



60215

ROLL No.

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TEST BOOKLET No.

147

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 corresponding to the correct response fully by a **Ball Point Pen** 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 happening, 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.



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1. Which one among the following growth hormones is considered as "wonder weed-killer?"
 - (A) Gibberellin
 - (B) 2-4-dichlorophenoxyacetic acid
 - (C) Abscisic acid
 - (D) Cytokinin

2. Two strands of DNA are
 - (A) Parallel and complementary
 - (B) Non-complementary and anti-parallel
 - (C) Complementary and anti-parallel
 - (D) Parallel and non-complementary

3. Positive evidence of the aquatic ancestry of bryophytes is
 - (A) protonema
 - (B) green colour
 - (C) ciliated sperm
 - (D) some forms are purely aquatic

4. The pigment scavenging O_2 during N_2 fixation in legume root nodules is
 - (A) Bile pigment
 - (B) Leg-hemoglobin
 - (C) Rhizoglobin
 - (D) Hemoglobin

5. Formation of sporophyte from a vegetative portion of prothallus without sexual fusion is called
 - (A) Apogamy
 - (B) Apospory
 - (C) Apomixis
 - (D) Apocarpus

6. Which division of the fungi is commonly known as club fungi?
 - (A) Oomycota
 - (B) Zygomycota
 - (C) Deuteromycota
 - (D) Basidiomycota



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7. Freon gas responsible for ozone depletion contains
- (A) Bromine, nitrogen, carbon
 - (B) Chlorine, argon, hydrogen
 - (C) Fluorine and oxygen
 - (D) Fluorine, chlorine and carbon
8. Which of the following habitats form the highest diversity of living species?
- (A) Tropical forest
 - (B) Grass land
 - (C) Desert
 - (D) Tropical rain forest
9. Sounds above what level are considered as hazardous noise pollution?
- (A) > 30 db
 - (B) > 80 db
 - (C) > 120 db
 - (D) > 100 db
10. Mycorrhiza is an association between plant roots and
- (A) Algae
 - (B) Nematodes
 - (C) Fungi
 - (D) Bacteria
11. The strongest chemical bond between atoms in solution is
- (A) Covalent
 - (B) Ionic
 - (C) Hydrogen bond
 - (D) van der Waal's force
12. UV-rays kill bacteria by
- (A) generating heat
 - (B) damaging nucleic acids
 - (C) inhibiting protein synthesis
 - (D) damaging cytoplasmic membrane
13. In the TCA cycle, the carbon atoms contained in acetate are converted into
- (A) Lactic acid
 - (B) Glucose
 - (C) Glycerol
 - (D) CO₂



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14. The end product of glycolysis is
- (A) Glucose (B) Oxaloacetate
(C) α -ketoglutarate (D) Pyruvate
15. Red tides are caused by which of the following groups of organisms?
- (A) Algae (B) Fungi
(C) Helminths (D) Bacteria
16. Which one among the following communities is the most productive?
- (A) Temperate forests (B) Tropical forests
(C) Savannas (D) Wetlands
17. Which of the following is the newest taxonomic unit?
- (A) Strain (B) Order
(C) Species (D) Domain
18. The classification given by Bentham and Hooker is
- (A) Natural (B) Phylogenetic
(C) Artificial (D) Numerical
19. In Asteraceae family the condition of the andrœcium is
- (A) Monadelphous (B) Synandrous
(C) Syngenesious (D) Polydelphous
20. Water molecules are associated with each other due to the presence of
- (A) Hydrogen bonds (B) Covalent bonds
(C) Ionic bonds (D) Van der Waal's forces
21. Alga used for the construction of sound proof room is
- (A) *Volvox* (B) *Chara*
(C) *Laminaria* (D) *Diatom*



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22. Fern plants are
- (A) Mesophytes (B) Hydrophytes
(C) Xerophytes (D) Hygrophytes
23. Which of the following plant seeds are used as jeweller's weight?
- (A) *Lens culinaris* (B) *Abrus precatorius*
(C) *Cajanus cajan* (D) *Glycine max*
24. Which element is essential for photolysis of water?
- (A) Chlorine (B) Sodium
(C) Calcium (D) Sulphur
25. Water soluble vitamins are
- (A) Vitamin C and D (B) Vitamin A and C
(C) Vitamin A and D (D) Vitamin B and C
26. Which one among the following sets correctly arranges types of land plants in order of decreasing relative size of the gametophytes?
- (A) Gymnosperms, mosses and ferns
(B) Mosses, ferns and gymnosperms
(C) Ferns, gymnosperms and mosses
(D) Gymnosperms, ferns and mosses
27. The triplet codons are located in
- (A) t-RNA (B) r-RNA
(C) c-DNA (D) m-RNA
28. Protein part of the enzyme is
- (A) Prosthetic group (B) Apoenzyme
(C) Holoenzyme (D) Zymogen



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29. Most important advantage of genetic engineering over conventional plant breeding is
- (A) transfer of desirable characters
 - (B) no species barrier in gene transfer
 - (C) transgenic crop can be created in laboratory
 - (D) it involves modern techniques for rapid development of a crop genotype
30. Cleistogamous flowers are
- (A) unisexual flowers that open when there is stimulus
 - (B) male flowers opens first and female later
 - (C) bisexual flowers which never open
 - (D) open bisexual flowers
31. In angiosperms, cleavage polyembryony is of common occurrence in
- (A) Anacardiaceae
 - (B) Santalaceae
 - (C) Rutaceae
 - (D) Orchidaceae
32. Which of the following genus is considered as an evolutionary link between gymnosperms and angiosperms?
- (A) *Sequoia*
 - (B) *Gnetum*
 - (C) *Magnolia*
 - (D) *Liriodendron*
33. The main atmospheric layer near the surface of the earth is
- (A) Troposphere
 - (B) Mesosphere
 - (C) Ionosphere
 - (D) Stratosphere
34. The most common fusogen is
- (A) Sodium nitrate
 - (B) Polyvinyl alcohol
 - (C) Polyethylene glycol
 - (D) Dextron sulphate



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42. Saffron is produced from
- (A) Roots of *Indigofera* (B) Stamens of *Hibiscus*
(C) Petals of *Rosa* (D) Style and stigma of *Crocus*
43. The alga which serves as very rich source of protein is
- (A) *Spirulina* (B) *Nostoc*
(C) *Laminaria* (D) *Senedesmus*
44. Fungi which can grow on living host plant are called
- (A) Obligate saprophyte (B) Obligate parasite
(C) Facultative parasite (D) Saprophyte
45. DNA molecules can be split at a given point by
- (A) restriction endonucleases (B) nucleotide hydrolases
(C) exonucleases (D) nucleotransferases
46. The book "Outline of classification of flowering plants" was written by
- (A) Cronquist (B) Hutchinson
(C) Takhtajan (D) Thorne
47. Biodiversity is essential to the health of the environment because
- (A) each species is able to adapt to its unique niche in the environment
(B) it provides everything that we need including medicinal plants
(C) it regulates many of the chemical and climatic systems that make available clean air and water
(D) all species are interdependent
48. Which of the following chemicals enters living organisms primarily from the atmosphere rather than from rocks or soil?
- (A) Carbon (B) Calcium
(C) Sulphur (D) Phosphorus



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49. Which of the following is good for staining proteins?
(A) DAPI (B) Coomassie blue
(C) Ethidium bromide (D) Safranin
50. Plants appear green because of
(A) green light is not absorbed (B) presence of plastids
(C) photosynthetic pigments (D) accessory pigments
51. Which of the following is the ploidy level of common wheat?
(A) Diploid (B) Tetraploid
(C) Hexaploid (D) Octoploid
52. Which of the following lists contains all the ingredients and products of photosynthesis?
(A) Carbon dioxide, water, oxygen and carbohydrates
(B) Oxygen, nitrogen, water and carbohydrates
(C) Phosphorus, water, carbon dioxide and oxygen
(D) Carbohydrates, water, nitrogen and carbon dioxide
53. Presence of trichomes on plant leaves
(A) helps in rapid gaseous exchange
(B) prevents guttation
(C) reduces transpiration
(D) increases transpiration
54. In paddy grain the reserve food materials are stored in
(A) Embryo (B) Endosperm
(C) Beneath the seed coat (D) Scutellum
55. The most common fungal partner in lichens belong to
(A) Ascomycetes (B) Basidiomycetes
(C) Chytridiomycetes (D) Deuteromycetes



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56. Metabolic water is produced during the process of
- (A) Photosynthesis (B) Oxidation of lipids
(C) Respiration (D) Biosynthesis of proteins
57. Plants producing both staminate and pistilate flower on the same plant are termed as
- (A) Monoecious (B) Dioecious
(C) Heteroecious (D) Dichogamous
58. Asafoetida is a
- (A) Tannin (B) Oleoresin
(C) Latex (D) Gum resin
59. The largest reservoir of carbon is the
- (A) Soil (B) Atmosphere
(C) Ocean (D) Vegetation
60. According to Darwin's theory of evolution, differences between species may be the result of
- (A) the disuse of body structures
(B) the transmission of acquired characteristics
(C) natural selection
(D) mutations
61. Coenocytic mycelium occurs in the members of
- (A) Ascomycetae (B) Basidiomycetae
(C) Deuteromycetae (D) Phycomycetae
62. Nutritious milk is produced from the seeds of
- (A) *Vicia faba* (B) *Glycine max*
(C) *Lablab purpureus* (D) *Cyamopsis tetragonoloba*



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63. The female reproductive structure in many lichens is called as
- (A) Carpogonium (B) Oogonium
(C) Ascogonium (D) Ascomata
64. The flagellum is made up of
- (A) Proteins (B) Lipoproteins
(C) Lipopolysaccharides (D) Mucopeptides
65. Bacteria differ from higher plant cell in lacking the
- (A) Ability to respire (B) True nucleus
(C) Capacity to divide (D) Ability to absorb water
66. Bacteria, in which flagella are found all over the body wall are known as
- (A) Gram positive (B) Gram negative
(C) Atrichous (D) Peritrichous
67. The group of plants referred as 'amphibians' of plant kingdom is
- (A) Bryophytes (B) Mosses
(C) Liverworts (D) Hornworts
68. The type of alternation of generation shown by bryophytes is
- (A) Isomorphic (B) Heteromorphic
(C) Pleomorphic (D) Polymorphic
69. Which of the following has the largest gametophyte?
- (A) *Selaginella* (B) *Pinus*
(C) *Oryza* (D) *Funaria*



70. Heterospory is the production of
- (A) Sexual and asexual spores
 - (B) Large and small spores
 - (C) Haploid and diploid spores
 - (D) Diploid and tetraploid spores
71. *Selaginella* is
- (A) Homosporous and monoecious
 - (B) Heterosporous and monoecious
 - (C) Homosporous and dioecious
 - (D) Heterosporous and dioecious
72. When the stamens are fused throughout their whole length, they are termed as
- (A) Syngenesious
 - (B) Connivent
 - (C) Gynandrous
 - (D) Synandrous
73. Plant which shows circinate venation of leaves is
- (A) Moss
 - (B) Pine
 - (C) Fern
 - (D) Pothos
74. Angiosperms differs from gymnosperms in
- (A) having compound leaves
 - (B) being smaller in size
 - (C) being evergreen
 - (D) having ovules enclosed in ovary
75. Generic name of red wood tree is
- (A) *Cedrus*
 - (B) *Pinus*
 - (C) *Dalbergia*
 - (D) *Sequoia*



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76. Which of the following is not the characteristic feature of *Cycas*?
- (A) Circinate venation (B) Vessels in xylem
(C) Girdling leaf traces (D) Naked ovule
77. The wing of *Pinus* seed is derived from
- (A) Bract scale (B) Seed coat
(C) Ovuliferous scale (D) Cone axis
78. Scientific name of pigeon pea is
- (A) *Lens culinaris* (B) *Cajanus cajan*
(C) *Pisum arvense* (D) *Pisum sativum*
79. The leaf of *Lemna* is a
- (A) Phyllode (B) Phylloclade
(C) Leaf only (D) Leaf and stem
80. Tendrils of pea plant are modified
- (A) axillary buds
(B) stipules
(C) terminal leaflets of compound leaf
(D) aerial roots
81. The main axis of the inflorescence is elongated in a
- (A) Corymb (B) Capitulum
(C) Cyathium (D) Catkin
82. The major role of a flower in the life of a plant is to
- (A) Secrete honey and scent
(B) Attract insects for pollination
(C) Produce off-springs
(D) Manufacture hormones



83. Large coloured structures in *Bougainvillea* are
- (A) Bracts (B) Stamens
(C) Petals (D) Sepals
84. When some plants produce more than one type of flowers, the phenomenon is called as
- (A) Heterostyly (B) Heteroanthy
(C) Heteromorphism (D) Homogamy
85. A caryopsis is a fruit
- (A) that does not have a fruit wall
(B) in which the fruit wall and the seed coat are fused
(C) which is fleshy and contains many seeds
(D) that dehisces to expose the seeds violently
86. Explosive fruits are formed in
- (A) *Cinchona* (B) *Geranium*
(C) *Alstonia* (D) *Boerhaavia*
87. In a flowering plant, largest number of haploid cells occur in the
- (A) Ovule (B) Microsporangium
(C) Root tip (D) Cambium
88. In flowering plants, the male gametes are formed by the
- (A) Generative cell (B) Vegetative cell
(C) Pollen tube (D) Uninucleate micropore
89. A pollengrain represents
- (A) a male gametophyte (B) a female gametophyte
(C) a male sporophyte (D) a female sporophyte



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90. If the pollentube enters the ovule through the funiculus, it is known as
- (A) Porogamy (B) Chalazogamy
(C) Mesogamy (D) Heterogamy
91. Double fertilisation means
- (A) fusion of the nucleus of the male gamete with the egg nucleus
(B) fusion of two polar nuclei
(C) fusion of the sperm nucleus with the secondary nucleus
(D) fusion of one sperm nucleus with the egg nucleus and fusion of the other sperm nucleus with the secondary nucleus
92. The outermost layer of the endosperm of maize seeds is called
- (A) Epidermis (B) Perisperm
(C) Aleurone (D) Tunica
93. Ruminant endosperm is found in
- (A) *Brassica* (B) *Pisum*
(C) *Myristica* (D) *Allium*
94. The phenomenon of polyembryony was first observed in
- (A) *Mangifera* (B) *Cucurbita*
(C) *Citrus* (D) *Euphorbia*
95. The first great plant taxonomist is
- (A) Hooker (B) Engler
(C) Linnaeus (D) Aristotle



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96. Characters drawn from flowers are mainly used as basis for classification in seed plants because
- (A) flowers show a great variety in colours
 - (B) flowers are preserved easily
 - (C) flowers are nice to work with
 - (D) reproductive parts are more conservative than the vegetative parts
97. The National Botanical Research Institute (NBRI) is located at
- (A) New Delhi
 - (B) Dehradun
 - (C) Lucknow
 - (D) Darjeeling
98. Which one of the following yields valuable timber?
- (A) *Acacia arabica*
 - (B) *Dalbergia sisso*
 - (C) *Mangifera indica*
 - (D) *Prosopis specigera*
99. The plant body of *Parkinsonia* contains
- (A) Phylloclades
 - (B) Phyllodes
 - (C) Cladoes
 - (D) Bulbils
100. The thorns of *Acacia* represent modified
- (A) Axillary bud
 - (B) Rachis
 - (C) Terminal bud
 - (D) Stipules
101. The medicinally important part of *Citrullus colosynthus* is
- (A) Root
 - (B) Flower buds
 - (C) Fruits
 - (D) Leaves
102. Cucurbitaceae members are
- (A) Herbs
 - (B) Shrubs
 - (C) Twiners
 - (D) Climbers

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103. The flower of Liliaceae is
- (A) Dicyclic (B) Tricyclic
(C) Tetracyclic (D) Pentacyclic
104. Which one among the following is the largest family of the plant kingdom?
- (A) Compositae (B) Leguminosae
(C) Gramineae (D) Orchidaceae
105. The Indian rubber plant belongs to the family
- (A) Euphorbiaceae (B) Moraceae
(C) Asclepiadaceae (D) Sapotaceae
106. Banana reproduces through
- (A) Underground suckers (B) Rhizomes
(C) Seeds (D) Stolons
107. The leaves in Tiliaceae are generally
- (A) Alternate and stipulate (B) Opposite and stipulate
(C) Alternate and exstipulate (D) Opposite and exstipulate
108. From which part of *Cinchona*, quinine is extracted?
- (A) Roots (B) Seeds
(C) Bark (D) Fruits
109. Which of the following crop occupies higher acreage in India?
- (A) Jowar (B) Wheat
(C) Bajra (D) Rice
110. The characteristic smell in garlic is due to
- (A) An alkaloid (B) A symbiotic virus
(C) Diallyl disulphide (D) A corticosteroid



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111. Clove oil is obtained from
- (A) *Arachis* (B) *Carthamus*
(C) *Syzygium* (D) *Myrtus*
112. A typical prokaryotic cell is found in
- (A) *Nostoc* (B) *Ulothrix*
(C) *Aspergillus* (D) *Pteris*
113. The two main components of plasma membrane are
- (A) Lipids and protein (B) Lipids and triglycerides
(C) Lipids and carbohydrates (D) Proteins and steroids
114. Nucleus is absent in
- (A) Green algae (B) Fungi
(C) Lichens (D) Bacteria
115. Mitochondria are absent in
- (A) Yeast (B) Fungi
(C) Bacteria (D) Green algae
116. Respiratory enzymes are localised in
- (A) Ribosomes (B) Chloroplasts
(C) Mitochondria (D) Tonoplast
117. Golgi bodies originate from
- (A) Plasma membrane
(B) Mitochondria
(C) Endoplasmic reticulum
(D) Cytoplasm



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118. Cilia are produced by
- (A) Centrioles (B) Peroxisomes
(C) Dictyosomes (D) Golgi body
119. Cambium causes growth in
- (A) length (B) circumference
(C) width (D) leaves
120. Collenchyma differs from sclerenchyma in
- (A) retaining protoplasm at maturity
(B) having thick walls
(C) having wide lumen
(D) being meristematic
121. The tissue that forms the major part of the primary structure of plants is
- (A) Parenchyma (B) Prosenchyma
(C) Collenchyma (D) Sclerenchyma
122. Vessels differ from tracheids
- (A) In being living
(B) In that they are made up of a single cell
(C) In that they consist of a vertical row of cells with cross-walls dissolved
(D) Because they conduct water
123. Stomata are guarded by
- (A) Sclereids (B) Subsidiary cells
(C) Palisade cells (D) Epidermis
124. Phloem parenchyma is absent in
- (A) Dicot root (B) Dicot leaf
(C) Monocot stem (D) Dicot stem



125. Secondary growth is usually found in
- (A) Monocot stem
 - (B) Dicot stem
 - (C) Dicot stem and monocot root
 - (D) Dicot root and monocot stem
126. The trunk of a tree increases in girth because of the activity of
- (A) Vascular tissue
 - (B) Dermal tissue
 - (C) Meristematic tissue
 - (D) Supporting tissue
127. Water enters into root hair mainly due to
- (A) turgor pressure
 - (B) atmospheric pressure
 - (C) elastic pressure
 - (D) osmotic pressure
128. The rate of transpiration is high when
- (A) the atmosphere is saturated with water vapour
 - (B) light is very dim
 - (C) the atmosphere is dry and the temperature is high
 - (D) the temperature is low and the humidity is high
129. Leaves of plants become intensely yellow
- (A) due to development of carotene
 - (B) due to breakdown of chloroplasts
 - (C) excess of magnesium
 - (D) due to viral infection
130. Which one of the following statement is true?
- (A) All algae have chlorophyll in all cells
 - (B) All higher plants have chlorophyll in all cells
 - (C) All higher plants may not have chlorophyll in all cells
 - (D) Both lower and higher plants have chlorophyll in all cells

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131. Which one of the following is a total root parasite?
- (A) *Orobranche* (B) *Cuscuta*
(C) *Loranthus* (D) *Santalum*
132. Carbon dioxide is not liberated during
- (A) Respiration of fats
(B) Respiration of organic acids
(C) Anaerobic respiration
(D) Incomplete oxidation of carbohydrates
133. Which of the following plants cannot fix atmospheric nitrogen directly?
- (A) Pea (B) Bean
(C) Horse gram (D) Castor
134. Growth rate is maximum during
- (A) Exponential phase (B) Lag phase
(C) Stationary phase (D) Senescent phase
135. Auxins are
- (A) Growth hormones (B) Proteins
(C) Porphyrins (D) Cell osmolytes
136. Thigmotropism is the response of plants to
- (A) Gravity (B) Water
(C) Light (D) Touch
137. The flowering responses can be changed by
- (A) Induced mutations
(B) Photoperiodic treatment
(C) Injection of enzymes
(D) Somatic hybridization



138. The term synecology refers to the study of
- (A) Plant community (B) Individual organism
(C) Environment (D) Individual species
139. Building blocks of the nucleic acids are
- (A) Amino acids (B) Nucleoproteins
(C) Nucleotides (D) Nucleosides
140. RNA is synthesised from DNA template in the
- (A) Nucleus (B) Vacuoles
(C) Cytoplasm (D) Chromosomes
141. The genes are responsible for growth and differentiation in an organism through regulation of
- (A) Translocation
(B) Transformation
(C) Transduction and translation
(D) Transcription and translation
142. In which stage of the cell division is the number of chromosomes best counted?
- (A) Prophase (B) Metaphase
(C) Telophase (D) Anaphase
143. The phenomenon permitting exchange of chromosome segments is called
- (A) Linkage (B) Crossing over
(C) Segregation (D) Recombination
144. The inflorescence of *Syzygium* is a
- (A) Cyme (B) Raceme
(C) Panicle (D) Spike

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145. The leaves of Verbanaceae are generally
- (A) Stipulate and simple (B) Exstipulate and simple
(C) Stipulate and pinnate (D) Exstipulate and palmate
146. Chromosome is composed of
- (A) DNA (B) Protein
(C) RNA (D) DNA and proteins
147. The nucleolus is chemically composed of
- (A) RNA, DNA and protein
(B) RNA and DNA only
(C) DNA and protein only
(D) Nucleic acids, proteins and phospholipids
148. *Chrysanthemum* multiplies vegetatively by
- (A) Runners (B) Suckers
(C) Bulbils (D) Corms
149. Scientific name of millet is
- (A) *Triticum aestivum* (B) *Zea mays*
(C) *Oryza sativa* (D) *Eleusine coracana*
150. Protein content is very high in the seeds of
- (A) Barley (B) Mustard
(C) Cotton (D) Pea
