

PLANT SCIENCES – 2010

1. Kalyansona and Sonalika varieties of wheat were selected from the material introduced from:
 - a. CIMMYT
 - b. ICARDA
 - c. ICRISAT
 - d. IRRI
2. Source of dwarfing gene in wheat is:
 - a. Dee-Gee-Woo-Gen
 - b. Norin 10
 - c. Nipsoli
 - d. Both A and B
3. In maize cross pollination occurs due to:
 - a. Protandry
 - b. Protogamy
 - c. Self-incompatibility
 - d. All of these
4. Beedless water melon is a
 - a. Diploid
 - b. Pentaploid
 - c. Teraploid
 - d. Triploid
5. Crossing of genotypes in the possible combinations is known as
 - a. Diallel crosses
 - b. Double cross
 - c. Multiple cross
 - d. None of these
6. The progeny of a single homozygous self pollinated plant is known as
 - a. Land Race
 - b. Clone
 - c. Inbred
 - d. Pure line
7. The phenomenon of linkage was discovered by
 - a. T. H. Morgan
 - b. Shull
 - c. Mendel
 - d. Watson
8. In DNA the ratio of purine and pyrimidine base is
 - a. 1:2
 - b. 2:1
 - c. 1:1
 - d. 1:4

9. Which of the following is a pyrimidine base?
 - a. Thymine
 - b. Cytosine
 - c. Uracil
 - d. None of these
10. The true nucleus is absent in which one of the following?
 - a. Green algae
 - b. Bacteria
 - c. Lichen
 - d. Fungi
11. During replication the DNA remained single stranded due to the enzyme
 - a. Ligase
 - b. Helicase-II
 - c. SSB Protein
 - d. Topoisomerase
12. The amino acid is related to drought tolerance in crops is
 - a. Glutamic acid
 - b. Proline
 - c. Glycine
 - d. Methionine
13. Vertisol – a soil type is related to
 - a. Red soil
 - b. Black soil
 - c. Alluvial soil
 - d. Laterite soil
14. Cells of the plants are connected among themselves with the help of
 - a. Cell Wall
 - b. Plasma membrane
 - c. Plasmodesmata
 - d. None of these
15. Seed multiplication ratio in paddy is:
 - a. 1:100
 - b. 1:80
 - c. 1:40
 - d. 1:10
16. The blotter method of seed health testing is generally used to detect
 - a. Fungi
 - b. Bacteria
 - c. Virus
 - d. Nematode
17. Recently evolved UG 99 is a race of
 - a. *Puccinia graminis tritici*
 - b. *Puccinia recondita*

- c. *Puccinia striiformis*
 - d. None of these
18. Sugary disease is common in
- a. Wheat
 - b. Rice
 - c. Sorghum
 - d. Barley
19. The pathogen of Karnal bunt of wheat is
- a. ?
 - b. ?
 - c. ?
 - d. ?
20. The culture medium is sterilized in an autoclave at
- a. 15 psi for 15-20 minutes
 - b. 30 psi for 65 minutes
 - c. 05 psi for 05 minutes
 - d. 20 psi for 120 minutes
21. Microbial breakdown of protein under anaerobic condition is known as
- a. Putrefaction
 - b. Fermentation
 - c. Tyndalization
 - d. Both A & B
22. Oxidation of alcohol in presence of the microbes gives rise to:
- a. Acetic acid
 - b. Lactic acid
 - c. Citric acid
 - d. Nitric acid
23. “Flavr savr” – a transgenic variety which has delayed riping trait belongs to crop:
- a. Tomato
 - b. Mango
 - c. Guava
 - d. Grapes
24. Which of the following bio-fertilizers are used in cereals?
- a. *Azotobacter* spp.
 - b. *Azolla* spp.
 - c. *Rhizobium* spp.
 - d. Both A & B
25. The fungal bioagent used for management of nematodes is:
- a. *Paecilomyces lilacinus*
 - b. *Sterinema* spp.
 - c. *Pseudomonas fluorescens*
 - d. *Bacillus subtilis*
26. Who among the following is considered the father of soil microbiology?

- a. ?
 - b. Winogradsky
 - c. ?
 - d. Louis Pasteur
27. Milk turns sour due to conversion of lactose into:
- a. Lactic acid
 - b. Acetic acid
 - c. Amino acid
 - d. Ascorbic acid
28. The growth regulator “Gibberellins” were first isolated from
- a. Fungus
 - b. Bacteria
 - c. Viruses
 - d. Molecule
29. Which one of the following is murate of potash?
- a. KCl
 - b. KNO₃
 - c. K₂HPO₄
 - d. K₂SO₄
30. The chemical compounds that act as plant defense activator are
- a. Salicylic acid
 - b. Isonicotinic acid
 - c. Copper Sulphate
 - d. Both A & B
31. Fungicides of benzimidazoles group are
- a. Carbendazim
 - b. Benomyl
 - c. Thiobendazole
 - d. All of these
32. Mushrooms belong to phylum
- a. Basidiomycota
 - b. Ascomycota
 - c. Zygomycota
 - d. Chytridomycota
33. Neurotoxin BOAA is present in the crop
- a. *Lathyrus sativus*
 - b. *Brassica* spp.
 - c. Wheat
 - d. Pearl millet
34. Indian Institute of Pulses Research (IIPR) is located at
- a. Karnal
 - b. Kanpur
 - c. New Delhi

- d. Indore
35. Where only one microorganism is benefitted from the interaction, the phenomenon is known as
- a. Mutualism
 - b. Commensalism
 - c. Amensalism
 - d. None of these
36. Lichen is an example of:
- a. Symbiotic relationship
 - b. Asymbiotic relationship
 - c. Amensalism
 - d. None of these
37. The design which is most appropriate for laboratory experiments is
- a. LSD
 - b. CRBD
 - c. CRD
 - d. Factorial RBD
38. Government procurement prices are based on support prices recommended by:
- a. CACP (Commission for Agriculture Costs & Prices)
 - b. CAMP (Commission for Agricultural Marketing and Prices)
 - c. MSPC (Minimum Support Price Committee)
 - d. None of the above
39. The biodiversity hot spot in India is
- a. Western Ghats
 - b. Eastern Himalayas
 - c. Both A & B
 - d. None of these
40. Final approval committee on release of transgenic in India is
- a. GEAC (Genetic Engineering Approval Committee)
 - b. RCGM (Regulatory Committee for Genetic Modification)
 - c. DBT (Department of Biotechnology)
 - d. MoEF (Ministry of Environment and Forests)
41. Kyoto Protocol aims at
- a. Cutting global emissions of green house gasses
 - b. Reducing land degradation
 - c. Increasing afforestation
 - d. None of these
42. The architect of the Indian milk revolution is
- a. Dr. M. S. Swaminathan
 - b. Dr. G. S. Khush
 - c. Dr. Varghese Kurien
 - d. Dr. S. K. Vasal
43. “The man who saved billions of lives from hunger” refer to:

- a. Dr. Norman Ernst Borlaug
 - b. Dr. M. S. Swaminathan
 - c. Dr. G. S. Khush
 - d. Dr. Varghese Kurien
44. Who is referred as the father of plant tissue culture?
- a. Haberlandt
 - b. Stephen Holland
 - c. Maheshwari
 - d. Leslie Coleman
45. Which of the following chromosomal structural aberration is associated with the genetic effect “pseudo dominance”?
- a. Deletion
 - b. Duplication
 - c. Inversion
 - d. Translocation
46. RNA is the genetic material in:
- a. *Neurospora*
 - b. Tobacco mosaic virus
 - c. *E. coli*
 - d. None of these
47. In a breeding programme back crosses are made to:
- a. Recover the gene of interest
 - b. Recover the genome of interest
 - c. Both options A and B
 - d. None of these
48. Male sterility type that is effectively exploited in vegetatively propagated crop
- a. Cytoplasmic male sterility
 - b. Nuclear male sterility
 - c. Cytoplasmic nuclear male sterility
 - d. EGMS
49. Color blindness is governed by a recessive gene located on
- a. X-chromosome
 - b. Y-chromosome
 - c. Autosomes
 - d. All of the above
50. The “ABO” system of blood group in human is a classical example for
- a. Polygenic inheritance
 - b. Cytoplasmic inheritance
 - c. Gene interaction
 - d. Multiple allelism
51. Both GCA and SCA effects are completely exploited in
- a. Single cross hybrids
 - b. Double cross hybrids

- c. Synthetics
 - d. Composites
52. The crop species regarded as Drosophila of Plant Breeding is
- a. Pea
 - b. Maize
 - c. Arabidopsis
 - d. Rice
53. The genetic constitution of the single cross F₁ sunflower hybrid KBSH 1 is
- a. Heterozygous and homogenous
 - b. Heterozygous and heterogenous
 - c. Homozygous & homogenous
 - d. Homozygous and heterogenous
54. Breeding method is followed to rectify specific defects in a popular cultivar is
- a. Pedigree method
 - b. Bulk method
 - c. Single seed descent method
 - d. Back cross method
55. Non epistatic gene interaction involved in the expression of comb shape in poultry was designed by
- a. Bateson & Punnet
 - b. Gregor Johann Mendel
 - c. Muller
 - d. Thomas Hunt Morgan
56. A seed lot devoid of physical matter is:
- a. Physically pure
 - b. Genetically pure
 - c. Improved seed
 - d. All of the above
57. In a triplet code, three RNA bases code for
- a. One amino acid
 - b. Two amino acids
 - c. Three amino acids
 - d. Many amino acids
58. Certified seed is the progeny of
- a. Breeder seed
 - b. Nucleus seed
 - c. Foundation seed
 - d. None of these
59. In Castor bean, the aril?? Which is associated with micropyle is
- a. Hilum
 - b. Placenta
 - c. Peduncle
 - d. Caruncle

60. Failure of seed to grow under unfavorable condition is referred to as
- Dormancy
 - Imposed dormancy
 - Quiescence
 - All of the above
61. Fungi are grown on
- Nutrient agar media
 - MRBA media
 - YEMA media
 - None of the above
62. TTC/TZ test estimates
- Seed viability
 - Seed vigour
 - Both A & B
 - Field performance
63. Seed which can be dried a low moisture level without a loss in viability is
- Orthodox seed
 - Recalcitrant
 - Both A & B
 - None of these
64. Seed replacement rate for hybrids is
- 40%
 - 50%
 - 75%
 - 100%
65. Most of the plant pathogenic bacteria are:
- G-ve
 - G+ve
 - None
 - Both A and B
66. Citrus canker is caused by
- Fungus
 - Bacteria
 - Nematode
 - Virus
67. The type of flagellar arrangement in the genus *Erwinia* is:
- Monotrichous
 - Lophotrichous
 - Peritrichous
 - None of these
68. Which of the following bacterial genera is responsible for formation of root nodules in legume
- Nitrosomonas

- b. Nitrobacter
 - c. Clostridium
 - d. Rhizobium
69. Protected areas of great genetic diversity under natural conditions are called
- a. Gene pool
 - b. Gene sanctuaries
 - c. Gene junction
 - d. None of these
70. First patent for life forms was awarded to
- a. A. K. Singh
 - b. Anand Chakravarty
 - c. Maheshwari
 - d. Copeland
71. The process of transfer of genetic material from one bacterium to another bacterium through a virus is known as:
- a. Lysogeny
 - b. Transformation
 - c. Transduction
 - d. Conjugation
72. Psychrophilic bacteria can grow well and multiple in
- a. 5°C and low
 - b. High salt environment
 - c. 100°C hot environment
 - d. None of these
73. Grow out test is obligatory for
- a. Cotton hybrids
 - b. Maize composites
 - c. Wheat multilines
 - d. Maize hybrids
74. Viruses which persist in vectors for few days are known as
- a. ?? persistent
 - b. Persistent
 - c. Non ??
 - d. None of these
75. ??
- a.
 - b. ?? bacteria
 - c. Both obligate/facultative
 - d. None of these
76. Fungi which transmit plant viruses are:
- a. *Olpidium* spp.
 - b. *Polymyxa* spp.
 - c. *Spongospora* spp.

- d. All of these
77. The genomic content of cauliflower mosaic virus is
- ssRNA
 - dsRNA
 - ssDNA
 - dsDNA
78. Use of wild strain for protection of plant against a severe strain of the same virus is called:
- Crop rotation
 - Roughing
 - Cross protection
 - None of these
79. The term viroid was first introduced by:
- Diener, 1971
 - Dio *et al*
 - Stanley, 1935
 - None of these
80. Bunchy top of banana virus is transmitted by:
- Bemisia tabaci*
 - Thrips tabaci*
 - Pentalonia nigronervosa*
 - Aphis gossypii*
81. A disease caused by *Colletotrichum circinans* in onion is:
- Black rot
 - Soft rot
 - Lack mold
 - Smudge
82. The genome of tomato leaf curl virus is
- ssRNA
 - dsRNA
 - ssDNA
 - dsDNA
83. Little leaf of Brinjal is caused by:
- Phytoplasma
 - Virus
 - Viroid
 - Bacteria
84. The fruiting body of *Colletotrichum capsici* is
- Acervulus
 - Peritechia
 - Pycnidia
 - Sporodochium
85. The resistant structure produced by *Fusarium* sp. is

- a. Sclerotia?
 - b. Stroma
 - c. Conidia
 - d. Chlamydo spores
86. Indicator organism for food microbiology is
- a. *E. coli*
 - b. *Coccinella burneli*?
 - c. *Bacillus subtilis*
 - d. None of these
87. ?? like structure which penetrates the host and draws nutrients
- a. Rhizoid
 - b. Appressorium
 - c. Rhizomorph
 - d. Haustoria
88. A disease affecting food conduction in plant
- a. Vascular wilt
 - b. Root rots
 - c. Sandal spike
 - d. Soft rots
89. The Bengal famine was caused by:
- a. *Helmenthospodium oryzae*
 - b. *Phytophthora infestans*
 - c. *Albugo candida*
 - d. *Alternaria*
90. Tundu disease of wheat is caused by:
- a. Nematode
 - b. Virus
 - c. Bacteria
 - d. Nematode & Bacteria
91. The causal organism for blast of rice
- a. *Pyricularia grisea*
 - b. *Pyricularia oryzae*
 - c. *Xanthomonas oryzae*
 - d. None of these
92. Nitrification is a
- a. Oxidative process
 - b. Reduction process
 - c. Redox process
 - d. None of these
93. *Claviceps purpurea* produces
- a. Alfotoxin
 - b. Ergotoxin
 - c. Rubrotoxin

- d. All of these
94. When performing electron microscopy the sample should be under
- a. Vacuum
 - b. Normal atmospheric pressure
 - c. Excess oxygen
 - d. Inert gas
95. Triton X-100 is
- a. Anionic detergent
 - b. Non-ionic detergent
 - c. Cationic detergent
 - d. Mild ionic detergent
96. Mitochondria and chloroplast contain
- a. DNA, RNA and protein
 - b. DNA and RNA only
 - c. RNA and protein only
 - d. DNA and protein only
97. In most leguminous plants, atmospheric nitrogen is converted to ammonia by the enzyme
- a. Nitrogenase
 - b. Nitrate reductase
 - c. Nitrite reductase
 - d. Enzyme involved in reductive amination
98. In photorespiration, CO₂ is released from
- a. Mitochondria
 - b. Chloroplast
 - c. Peroxisome
 - d. Cytoplasm
99. Haploids can be produced experimentally from
- a. Anther
 - b. Endosperm
 - c. Endodermis
 - d. Pericycle
100. Plants have underground structures like roots and/or rhizomes. A characteristic feature of rhizome which would distinguish it from roots is:
- a. Rhizomes have scale leaves with buds in the axils and nodes
 - b. Rhizomes are thicker than roots
 - c. Rhizomes are thinner than roots
 - d. Rhizomes are darker in colour than roots
101. PEP carboxylase is an important enzyme in C₄ plants. This enzyme is found in
- a. Mesophyll cell
 - b. Bundle sheath
 - c. Mitochondria
 - d. Stroma
102. The plant growth regulator that retards senescence is

- a. Cytokinin
 - b. Gibberellic acid
 - c. Indoleacetic acid
 - d. Ethylene
103. Which of the following vitamins is likely to function as a coenzyme?
- a. Panthenate
 - b. Riboflavin
 - c. Ascorbic acid
 - d. α – Tocopherol
104. During photosynthesis oxygen is generated from
- a. Carbon dioxide only
 - b. Water only
 - c. Both carbon dioxide and water
 - d. Phosphoglycerate
105. Identify the unrelated term amongst the following
- a. MAP kinase
 - b. P13 kinase
 - c. Receptor tyrosine kinase
 - d. Hexokinase
106. When a light break is given during a long dark period, it promotes flowering in
- a. Short day plants
 - b. Long day plants
 - c. Day neutral plants
 - d. Both long day and short day plants
107. The ‘Golden Rice’ has been engineered for improved content of
- a. Calcium
 - b. Iron
 - c. Vitamin A
 - d. Chlorophyll
108. The dwarf varieties brought from Mexico into India were
- a. Sonalika
 - b. Sharbati Sonora and Pusa Lerma
 - c. Sonora 64 and Lerma rosa
 - d. Sonora 64 and Sonalika
109. A group of plants that was the first to evolve seeds is called:
- a. Gymnosperms
 - b. Angiosperms
 - c. Algae
 - d. Fungi
110. A situation where an alga and a fungus can live intimately, entwined in a mutually beneficial association, is known as:
- a. Lichen
 - b. Angiosperm

- c. Gymnosperm
 - d. Bryophyte
111. Hydrolysis of sucrose yields
- a. Glucose only
 - b. Galactose and glucose
 - c. Fructose and glucose
 - d. Fructose only
112. Tobacco mosaic viruses is a
- a. ds RNA virus
 - b. ss RNA virus
 - c. ds DNA virus
 - d. ss DNA virus
113. Which of the following is known to directly regulate gene expression?
- a. Trypsin
 - b. Lac repressor
 - c. Casein
 - d. Myosine
114. Bacterial breakdown dead and decaying matter into
- a. Humus
 - b. Fossils
 - c. Soil
 - d. Inert gas
115. When a plant of chromosomal type aa pollinates a plant of type AA, what chromosome constitution of embryo and endosperm in the resulting seeds?
- a. Diploid zygote of type Aa and triploid of type AAa
 - b. Diploid zygote of type aa and triploid of type Aaa
 - c. Diploid zygote of type AA and triploid of type AAa
 - d. Diploid zygote of type Aa and triploid of type aaa
116. Which of the following substances is commercially extracted from chrysanthemum?
- a. Tanin
 - b. Insecticide
 - c. Fiber
 - d. Drug
117. Ti plasmid used in genetic engineering is obtained from
- a. E. coli
 - b. Agrobacterium tumefaciens
 - c. Agrobacterium rhizogens
 - d. Bacillus thuringiensis
118. During fertilization in angiosperm, one out of the two sperm cells coming out of the pollen tube fertilizes which of the following haploid cells types in megaspore to form the endosperm?
- a. Synergids

- b. Egg
 - c. Polar nuclei
 - d. Antipodals
119. Mycorrhizal association is a special kind of symbiosis occurring between
- a. Algae and azolla
 - b. Algae and fungi
 - c. Higher plant roots and fungi
 - d. Cycas roots and rhizobium
120. The edible portion of apple is the:
- a. Juicy testa
 - b. Pericarp
 - c. Endosperm
 - d. Thalamus
121. Non-endosperm seeds store their food reserve in
- a. Testa
 - b. Pericarp
 - c. Cotyledons
 - d. Scutellum
122. Triploid plants can be generated by culturing:
- a. Embryo
 - b. Endosperm
 - c. Pollen
 - d. Leaf
123. The part of mushroom that is visible above the ground is a
- a. Basidiocarp
 - b. Zygosporangium
 - c. Ascocarp
 - d. Ascogonium
124. Dr. B. B. Mundekar is credited for his work on
- a. Rust
 - b. Late blight
 - c. Smut
 - d. Mildew
125. Pollination by birds is called
- a. Autogamy
 - b. Ornithophily
 - c. Entomophily
 - d. Anemophily
126. A type of plastic that is biodegradable has been in the news lately. The ingredient that makes it biodegradable is
- a. Vegetable oil
 - b. Petroleum
 - c. Cornstarch

- d. Leather
127. Which of the following is called single celled protein?
- Spirulina
 - Azotobacter
 - Marchentia
 - Volvox
128. Which subcellular organelle is called powerhouse of the cells
- Amyloplast
 - Mitochondria
 - Nucleus
 - Ribosome
129. Which is a potent mutagen used for introducing cytoplasmic male sterility?
- Mustard gas
 - Ethydium bromide
 - EMS
 - UV light
130. Mutation at molecular level is due to
- Destruction of bases
 - Destruction of double helix
 - Shifting of position of helix and bases
 - Alteration of sequence of bases in DNA
131. Which of the group is related to self-pollinated vegetables?
- Pea, Okra, Chilly, Potato
 - Cucumber, Potato, Radish, Sugar Beet
 - Sugar Beet, Cauliflower, Pea, Lobia
 - Carrot, Garlic, Okra, Tomato
132. Fruit cropping in mango tree can be controlled by spraying of
- KCl
 - Urea
 - NaCl
 - 2,4-D
133. How many combinations are possible in “dihybrid cross”?
- 4
 - 8
 - 12
 - 16
134. The mode of pollination in Pearlmillet (Bajra) is
- Self-pollinated
 - Auto-crossed
 - Out-crossed
 - Cross-pollinated
135. Black Heart of Potato is caused due to
- Pseudomonas fluorescens*

- b. Deficiency of Oxygen
 - c. Deficiency of Boron
 - d. None of these
136. Crop which is grown on the boundary of the field or as a intercrop for protection against insect, disease, nematode etc. is called
- a. Cover crop
 - b. Catch crop
 - c. Trap crop
 - d. All of these
137. The act of identifying and removing undesired plants from agricultural fields is called
- a. Roguing
 - b. Isolation
 - c. Sub culture
 - d. None of these
138. Chlorosis in plants occurs under deficiency of
- a. Manganese and Sulphur
 - b. Boron and Phosphorus
 - c. Calcium and Oxygen
 - d. Nitrogen and Magnesium
139. Recalcitrant seeds (orthodox seeds) are seeds that
- a. Can be dried and stored at low temperature
 - b. Can be stored at low temperature
 - c. Cannot be dried
 - d. Cannot be dried and stored at low temperature
140. The enzyme used for cutting DNA at specific site is known as
- a. Restriction endonuclease
 - b. Endopeptidase
 - c. Ligase
 - d. DNA methylase
141. In Bt cotton the active ingredient that kills insect is
- a. Bacterial toxin
 - b. Alkaloids
 - c. Terpenoids
 - d. Salicylic acid
142. The type of inflorescence found in banana is called
- a. Spadix
 - b. Umbel
 - c. Catkin
 - d. Spike
143. The disease occurring widely and periodically affecting many individual plants is
- a. Endemic
 - b. Epidemic

- c. Sporadic
 - d. None of these
144. In case of poor root nodulation in legume crop, which plant nutrient is given
- a. Molybdenum
 - b. Nitrogen
 - c. Phosphorus
 - d. Boron
145. Dry ice is composed of
- a. Nitrogen at -78.5°C
 - b. Nitrogen at -196°C
 - c. CO_2 at -78.5°C
 - d. Helium at -269°C
146. The phenomenon of linkage was discovered by
- a. Morgan
 - b. Mendel
 - c. Watson
 - d. Shull
147. Bordeaux mixture is composed of
- a. Calcium hypochloride and Copper Sulphate
 - b. Copper sulphate and hydrated lime
 - c. Ammonium sulphate and cupric oxide
 - d. Copper Hydroxide and Hydrated lime
148. Nuclease was discovered by
- a. Pallade
 - b. Louis Pasteur
 - c. Robert Brown
 - d. Robert Hook
149. Waksman got Nobel Prize for his discovery of
- a. Penicillin
 - b. Neomycin
 - c. Chloromycin
 - d. Streptomycin
150. A plant species threaten with extinction can be preserved in
- a. Herbarium
 - b. National Park
 - c. Botanical Garden
 - d. Gene Bank