consists of 150 objective type questions. All questions carry equal marks.

5. Each question has four alternative responses marked A, B, C and D and you have to darken the bubble fully by a Ball Point Pen corresponding to the correct response as indicated in the example shown on the Answer Sheet.

6. Each correct answer carries 3 marks and each wrong answer carries 1 minus mark.

7. Space for rough work is provided at the end of this Test Booklet.

8. You should return the Answer Sheet to the Invigilator before you leave the examination hall. However, you can retain the Test Booklet.

9. Every precaution has been taken to avoid errors in the Test Booklet. In the event of any such unforeseen happenings, the same may be brought to the notice of the Observer/Chief Superintendent in writing. Suitable remedial measures will be taken at the time of evaluation, if necessary.

BOTANY

1. Flagellate gametes are absent in

(A) Myxophyceae (B) Chlorophyceae
(C) Phaeophyceae (D) Xanthophyceae

2. The number of zoospores formed in a zoosporangium of *Oedogonium* is

(A) one (B) 2-4
(C) 4-8 (D) numerous

3. The following is not brought about by *Rhizopus*

(A) Spoilage of food
(B) Deterioration of articles
(C) Soil building
(D) Production of antibiotics

4. Adelphogamy is seen in the yeast

(A) *Saccharomyces* (B) *Schizosaccharomyces*
(C) *Zygosaccharomyces* (D) *Saccharomycodes*

5. The species of *Penicillum* used for flavouring cheese is

(A) *P italicum* (B) *P.chrysogenum*
(C) *P expansum* (D) *P camemberti*

6. The receptive hyphae of *Puccinia* are also called

(A) Spermatophores (B) Flexous hyphae
(C) Periphysis (D) Phialides

7 The peltate cap of the fruiting body of *Agaricus* is called

(A) Gill chamber (B) Stipe
(C) Pileus (D) Velum

8. Which of the following alga is involved in the formation of a lichen?

(A) *Gleotrichia* (B) *Gleocapasa*
(C) *Dermocapsa* (D) *Volvox*

9. In *E. coli*, there is no alternation of generations because

(A) its cells do not exchange materials with each other
(B) there is neither syngamy nor reduction division
(C) it does not have chromosomes
(D) the chromosomes do not fuse

10. During transduction, DNA from the donor bacterium is transferred through

(A) Adsorption (B) Bacteriophages
(C) Cellular contact (D) Diffusion

11. The rabies virus is

(A) Brick shaped (B) Tadpole-like
(C) Bullet shaped (D) Icosahedral

12. The term T-phage was introduced by

(A) Stanley (B) Enders
(C) Twort (D) Delbrunck

13. The type of alternation of generation shown by Bryophytes is

(A) Isomorphic (B) Heteromorphic
(C) Pleomorphic (D) Polymorphic

14. The heterothallic species of *Riccia* is

(A) *R. crystallina* (B) *R. billardieri*
(C) *R. glauca* (D) *R. discolor*

15. In *Funaria*, the rhizoids are distinguished by which of the following characters?

(A) Colourless, unicellular
(B) Colourless, multicellular
(C) Colourless, multicellular with oblique septa
(D) Coloured, multicellular

16. When moss spores germinate, they form

(A) Leafy gametophyte (B) Capsule
(C) Protonema (D) Rhizoids

17 A fern differs from a moss in having

(A) Swimming sperms (B) Vascular tissue
(C) Alternation of generation (D) Independent gametophytic

18. The phenomenon of apogamy was first observed in which of the following pteridophyte?

(A) *Lastrea* (B) *Marsilea*
(C) *Nephrodium* (D) *Pteris*

19. The xylem in the stem of *Selaginella* is usually

(A) Exarch (B) Endarch
(C) Mesarch (D) Amphivasal

20. The type of venation seen in *Marsilea* is

(A) open dichotomous type with cross-connections
(B) closed dichotomous type with cross-connections
(C) open dichotomous type without cross-connections
(D) closed dichotomous type without cross-connections

21. Which of the following is not involved in the fertilization of ferns?

(A) Pollen tube (B) Water
(C) Archegonia (D) Flagellated sperms

22. Fruits are not found in gymnosperms because

(A) they are seedless plants
(B) they are not pollinated
(C) they have no ovary
(D) fertilisation does not take place in them

23. Pencils are made from the wood of

(A) *Pinus pinaster* (B) *Juniperus virginiana*
(C) *Chamaecyparis piscifera* (D) *Abies pindrow*

24. The male gametes of *Cycas* are the direct derivatives of

(A) tube cell (B) stalk cell
(C) generative cell (D) body cell

25. *Pinus* is a gymnosperm because

(A) it is a large tree
(B) it is pollinated by wind
(C) it has exposed ovules
(D) it produces seeds and has narrow leaves

26. Roots of Dahlia are

(A) Napiform (B) Tuberous
(C) Fasciculate (D) Assimilatory

27 Velamen, the spongy tissue is present in the

(A) breathing roots (B) parasitic roots
(C) tuberous roots (D) epiphytic roots

28. Multiple root caps are found in

(A) *Pandanus* (B) *Typha*
(C) Sugarcane (D) *Salvinia*

29. Branched axillary thorns are found in

(A) *Carissa* (B) *Bougainvillea*
(C) *Duranta* (D) *Citrus*

30. The edible portion of *Cyperus rotundus* is

(A) Phylloclade (B) Tuber
(C) Rhizome (D) Bulb

31 The male flowers of a cyathium are arranged in a group of

(A) Racemes (B) Umbels
(C) Scorpiod cymes (D) Helicoid cymes

32 In *Bougainvillea*, the large coloured structures are

(A) Bracts (B) Stamens
(C) Petals (D) Sepals

33. Apocarpous gynoecium is found in

(A) Ranunculaceae (B) Malvaceae
(C) Solanaceae (D) Liliaceae

34. A feathery stigma is called

(A) Striate (B) Plumose
(C) Basillar (D) Fimbriate

35. Petaloid bracts are seen in

(A) *Adhatoda* (B) *Oreganum*
(C) *Euphorbia* (D) *Lemna*

36. Maize is

(A) Self - pollinated
(B) Cross – pollinated by insects
(C) Cross - pollinated by wind
(D) Cross – pollinated by rain

37. Wart disease of potato is caused by

(A) *Pythium debaryanum*
(B) *Phytophthora infestans*
(C) *Synchytrium endobioticum*
(D) *Alternaria solani*

38. In *Mangifera indica*, the fruit is

(A) Berry (B) Drupe
(C) Capsule (D) Pepo

39 The funicular scar on the seed is called

(A) Hilum (B) Tigellum
(C) Scutellum (D) Micropyle

40. In which of the following plants, fruits are dispersed by grazing animals such as cows, goats and sheep?

(A) Sunflower (B) *Xanthium*
(C) *Cucurbita* (D) Mustard

41. In a flowering plant, the largest number of haploid cells occur in the

(A) Ovule (B) Microsporangium
(C) Root tip (D) Cambium

42. Meiotic division in an ovule takes place in

(A) Nucellus (B) Megaspore mother cell
(C) Megaspore (D) Archesporium

43. As compared to egg cells, the sperm cells are

(A) generally larger
(B) invariably smaller
(C) less active
(D) completely immobile

44. The nuclei of the sperm and egg fuse as the result of

(A) base - pair relations of DNA and RNA
(B) formation of hydrogen bonds
(C) mutual attraction caused by differences in the electrical charges
(D) attraction of protoplasts of the egg and sperm

45. Ruminate endosperm is found in

(A) *Brassica*
(B) *Pisum*
(C) *Myristica*
(D) *Allium*

46 Perisperm is a remnant of

(A) Endosperm
(B) Cotyledon
(C) Nucellus
(D) Integument

47 The system of classification proposed by Bentham and Hooker is

(A) Artificial
(B) Natural
(C) Phylogenetic
(D) Numerical

48. The most highly evolved order in monocot, according to Hutchinson, is

(A) Graminales
(B) Orchidales
(C) Cyclanthales
(D) Najadales

49 The condition of the androecium in the family Malvaceae is

(A) Diadelphous
(B) Didynamous
(C) Syngenesious
(D) Monadelphous

50. Anthers with only two micorsporangia are found in

(A) Cucurbitaceae (B) Leguminosae
(C) Cruciferae (D) Malvaceae

51. Marginal placentation is found in

(A) Cruciferae (B) Malvaceae
(C) Leguminosae (D) Compositae

52. The latest and correct botanical name of lady's finger is

(A) *Hibiscus abelmoschus* (B) *Hibiscus esculentus*
(C) *Abelmoschus esculentus* (D) *Abelmoschus hibiscus*

53. The leaves in Papilionaceae are usually

(A) alternate, exstipulate (B) alternate, stipulate
(C) opposite, exstipulate (D) opposite, stipulate

54. The inflorescence of Mimoseae is a condensed

(A) Raceme (B) Spike
(C) Catkin (D) Spadix

55. Branched tendrils are found in

(A) *Cucumis* (B) *Coccinia*
(C) *Cucurbita* (D) *Momordica*

56. The dried fruit shells of the following plant are used for making musical instruments

(A) *Lagenaria siceraria* (B) *Cucurbita sp.*
(C) Both of these (D) None of these

57 Mark the economically important part of *Solanum tuberosum*

(A) Swollen tips of stolons
(B) Swollen tips of root branches
(C) Swollen tips of the main stem
(D) All of the above

58. *Allium bulbiferum* possesses

(A) Imbricate bulbs (B) Tunicate bulbs
(C) Bulbils (D) Bulbous corm

59 Palm oil is obtained from

(A) *Glycine* (B) *Gossypium*
(C) *Elaeis* (D) *Olax*

60. The most important alkaloid present in the latex of opium poppy is

(A) Narcotein (B) Codeine
(C) Morphine (D) Thebaine

61 The Meliaceae flowers are generally borne in

(A) Racemes (B) Umbels
(C) Panicles (D) Cymes

62. The type of cohesion seen in the stamens of *Callistemon* is

(A) Diadelphous (B) Syngenesious
(C) Monadelphous (D) Synandrous

63. The fruits of one of the following plants are edible

(A) *Wrightia* (B) *Carissa*
(C) *Vinca* (D) *Allamanda*

64. Leaf nodules containing nitrogen fixing bacteria are found in

(A) *Randia* (B) *Cephaelis*
(C) *Rubia* (D) *Psychotria*

65. Which one of the following is an edible plant of Convolvulaceae?

(A) *Ipomoea aquatica* (B) *Argyreia speciosa*
(C) *Mina lobata* (D) *Ipomoea crassicaulis*

66. Apocynaceae differs from Rubiaceae in having

(A) Bicarpellary ovary (B) Sagittate anthers
(C) Axile placentation (D) Pentamerous flowers

67. The gynoecium in most of the Euphorbiaceae members is

(A) Bicarpellary (B) Tricarpellary
(C) Tetracarpellary (D) Pentacarpellary

68. Which one of the following yields useful timber?

(A) *Hura crepitans* (B) *Mallotus philinensis*
(C) *Excoecaria bicolor* (D) *Ricinus communis*

69. The character uncommon between Acanthaceae and Labiatae is

(A) Exstipulate leaves (B) Discrete anthers
(C) Pentamerous flower (D) Bilipped corolla

70. The botanical name of 'Congo coffee' is

(A) *Coffea arabica* (B) *Coffea stenophylla*
(C) *Coffea liberica* (D) *Coffea robusta*

71. Papaya is a native of

(A) India (B) China
(C) South Africa (D) Mexico

72. The medicinally important part of *Kaempferia galanga* is

(A) roots only
(B) aerial roots and rhizomes
(C) rhizomes only
(D) the whole plant

73 Asafoetida is obtained from a species of

(A) *Ferula*
(B) *Cephaelis*
(C) *Panax*
(D) *Rheum*

74. Sugarcane Breeding Institute is situated at

(A) Lucknow
(B) Delhi
(C) Coimbatore
(D) Bhopal

75 Which one of the following plants yield sun hemp?

(A) *Cannbis*
(B) *Crotalaria*
(C) *Corchorus*
(D) *Hibiscus*

76. The basic principle involved in spectrophotometry is the same as that in

(A) Colorimetry
(B) Autoradiography
(C) X-ray crystallography
(D) Chromatography

77. The proteins of the protoplasm are present as

(A) emulsion
(B) colloidal suspension
(C) supernatant
(D) colloidal emulsion

78. The cell wall of higher fungi contains

(A) coniferyl alcohol
(B) pectin
(C) muramic acid
(D) glucosamine

79. In the cell, glucose is oxidised in

(A) Cytoplasm (B) Mitochondrion
(C) Grana of chloroplast (D) Ribosome

80. The annulated lamellae are supposed to be the precursors of

(A) Endoplasmic reticulum (B) Plasma membrane
(C) Golgi complex (D) All of the above

81 The number of cisternae in a Golgi complex usually ranges between

(A) 10 - 15 (B) 15 25
(C) 3 - 10 (D) 1 - 3

82. Cilia are produced by

(A) Centrioles (B) Peroxisomes
(C) Dictyosomes (D) Golgi body.

83. Cambium causes growth in

(A) length (B) circumference
(C) width (D) leaves

84. Which of the following is absent in the phloem of monocots?

(A) Sieve tubes (B) Phloem parenchyma
(C) Companion cells (D) Phloem fibers

85. In which of the following cells Casparian thickening occurs?

(A) Epidermis (B) Hypodermis
(C) Endodermis (D) Pericycle

86. The xylem condition in monocot roots is

(A) Hexarch (B) Hexa-to polyarch
(C) Polyarch (D) Hepta-to polyarch

87. Gaseous exchange between air and internal tissues of old corky stem takes place through

(A) Sieve plates (B) Pits
(C) Stomata (D) Lenticels

88. Seeds swell when placed in water due to

(A) Osmosis (B) Hydrolysis
(C) Imbibition (D) Active absorption

89. Plasmolysis occurs when turgid cells are placed in contact with

(A) a hypertonic solution (B) a hypotonic solution
(C) an isotonic solution (D) pure water

90. Active absorption of water by roots from soil is mainly affected by

(A) osmotic concentration of the cell sap
(B) tension in cell sap due to transpiration
(C) sucking power of the root hair
(D) typical tissue organisation

91. The term root pressure was coined by

(A) Mac Dougal (B) Dixon
(C) Stephan Hale (D) Renner

92. Aquatic plants with floating leaves

(A) lack stomata
(B) have stomata on both the leaf surfaces
(C) have stomata only on the lower surface
(D) have stomata on both the upper and lower surfaces

93. The transport of ions in bacteria occurs through

(A) Volutin granules (B) Ionophores
(C) Antibodies (D) Plasmids

94 In photosynthesis, light

(A) is converted into kinetic energy
(B) is converted into chemical energy
(C) acts directly on CO_2 and water
(D) acts as a catalyst

95 All algae have

(A) chlorophyll *a* and chlorophyll *b*
(B) chlorophyll *b* and carotene
(C) chlorophyll *a* and carotene
(D) phycobilins and carotene

96. The colour of rose petals is due to water-soluble pigment present in the

(A) Cytoplasm (B) Nucleus
(C) Intercellular space (D) Vacuole

97 Which of the following is obtained by insectivorous plants from animal bodies?

(A) O_2 (B) CO_2
(C) N_2 (D) SO_2

98. A photosynthetic, anaerobic, asymbiotic nitrogen fixing bacterium is

(A) *Azotobacter* (B) *Bacillus*
(C) *Rhizobium* (D) *Rhodospirillum*

99. The movements involved in opening and closing of flowers are

(A) autonomic (B) nastic
(C) tactic (D) turgor

100. tRNA is also known as

(A) microsomal RNA (B) messenger RNA
(C) soluble RNA (D) rRNA

101 A cross between F_1 hybrid and a recessive parent gives the ratio of

(A) 3:1 (B) 1:1
(C) 2:1 (D) 4:1

102. In meiosis, crossing over takes place during

(A) Leptotene (B) Zygotene
(C) Pachytene (D) Diplotene

103. Damping off of the vegetable seedling can be effectively managed by soil drenching with

(A) Charcoal dust (B) Sulphur dust
(C) Formalin dust (D) Follidol

104. Cis-acting element which acts in either orientation to regulate gene expression is

(A) Promoter (B) Regulator
(C) Inducer (D) Enhancer

105. The major active principle in neem kernal is

(A) Alkaloid (B) Vasopressin
(C) Azadirachtin (D) Nimbidin

106. The plant with the smallest genome is

(A) Maize (B) *Arabidopsis sp.*
(C) Mungbean (D) Rice

107 The National Institute responsible for conservation of plant germplasm is

(A) IARI (B) NBAGR
(C) NBPGR (D) CDRI

108. Epiblema refers to

(A) Endodermis (B) Rhizodermis
(C) Passage cells (D) Cuticle

109. An artificial or synthetic seed is

(A) a seed formed without pollination
(B) an embryo dissected out from a seed and stored
(C) encapsulated somatic embryo
(D) a seed through artificial pollination

110. In hybridisation technique, emasculation means the removal of

(A) Stamen (B) Pistil
(C) Corolla (D) Calyx

111. Alternate form of the same gene responsible for determining contrasting character is

(A) Supplementary gene (B) Lethal
(C) Allele (D) Progeny

112. An ecological *niche* is normally occupied by

(A) a population (B) a small community
(C) competing species (D) competing genera

113. The scientist who discovered that coupling and repulsion are two aspects of a single phenomenon called linkage is

(A) Bateson (B) Mendel
(C) Morgan (D) Punnet

114. The ability of every living plant cell to produce the entire plant is termed

(A) Mosphogenesis (B) Protoplasmic fusion
(C) Gene cloning (D) Totipotency

115. An example of fusogenic agent is

(A) Methanol (B) Ethyl alcohol
(C) Polyethylene alcohol (D) Polyethylene glycol

116. The potential energy is converted into kinetic energy in the plant by

(A) Transpiration (B) Respiration
(C) Photosynthesis (D) Reproduction

117. An important plant growth promoter is

(A) Androgen (B) Algin
(C) Auxin (D) Aborigine

118. The economic importance of *Carthamus tagetus* and *cosmos* is

(A) Medicine (B) Insecticide
(C) Dye (D) Vegetable

119. *Hibiscus rosasinensis* belongs to the family

(A) Compositae (B) Gramineae
(C) Malvaceae (D) Fabaceae

120. Seaweed belongs to

(A) Fungi (B) Shrub
(C) Fern (D) Algae

121. Which one of the following is used as a green manure?

(A) *Azotobacter* (B) *Rhizobium*
(C) *Sesbania* (D) *Pseudomonas*

122. The disease, 'Late blight of potato' is caused by

(A) *Puccinia graminis* (B) *Pseudomas florescens*
(C) *Phytophthora infestans* (D) *Mucor*

123. Red rot of sugarcane is caused by

(A) *Cercospora personata* (B) *Colletotrichum falcatum*
(C) *Bacillus spp.* (D) *Aspergillus nidulans*

124. *Laminaria spp.* is the major source of

(A) Bromine (B) Iodine
(C) Iron (D) Penicillin

125. Turpentine is obtained from the resin of

(A) *Agaricus* (B) Fungus
(C) *Pinus* (D) *Recinus*

126. Three-dimensional images of objects are viewed using

(A) Electron microscope
(B) Simple microscope
(C) Scanning electron microscope
(D) Transmission electron microscope

127. The 'Fluid mosaic model' of membrane was proposed by

(A) Davidson (B) Singer and Nicholson
(C) Meselson and Stahl (D) Barbara McClintok

128. The term for 'programmed cell death' is

(A) Mitosis (B) Chaosis
(C) Meoisis (D) Apoptopsis

129. Musa is an example of

(A) Spadix (B) Compound spadix
(C) Spathes (D) Cyme

130. Coconut belongs to

(A) Arborescent monocots (B) Gymnosperms
(C) Dicots (D) Herbaceous monocots

131. Jack fruit is a typical example of

(A) Multiple fruit (B) Sorosis
(C) Aggregate (D) Thorny fruit

132. The smallest unit of the gene that specifies for an amino acid is

(A) Cistron (B) Muton
(C) Recon (D) Codon

133. The phenotypic ratio of incomplete dominance is

(A) 3:1 (B) 1:2:1
(C) 9:3:3:1 (D) 1:1

134. Movement of the solute from a higher concentration region to the lower concentration region is called

(A) Imbibition (B) Osmosis
(C) Diffusion (D) Plasmolysis

135. Nitrogenase enzyme contains

(A) Fe, S (B) Fe, Mn
(C) Fe, K (D) Fe, Na

136. Fragrant flowers with well-developed nectaries are an adaptation for

(A) Zoophily (B) Entomophily
(C) Anemophily (D) Hydrophily

137. Vivipary is a characteristic feature of

(A) Mesophytes (B) Halophytes
(C) Xerophytes (D) Hydrophytes

138. Senescence in plants is regulated by

(A) Cytokinin (B) NAA
(C) Abscisic acid (D) Gibberellin

139. Which one of the following is a C_4 plant?

(A) Rice (B) Sugarcane
(C) Wheat (D) Potato

140. Crossing-over occurs during

(A) Pachytene (B) Leptotene
(C) Zygotene (D) Diplotene

141. Majority of virus resistant transgenic plants are based on

(A) Anti-viral toxin gene
(B) Resistance gene isolated from wild plants
(C) Viral coat protein gene
(D) Satellite virus

142. The term 'embryo rescue' is used for

(A) Embryo culture (B) Ovary culture
(C) Ovule culture (D) All of the above

143. Trypsin inhibitor is abundantly present in

(A) Wheat (B) Paddy
(C) Maize (D) Soybean

144. The queen of spices is

(A) Cardamom (B) Turmeric
(C) Pepper (D) Ginger

145. The enzyme used for joining two DNA fragments is

(A) DNA polymerse (B) DNA ligase
(C) Endonuclease (D) Lyase

146. Enzymatic isolation of protoplast was first demonstrated by

(A) Zimmermann (B) Vasil
(C) Cocking (D) Murashige

147. Transposon was discovered by

(A) Darwin (B) Barbara McClintok
(C) Monod (D) Watson

148. HCN is present in

(A) Paddy (B) Tapioca
(C) Papaya (D) Apple

149. Lycopene is the colouring pigment of

(A) Carrot (B) Tomato
(C) Papaya (D) Lime

150. How large is a typical chloroplast genome?

(A) 1.5 kb (B) 15 kb
(C) 150 kb (D) 1500 kb