60211

ROLL No. | | | | | |

QN. BOOKLET No. **013**

TEST FOR POST GRADUATE PROGRAMMES

BOTANY

Time: 2 Hours | Maximum Marks: 450

INSTRUCTIONS TO CANDIDATES

1. You are provided with a Question Booklet and an Optical Mark Reader (OMR) Answer Sheet to mark your responses. Do not soil your OMR Sheet. Read carefully all the instructions given on the OMR Sheet.
2. Write your Roll Number in the space provided on the top of this page.
3. Also write your Roll Number, Test Code, Test Centre Code, Test Centre Name, Test Subject and the date and time of the examination in the columns provided for the same on the **Answer Sheet**. Darken the appropriate bubbles with HB pencil.
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 **HB pencil** corresponding to the correct response as indicated in the example shown on the Answer Sheet. Also write the alphabet of your response with ball pen in the starred column against attempted questions and put an '×' mark by ball pen in the starred column against unattempted questions as given in the example in the OMR Sheet.
6. Each correct answer carries 3 marks and each wrong answer carries 1 minus mark.
7. Please do your rough work only on the space provided for it at the end of this question booklet.
8. You should return the Answer Sheet to the Invigilator before you leave the examination hall. However Question Booklet may be retained with the Candidate.
9. Every precaution has been taken to avoid errors in the Question Booklet. In the event of such unforeseen happenings, suitable remedial measures will be taken at the time of evaluation.
10. Please feel comfortable and relaxed. You can do better in this test in a tension-free disposition.

WISH YOU A SUCCESSFUL PERFORMANCE

SEAL

60211

BOTANY

1. Which of the following is a living mechanical tissue?

(A) Collenchyma
(B) Sclerenchyma
(C) Parenchyma
(D) Chlorenchyma

2. Vessels differ from tracheids

(A) in being water conducting in nature
(B) in being living
(C) in being thick-walled
(D) in that they consist of vertical rows of cells with cross wall dissolved

3. The sclerotium refers to a modified mycelium which is

(A) easily carried of by wind
(B) an underground structure
(C) mainly a food storing organ
(D) a hard resting body

4. The drug artimisinin is obtained from

(A) leaves
(B) barks
(C) tuberous roots
(D) flowers

5. Water butter-cup is a common name of

(A) *Riccia infestans*
(B) *Ranumculus peltatus*
(C) *Pinus roxburghii*
(D) *Grimmia maritime*

6. Pectin is a polymer of

(A) glucose
(B) cutin
(C) galactouronic acid
(D) mannose

7. Zn_{2+} is essential for the synthesis of the phytohormone

(A) ABA
(B) Indole-3-acetic acid
(C) GA_3
(D) Ethylene

8. The rate of transcription of genes is controlled by regulatory sequences called

(A) enhancers
(B) transacting elements
(C) A and B
(D) inducers

9. Which among the following plants does not transpire?

(A) Algae
(B) Fungi
(C) Submerged hydrophytes
(D) All of the above

10. The deteriorative process that naturally terminates the plant life are collectively called

(A) senescence
(B) abscission
(C) wilting
(D) plasmolysis

11. Which of the following elements are considered essential for photolysis of water?

(A) Ca and Cl
(B) Mn and Cl
(C) Zn and I
(D) Mg and Fe

12. Apomixis refers to the development of a plant

(A) without fusion of gametes and meiosis
(B) from root cuttings
(C) from fusion of gametes
(D) from pollen grains

13. Laticiferous vessels are found in

(A) phloem
(B) cortex
(C) xylem
(D) tracheids

14. A tumour suppressor gene

(A) suppresses oncogenes
(B) prevents cancer
(C) inhibits cell division
(D) All of the above

15. In which of the following trees, there is no differentiation of bark, sapwood and heart wood?

(A) Neem
(B) Mango
(C) Datepalm
(D) Asoka

16. The function of dry fruit is to

(A) protect the embryo from herbicides
(B) provide food for animals of terrestrial habitat
(C) nourish the embryo
(D) disperse the embryo by wind, water and animals

17. Soil salinity is measured by

(A) calorimeter
(B) conductivity meter
(C) auxenometer
(D) potometer

18. Plants requires K^+ for

(A) protein synthesis
(B) adhesion of cells
(C) opening and closing of stomata
(D) chlorophyll synthesis

19. Agent orange is

(A) an enzyme containing chloride
(B) a weedicide containing dioxin
(C) a biodegradable insecticide
(D) a lipopprotein

20. Which of the following bacterial strain is used to control the plant pest?

(A) *Pseudomonas*
(B) *Clostridium*
(C) *Bacillus thuringiensis*
(D) All of the above

21. Which among the following nucleotides/cofactors are water-soluble?

(A) NAD^+
(B) $NADP^+$
(C) FMN
(D) All of the above

22. Seaweed refers to

(A) diatoms
(B) soft-bodied algae
(C) marine algae that have large multicellular bodies
(D) the algae having cell walls encrusted with hard and chalky deposits

23. Phylloderm consists of

(A) collenchyma
(B) living parenchyma
(C) dead parenchyma
(D) sclerenchyma

24. Asexual reproductive structure in bacteria is

(A) akinetes
(B) heterocysts
(C) endospores
(D) exospores

25. The light harvesting complexes contain antenna pigments associated with

(A) lipids
(B) starches
(C) carbohydrates
(D) proteins

26. Seedless fruits can be obtained by the application of

(A) cytokinin
(B) gibberllin
(C) ABA
(D) ethylene

27. A biosensor uses a biological material such as

(A) a cell
(B) an enzyme
(C) an antibody
(D) All of the above

28. Mineral salts exist inside the cells as

(A) crystals
(B) solubilized molecules
(C) solid form
(D) colloidal form

29. Which of the following groups of elements are called 'critical elements'?

(A) Zinc, Copper and Iron
(B) Chlorine, Copper and Iron
(C) Nitrogen, Oxygen and Hydrogen
(D) Phosphorus, Potassium and Nitrogen

30. The phytohormone that induces cell division is

(A) cytokinin
(B) abscisic acid
(C) gibberllin
(D) ethylene

31. Which of the following cell organelle is not a microbody?

(A) Ribosomes
(B) Peroxisomes
(C) Spherosomes
(D) Liposomes

32. Which part of the cotton plant is the source for pure cellulose?

(A) Seed hairs
(B) Stem hairs
(C) Root hairs
(D) Petals

33. The site of respiration in bacteria is

(A) microsome
(B) mesosome
(C) episome
(D) ribosome

34. The term allelomorphy means

(A) a pair of non-contrasting characters
(B) a pair of contrasting characters
(C) any two sexual characters
(D) sex linked character

35. The major role of phosphorous in plant metabolism is to

(A) generate metabolic energy
(B) evolve oxygen during photosynthesis
(C) evolve ethylene during fruit ripening
(D) perform oxidation

36. Which among the following is a prokaryote?

(A) *Spirogyra*
(B) *Nostoc*
(C) *Saccharomyces cerviciea*
(D) *Rhizopus*

37. The term protoplasm was coined for the contents of embryogenic cells of plants by

(A) Hugo van Mohi
(B) Dujardin
(C) Purkinje
(D) Hooke

38. The main function of Golgi complex is

(A) fermentation
(B) phosphorylation
(C) translocation
(D) glycosilation of lipids and proteins

39. Cell plate formation in plants occurs from

(A) periphery to centre
(B) centre to periphery
(C) top to bottom of the cell
(D) bottom to top of the cell

40. Chemical synthesis of DNA was worked out by

(A) Khorana
(B) Watson and Crick
(C) Kornberg
(D) Nirenberg

41. Peroxisomes in plants are associated with

(A) photoperiodism
(B) phototropism
(C) photosynthesis
(D) photorespiration

42. Cellulosic cell walls can be specifically stained by

(A) Methylene blue
(B) Sudan IV
(C) Zinc chloride
(D) Phloroglucinol

43. The plane of cell wall formation in dividing cell is determined by

(A) Microfilament
(B) Microtubules
(C) Endoplasmic reticulum
(D) Ribosomes

44. In which part of the mitochondria is ATP generated?

(A) Matrix
(B) Cristae
(C) Outer membrane
(D) F_1 particle

45. Desmosomes are related to

(A) cellular excretion
(B) cytolysis
(C) cell adherence
(D) cell division

46. The number of bases per helical turn in Z-DNA is

(A) 10 (B) 11
(C) 12 (D) 13

47. The pigment found inside the vacuole is

(A) anthocyanin (B) fucoxanthin
(C) phycoxanthin (D) phycoerythrin

48. Endoplasmic reticulum is more developed in

(A) young cells (B) green cells
(C) mature cells (D) bacteriophage

49. The term 'Parsamorpha' refers to

(A) nucleolus (B) nuclear membrane
(C) nuclear pore complex (D) endoplasmic reticulum

50. The site of formation of spindle fibers in nucleolus is localized in

(A) chromosomes (B) ribosomes
(C) peroxysomes (D) tonoplast

51. Which of the following is incorrectly matched?

(A) Peroxysomes and ribosomes
(B) Lysosomes and glycosidases
(C) Golgi complex and carbohydrates
(D) Mitochondria and cristae

52. Which of the following growth regulators was extracted initially from a fungus?

(A) Cytokinin (B) Auxin
(C) Ethylene (D) Gibberellin

53. Cytokinins are synthesized in

(A) stems (B) leaves
(C) fruits (D) roots

54. Which of the following delays senescence?

(A) Cytokinin
(B) Auxins
(C) Gibberellins
(D) Ascorbic acid

55. Legume seeds exhibit dormancy because of

(A) poorly developed embryo
(B) hard seed-coat
(C) absence of cytokinins
(D) absence of Gibberellic acid

56. All cytokinins are

(A) acidic
(B) aminopurines
(C) phenols
(D) glycosides

57. The enzyme catalase in green leaf cell is localized in the

(A) lysosomes
(B) chloroplast
(C) vacuoles
(D) peroxisomes

58. Which of the following colours of light works least for photosynthesis?

(A) Green
(B) Yellow
(C) Blue and red
(D) Violet and yellow

59. When sun light is absorbed by chloroplasts, pH is lowest in the

(A) stroma
(B) space enclosed by the inner and outer membrane
(C) spaces enclosed by the thylakoid membrane
(D) cytosol

60. Which of the following is a component of mitosis in the cells of seed plants?

(A) Centrioles
(B) Asters
(C) Spindles
(D) Cleavage furrows

61. The replication of DNA is possible due to

(A) the genetic code
(B) membrane lipids
(C) the base paring rules
(D) aminoacids

62. The second event in translation, after mRNA binding is

(A) synthesis of aminoacids from glucose and ammonia
(B) translocation through the nuclear envelope
(C) joining together of the two ribosomal subunits
(D) rotation of the polysomal unit

63. Genes that are inactive for long periods are bonded to

(A) each other
(B) methyl groups
(C) actin and myosin
(D) the nucleolus

64. When the substrate of an enzyme stimulates synthesis of that enzyme, it is called

(A) repressor
(B) inducer
(C) activator
(D) excitant

65. Ploidy of anther cell wall is

(A) haploid
(B) diploid
(C) triploid
(D) tetraploid

66. Thallophytes without chlorophylls are

(A) algae
(B) algae other than green algae
(C) fungi
(D) bacteria

67. Respiration is

(A) exothermic process
(B) endothermic reaction
(C) anaboloic reaction
(D) proteolytic reaction

68. Back-cross involves

(A) a hybrid and one of its parents
(B) Fl hybrids
(C) maternal and paternal parents
(D) regenerated generation (R1)

69. Pigment that is known as eye of the plant is

(A) cytochrome (B) phytochrome
(C) chlorophyll (D) carotenoids

70. Which of the following contains extra-nuclear genetic material?

(A) Chromosomes (B) Golgi apparatus
(C) Ribosomes (D) Plastids

71. Stroma refers to

(A) stomatal pore (B) lamellae in the chloroplast
(C) chloroplast matrix (D) mitochondrial matrix

72. Linked genes are present

(A) on different chromosome (B) in the same chromosome
(C) in only the sex chromosomes (D) in different autosomes

73. Atmospheric N_2 is fixed by

(A) blue – green algae (B) green algae
(C) brown algae (D) red algae

74. In allopatric speciation, the initial barrier to gene flow is

(A) behavioural (B) postzygotic
(C) geographic (D) ecological

75. Male gametophyte in higher plants is

(A) pollen grain (B) egg cell
(C) anther-wall cells (D) sepal cells

76. Connecting link between Protozoa and Porifera is

(A) chlamydomonas (B) protopterus
(C) pteroserospongia (D) euglena

77. When plant cells are kept in hypertonic solution they get

(A) lysed (B) turgid
(C) plasmolysed (D) deplasmolysed

78. Spoilage of food material is prevented in cold storage due to the

(A) reduced respiration at low temperature
(B) reduced enzyme activity in the food
(C) reduced enzyme activity of microbes as well as food
(D) purified nature of air

79. The enzymes catalyzing breakdown without addition of water are called

(A) lyases
(B) hydrolases
(C) ligases
(D) oxidoreductases

80. Viral oncogene differs from the protooncogene in that it is

(A) mutated
(B) spliced
(C) circular
(D) having tandem repeats

81. Who was the predecessor of Darwin who developed the theory of acquired characteristics?

(A) Weismann
(B) Mendel
(C) Malthus
(D) Lamarck

82. Arabidopsis is advantageous for plant genetic research because

(A) it is commercially important as a food crop
(B) it is an endangered species
(C) it is closest to humans
(D) it is a small plant with a small genome size, which can be raised inexpensively

83. Fruit softening during ripening is due to

(A) dissolution of middle lamella
(B) respiration
(C) drop in turgor pressure
(D) photosynthesis

84. The cell organelle involve in the glycosylation of protein is

(A) endoplasmic reticulum
(B) peroxisomes
(C) mitochondria
(D) ribosomes

85. Deficiency of which element causes chlorosis

(A) magnesium
(B) chlorine
(C) calcium
(D) sulphur

86. Apical meristem is seen in

(A) leaf apex
(B) shoot apex
(C) vascular bundle
(D) cortex

87. On fertilization the secondary nucleus forms

(A) seed
(B) embryo
(C) endosperm
(D) cotyledons

88. Larger nucleus in pollen grain is

(A) vegelative nucleus
(B) generative nucleus
(C) male gamete nucleus
(D) prothallial nucleus

89. Polyembryony occurs in

(A) citrus
(B) maize
(C) corchorus
(D) carthamus

90. All are essential aminoacids except

(A) glycine
(B) trptophan
(C) valine
(D) phenylalanine

91. Which one of the following is a natural growth inhibitor?

(A) NAA
(B) GA_3
(C) ABA
(D) Auxin

92. The main gaseous pollutant of fossil fuel burning is

(A) Hydrogen peroxide
(B) Nitrous oxide
(C) Nitric oxide
(D) Sulphur dioxide

93. The red wood of China is

(A) *Cycas revolute*
(B) *Pinus gerardiana*
(C) *Pinus longifolia*
(D) *Cedrus spp.*

94. Which fungus produces a reddish violet pigment- Necercosporin?

(A) *Neurospora crassa*
(B) *Armillaria mellea*
(C) *Monascus purpureus*
(D) *Cercosporina kikuchii*

95. Which group of plants can grow in nitrogen-deficient soils?

(A) Insectivorous plants
(B) Bryophytes
(C) Gymnosperms
(D) Lichens

96. Parthenocarphy is achieved by the application of

(A) auxin
(B) gibberllins
(C) enzymes
(D) cytokinin

97. Which of the following is energy wasting process?

(A) Photosynthesis
(B) Chemosynthesis
(C) Photorespiration
(D) Photoperiodism

98. Totipotency refers to

(A) potential for secondary metabolite production
(B) development of complete organism from a single cell
(C) potential for producing a set of organs
(D) potential for development of shoots

99. Ploidy of endosperm is

(A) haploid
(B) diploid
(C) triploid
(D) tetraploid

100. Sessile refers to

(A) apomixis
(B) asexual reproduction
(C) without petiole or pedicle
(D) para-sexual hybridization

101. Sprouting of stored potatoes can be prevented by

(A) IAA
(B) cytokinin
(C) gibberllin
(D) malic hydrazide

102. The plant that blooms once in a dozen year is

(A) *Saccharum officinarum*
(B) *Stevea spp.*
(C) *Strobillanthus spp.*
(D) *Solanum spp.*

103. PS-II involves

(A) Chlorophyll a – 680
(B) Chlorophyll a – 660
(C) Chlorophyll a – 670
(D) Chlorophyll a – 700

104. Abaxial refers to

(A) surface facing away from the axis
(B) surface facing the axis
(C) lateral axis produced from a node
(D) tendril produced from a node

105. In red drop effect, the curve drops dramatically in the region

(A) at 680nm
(B) above 680nm
(C) below 680nm
(D) at 280nm

106. How many electrons are needed to reduce 6 molecules of CO_2?

(A) 36
(B) 48
(C) 24
(D) 84

107. RUBISCO is a

(A) bifunctional enzyme
(B) protein of 5,57,000 Daltons
(C) carbohydrate
(D) phytohormone

108. Compensation point is the value of factor where there is

(A) beginning of photosynthesis
(B) little photosynthesis
(C) photosynthesis equal to the rate of respiration
(D) neither photosynthesis nor photorespiration

109. The first stable product of Hatch and Slack cycle is

(A) PGA
(B) OAA
(C) RUBP
(D) Malate

110. Aleurone layer is characteristic of

(A) cereal seeds
(B) legume seeds
(C) grape seeds
(D) greenpea seeds

111. The morphine obtained from opium is

(A) alkaloid
(B) latex
(C) gum
(D) resine

112. The plants of Compositae bear persistent hairy calyx called

(A) glume
(B) lemma
(C) pappus
(D) rhizophore

113. Pectinase activity leads to the production of

(A) single cells
(B) protoplasts
(C) leucoplasts
(D) amyloplasts

114. As water is transpired from the leaf mesophyll cells they develop a lower water potential than the

(A) root xylem sap
(B) stem xylem sap
(C) leaf xylem sap
(D) flower xylem sap

115. Stomata having pores bounded by a single ring-shaped guard cells are found in

(A) leaf of fern
(B) pinnule of Cycas
(C) capsule of Funaria
(D) None of the above

116. Conjugated form of auxin is

(A) IAA- alanine
(B) 2, 4-D
(C) IBA
(D) NAA

117. Which of the following plants bear nodulated roots?

(A) *Monotrapa*
(B) *Arachis hypogea*
(C) *Mangifera indica*
(D) *Arabidopsis thaliana*

118. Among the following fruits which one bears thalamus as its edible part?

(A) Cherry
(B) Peach
(C) Plum
(D) Anacordium

119. Phylogenetic classification is based on

(A) overall similarity
(B) utilitarian system
(C) habits
(D) common evolutionary descent

120. Gregore Mendel employed

(A) *Zea mays*
(B) *Pisum sativum*
(C) *Vigna radiata*
(D) *Oryza sativa*

121. High lysine content is present in

(A) rice
(B) maize
(C) pennicetum
(D) wheat

122. Natural classification is based on

(A) ontogeny
(B) morphology
(C) phylogeny
(D) both phylogeny and morphology

123. Multiple fission occurs in

(A) hydra
(B) plasmodium
(C) planaria
(D) algae

124. Hybridization through protoplast is known as

(A) clonal selection
(B) pure line selection
(C) somatic hybridization
(D) mass selection

125. Pyruvic acid is a product of

(A) acetic acid
(B) acetyl CoA
(C) starch
(D) glucose

126. Polygenic inheritance is also referred as

(A) qualitative trait
(B) quantitative trait
(C) dominant trait
(D) recessive trait

127. Entry of pollen tube through micropile is called

(A) misogamy
(B) pseudogamy
(C) chalasogamy
(D) porogamy

128. Chloroplasts are considered as self-replicating because they contain

(A) RNA
(B) DNA
(C) both RNA and DNA
(D) neither RNA nor DNA

129. Squashes are preserved by adding

(A) Malic acid
(B) Succinic acid
(C) Sodium metabisulphate
(D) All of the above

130. Increase in the percentage of fauna and decrease in the flora may be dangerous because of

(A) increased percentage of CO_2
(B) decreased percentage of CO_2
(C) increased percentage of O_2
(D) increased percentage of radioactive fall out

131. In the flower of *Vallisneria*, the stalk is coiled in

(A) male flowers
(B) female flowers
(C) bisexual flowers
(D) none of the above

132. The distance between the two base pairs of DNA is

(A) 3.4A°
(B) 34A°
(C) 340A°
(D) 3400A°

133. The fungus without mycelium is

(A) ustilago
(B) alternaria
(C) saccharomyces
(D) albugo

134. Spiral roots called pneumatophores are characteristic of plants growing in

(A) sandy soils
(B) dry-land soils
(C) sodic soils
(D) marshy and salt soils

135. Nutrition rich single cell protein is produced from

(A) chlamydomonas
(B) chlorella
(C) amoeba
(D) entamoeba

136. Last stabilized community in plant succession is called

(A) seral community
(B) ecotome
(C) ecoseme
(D) climax community

137. Keratin is a protein having larger amount of

(A) Calcium
(B) Sulphur
(C) Magnesium
(D) Phosphorus

138. Actinic wavelength of Pr is

(A) 660 nm
(B) 710 nm
(C) 560 nm
(D) 400 nm

139. Transformation experiment was first performed on

(A) *Diplococcus pnemoniae*
(B) *E. coli*
(C) *Salmonella*
(D) *Pasteurella pestis*

140. Vernilization is incubation involving

(A) heat-shock
(B) cold-shock
(C) osmotic shock
(D) water shock

141. Scientific name of pigeonpea is

(A) *Cajanus cajan*
(B) *Vigna mungo*
(C) *Vigna radiate*
(D) *Cicer arietinum*

142. The bio-insecticide azadirachin is obtained from

(A) Tobacco
(B) Bacillus
(C) Neem
(D) Fungi

143. Water potential of pure water is

(A) 1 unit
(B) −1 unit
(C) −2 unit
(D) −3 unit

144. Mode of action of phytohormones is referred as

(A) synergistic
(B) one hormone-one response
(C) cumulative
(D) additive

145. Plants composed of algae and fungus are

(A) Eumycota
(B) Lichens
(C) Scchizophyta
(D) Chrysophyta

146. Cotton belongs to

(A) asclepiadaceae
(B) malvaceae
(C) aeraceae
(D) asteraceae

147. Labellum is present in

(A) fabaceae
(B) oleaceae
(C) solanaceae
(D) orchidaceae

148. Zygotene refers to

(A) meiotic prophase
(B) mitotic prophase
(C) metaphase
(D) anaphase

149. Velamin tissue is present in

(A) tap root
(B) water absorbing tissue of aerial root
(C) primary root
(D) adventitious root

150. Gametophytes in seed plants are

(A) reduced but independent
(B) primitive and independent
(C) primitive and dependent on sporophyte
(D) reduced and parasite on sporophyte

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