S/SO/2013/09

BOTANY

Roll No.						BOOKLET NO.	9181

Candidate should write his/her Roll No. in the box above. ↑

Total No. of Questions : **150**

Time : **2** Hours]	No. of Printed Pages : **40**	[Total Marks : **300**

INSTRUCTIONS FOR CANDIDATES

1. *All* questions are compulsory.
2. *All* questions carry equal marks.
3. The question paper contains **150** questions. The examinee should verify that the requisite number of questions are printed in the question paper, otherwise he should ask for another question paper.
4. The cover page indicates the number of printed pages in the question paper. The examinee should verify that the requisite number of pages are attached in the question paper otherwise he should ask for another question paper.
5. Read carefully the instructions given on the answer-sheet supplied and indicate your answers accordingly.
6. Kindly make necessary entries on the answer-sheet only at the places indicated and nowhere else.
7. Examinees should specially pay attention that **2** marks will be awarded for correct answer.
8. Examinees should do all rough work on the space meant for rough work on the last page of the question paper and nowhere else, not even on the answer-sheet.

1. Resupination is the characteristic feature of the family :

(A) Orchidaceae (B) Polygonaceae

(C) Euphorbiaceae (D) Zingiberaceae

2. Parachute mechanism of fruit dispersal is due to :

(A) Corolla (B) Thorns

(C) Pappus (D) Bract

3. Who used the term Lignosae in his classification of angiosperms ?

(A) Bentham and Hooker (B) Engler and Prantle

(C) Cronguisr (D) Hutchinson

4. Stalk of the ovule is called as :

(A) Pedicel (B) Funicle

(C) Hilum (D) Placenta

5. Megasporogenesis occurs in :

(A) Fruit (B) Seed

(C) Nucellus of ovule (D) Egg of ovule

6. A botanical name in which specific epithet repeats exactly the generic name is called :

(A) Synonym (B) Tautonym

(C) Homonym (D) Autonym

7. A specimen selected to serve as nomenclatural type of a taxon, when all materials on which the taxon was based are missing, is called :

(A) Neotype (B) Holotype

(C) Lactotype (D) Paratype

8. The term 'Operational Taxonomic Unit' (OTU) is used in :

(A) Biosystematics (B) Chemotaxonomy

(C) Molecular taxonomy (D) Numerical taxonomy

9. Standard size of a Herbarium sheet is :

(A) 20 × 28 cm (B) 20 × 35 cm

(C) 42 × 28 cm (D) 32 × 40 cm

10. Cyathium inflorescence is the characteristic feature of the family :

(A) Poaceae (B) Euphorbiaceae

(C) Asteraceae (D) Lamiaceae

11. Cleavage polyembryony is fairly found in :

(A) Solanaceae (B) Orchidaceae

(C) Lamiaceae (D) Magnoliaceae

12. The botanical name of 'Kalmegh' is :

(A) *Andrographis paniculata* (B) *Adhatoda vasica*

(C) *Evolvulus alsinoides* (D) *Centella asiatica*

13. The freshwater red alga is :

(A) Bondenella (B) Cutleria

(C) Ectocarpus (D) Batrachospermum

14. Which of the following alga is salt tolerant and produces glycerol ?

(A) *Hematococcus* sp. (B) *Nostoc calcicola*

(C) *Dunaliella* sp. (D) *Chlamydomonas mouwesii*

15. The alga used as inoculum in biofertilizer is :

(A) *Schizothrix* (B) *Aulosira*

(C) *Synechococcus* (D) *Merismopedia*

16. Alga which forms coenobium is :

(A) *Microcystis* (B) *Porphiridium*

(C) *Eudorina* (D) *Merismopedia*

17. Which of the following aerobic N_2-fixer is found in the sea ?

(A) *Trichodesmium* (B) *Plectonema boryanum*

(C) *Chemosiphon* (D) *Phormidium flavoderum*

18. Triphasic life-cycle is found in :

(A) Red algae (B) Brown algae

(C) Green algae (D) Golden brown algae

19. Myxomycetes member are known as :

(A) Plasmodia (B) True slime molds

(C) *Pseudoplasmodia* (D) None of these

20. Which of the following is a heteroecious fungus ?

(A) *Uromyces* (B) *Melampsora*

(C) *Ustilago* (D) *Puccinia*

21. Which of the following are indicator of air pollution ?

(A) Puffballs (B) Cyanobacteria

(C) Lichens (D) Mosses

22. Which of the following structures does a fungus produce to survive for a very long period ?

(A) Sclerotia (B) Gonidia

(C) Hyphae (D) Zoospores

23. Aflatoxin is produced by :

(A) *Neurospora crassa* (B) *Aspergillus flavus*

(C) *Aspergillus terreus* (D) *Aspergillus niger*

24. Diplanetism is a characteristic feature of :

(A) *Albugo* (B) *Alternaria*

(C) *Saprolegnia* (D) *Phytophthora*

25. Which one of the following regulates the transcription of other nod genes ?

(A) nod A (B) nod E

(C) nod B (D) nod D

26. Murein is present in :

(A) Gram +ve bacteria

(B) Gram –ve bacteria

(C) Both Gram +ve and Gram –ve bacteria

(D) None of the above

27. Lophotrichous bacteria have :

(A) Only one flagellum

(B) One flagellum at both the ends

(C) Tuft of flagella at one end

(D) Evenly distributed flagella

28. The organisms which can use inorganic substances as electron source, use CO_2 and light energy are termed as :

(A) Photolithoautotrophs (B) Chemolithoautotrophs

(C) Photoorganoheterotrophs (D) Chemoorganoheterotrophs

29. The process of uptake of naked DNA fragment by a cell is termed as :

(A) Cloning (B) Transformation

(C) Transduction (D) Conjugation

30. The size of *E.coli* genome is :

(A) 2.27 Mb (B) 4.60 Mb

(C) 3.00 Mb (D) 10.00 Mb

31. The layer outside the cell wall organized and not easily washed-off is called :

(A) Slime (B) Glycogen layer

(C) Polysaccharide layer (D) Capsule

32. Conjugation is possible between which of the following ?

(A) $F^+ \times F^-$ (B) $F^- \times F^-$

(C) Hfr $\times$ F^- (D) All of these

33. The addition of pollutant-acclimated microbes or genetically engineered microbes to a hazardous waste site in order to react with hazardous wastes and render them harmless is known as :

(A) Bioconversion (B) Bioaugmentation

(C) Biomagnification (D) Biodegradation

34. The study of genetic material recovered directly from nature is called :

(A) Metagenomics (B) Genomics

(C) Proteomics (D) All of these

35. An infectious agent consisting of self-replicating protein with no detectable nucleic acids is known as :

(A) Virions (B) Virusides

(C) Prions (D) All of these

36. A process of transferring a piece of cell DNA adjacent to prophage to other cells is known as :

(A) Transformation (B) Conjugation

(C) Specialized transduction (D) None of these

37. During light reaction of photosynthesis, energy is produced in the form of :

(A) ATP (B) $NADPH_2$

(C) Both ATP and $NADPH_2$ (D) None of these

38. Genetic material in TMV is :

(A) Protein (B) Single stranded DNA

(C) Double stranded DNA (D) Polyribonucleotides

39. Interferons are :

(A) Anti-viral agents (B) Anti-bacterial agents

(C) Anti-fungal agents (D) Anti-helminthic agents

40. Specific proteins known to facilitate the separation of strands of DNA double helix in advance of replication forks are :

(A) Helicases (B) Replicases

(C) DNA polymerases (D) Topoisomerases

41. Which of the following types of media is *not* used for culturing aerobic microorganisms ?

(A) Selective media (B) Differential media

(C) Reducing media (D) Complex media

42. An organism that has peroxidase and superoxide dismutase, but lacks catalase is most likely an :

(A) Aerobe (B) Aerotolerant anaerobe

(C) Obligate anaerobe (D) None of these

43. Anti-freeze proteins help in :

(A) Tolerating low temperature in all organisms

(B) Tolerating low temperature in arctic and antarctic species

(C) Tolerating low temperature in tropical species

(D) All of the above

44. A product of glycosis that is consumed in alcoholic fermentation is :

(A) $NADH_2$ (B) CO_2

(C) ATP (D) Both (B) and (C)

45. Which of the following enzymes is *not* present in heterocyst ?

(A) GOGAT (B) Glutamine synthetase

(C) RUBISCO (D) Both (A) and (C)

46. Molybdenum deficiency affects the activity of :

(A) Chlorate reductase (B) Nitrate reductase

(C) Nitrogenase (D) All of these

47. Methanogens are :

(A) Aerobic microorganisms (B) Facultative anaerobes

(C) Strict anaerobes (D) None of these

48. Photoautotroph that does *not* evolve O_2 is :

(A) *Chlorella* (B) Green sulphur bacterium

(C) *Nostoc* (D) *Dictyota*

49. Coliforms are used as indicator organisms of sewage pollution because :

(A) They are abundant in human intestine

(B) They are pathogens

(C) They ferment lactose

(D) They grow within 48 hours

50. In blue-green algae, the structure specialized for aerobic nitrogen fixation is :

(A) Akinete (B) Heterocyst

(C) Aplanospore (D) Endospore

51. Xenobiotics which are inherently resistant to microbial attack are called :

(A) Persistent (B) Biodegradable

(C) Recalcitrant (D) All of these

52. A symbiotic relationship between two organisms in which one partner always has upper hand is known as :

(A) Amensalism (B) Mutualism

(C) Syntrophism (D) Helotism

53. Botulism is :

(A) Water-borne intoxication (B) Water-borne infection

(C) Food-borne intoxication (D) Food-borne infection

54. Indole-3-Acetic Acid represents which of the following plant hormones ?

(A) Auxins (B) Gibberellins

(C) Ethylene (D) Cytokinins

55. Tryptophan is precursor for the biosynthesis of which of the following hormones :

(A) Gibberellins (B) Ethylene

(C) Cytokinins (D) Auxins

56. Which of the following plant hormones hastens fruit ripening ?

(A) Auxins (B) Ethylene

(C) Cytokinins (D) Gibberellins

57. The major factors influencing water potential in plants are :

(A) Solute potential + Pressure potential

(B) Pressure potential + gravity

(C) Solute potential + pressure potential + gravity

(D) Solute potential + pressure potential + matric potential

58. The membrane proteins that carry out primary active transport are called :

(A) Pumps (B) Pores

(C) Gates (D) Channel proteins

59. Mature sieve elements specialized for translocation of organic sap are :

(A) Dead

(B) Living

(C) Living or dead

(D) Initially living but become dead at maturity

60. Under water stress conditions concentration of which of the following plant hormones increases tremendously in leaves ?

(A) Cytokinins (KT)
(B) Gibberellins (GA)
(C) Auxins (IAA)
(D) Abscisic Acid (ABA)

61. Immature leaves, regarding translocation of solute, act as :

(A) Source
(B) Source and Sink
(C) Sink
(D) Source or Sink

62. Pressure flow model explaining translocation is :

(A) Active mechanism
(B) Passive mechanism
(C) Neutral mechanism
(D) Both Active and Passive mechanisms

63. Simultaneous transport of solute and proton moving against the gradient of electrochemical potential is known as :

(A) Facilitated diffusion
(B) Primary active transport
(C) Secondary active transport
(D) Passive transport

64. The capacity of plants to cope with unfavourable environment is known as :

(A) Stress resistance (B) Stress avoidance

(C) Stress adaptation (D) Stress acclimation

65. Most abundant substance in the phloem is :

(A) Sucrose (B) Amino Acid

(C) Glucose (D) Water

66. Due to high temperature stress :

(A) Respiration is inhibited before photosynthesis

(B) Photosynthesis is inhibited before respiration

(C) Neither photosynthesis nor respiration is inhibited

(D) Both photosynthesis and respiration are inhibited simultaneously

67. Heat stress causes :

(A) Inhibition of photosynthesis

(B) Impairment of membrane function

(C) Destabilization of proteins

(D) All of the above

68. Stress resistance mechanisms like inhibition of leaf expansion, leaf abscission, root extension and stomatal closure occur in response to which type of stress ?

(A) Heat stress (B) Water stress

(C) Cold stress (D) All of these

69. The O_2 pressure in which the respiration rate is first slowed down by O_2 deficiency is known as :

(A) Critical O_2 pressure (B) Anaerobic O_2 pressure

(C) Anoxic O_2 pressure (D) Hypoxic O_2 pressure

70. The photoperiodic stimulus is perceived by :

(A) Roots (B) Buds

(C) Leaves (D) Flowers

71. The plants which flower only after a sequence of short days followed by long days are known as :

(A) Short day plants (B) Long day plants

(C) Short-long day plants (D) Long-short day plants

72. Plants monitor day length measuring the length of :

(A) Day (B) Night

(C) Both, day and night (D) Neither day nor night

73. The process of the following which is promoted by cold treatment given to growing plants is known as :

(A) Photomorphogenesis (B) Oxygenation

(C) Photoperiodism (D) Vernalization

74. Motive force during water transport in xylem is generated at :

(A) Air-water interface within the leaf

(B) Air-water interface outside the leaf

(C) Guard cells of stomata

(D) Air boundary layer

75. During photorespiration CO_2 formation is catalized by the enzyme :

(A) Glycolate oxidase

(B) Serine aminotransferase

(C) Glycine decarboxylase

(D) Ribulose 1, 5 bisphosphate oxygenase

76. In non-O_2 evolving organisms, the following photosystem is present :

(A) Photosystem I only

(B) Photosystem II only

(C) Both Photosystem I and Photosystem II

(D) Neither Photosystem I nor Photosystem II

77. Photosystem II is found preferentially in the region :

(A) Stroma lamellae and at the edges of granna lamellae

(B) Staked region of granna lamellae

(C) Stroma

(D) Lumen

78. Photosystem II produces :

(A) Weak oxidant only

(B) Strong reductant only

(C) Weak oxidant and strong reductant

(D) Strong oxidant and weak reductant

79. Kranz anatomy is generally found in :

(A) CAM plants (B) C_3 plants

(C) C_4 plants (D) All of these

80. In CAM plants acidification of leaves occurs during :

(A) Day in presence of light

(B) Throughout day and night

(C) Night in presence of dark

(D) None of the above

81. In eukaryotes, electron transport and oxidative phosphorylation takes place in :

(A) Outer membrane of mitochondria

(B) Inner membrane of mitochondria

(C) Chloroplast

(D) Cell cytoplasm

82. Which one of the following is the inhibitor of NADH dehydrogenase ?

(A) Rotenone (B) Antimycin A

(C) Cyanide (D) Azide

83. The co-enzymes NADH and NADPH used in the enzyme bioassays have absorbance in the UV region at :

(A) 260 nm (B) 280 nm

(C) 300 nm (D) 340 nm

84. In spontaneous reaction, the free energy of a system :

(A) Decreases (B) Increases

(C) Becomes zero (D) Remains unchanged

85. Which of the following forms a part of the coenzyme ?

(A) Zn^{2+} (B) Lipase

(C) Vitamin B_2 (D) Lysine

86. In feedback inhibition a metabolic pathway is switched off by :

(A) A rise in temperature

(B) Lack of substrate

(C) Accumulation of the end product

(D) Competitive inhibition

87. The accepted SI unit of enzyme activity is :

(A) Natal (B) Katal

(C) Ketel (D) Mol

88. The phylogenetic analysis based on conserved DNA sequences grouped all living organisms into ..... .

(A) Bacteria, archea and eukarya

(B) Bacteria, higher plants and eubacteria

(C) Bacteria, lower plants, eubacteria and archea

(D) Bacteria, virus, mycoplasma and higher plants

89. Which of the following factors can affect the enzyme activity ?

(A) pH (B) Temperature

(C) Phosphate (D) All of these

90. Prosthetic groups are :

(A) Required by all enzymes in the cell

(B) Linked to phosphate group

(C) Loosely bound to enzymes via hydrogen bond

(D) Tightly bound to enzymes and are required for their activity

91. The enzymes of glycolysis are located in the :

(A) Mitochondria (B) Nucleus

(C) Cytoplasm (D) Endoplasmic reticulum

92. The first stage of nitrogen fixation is :

(A) Reduction of nitrogen gas to ammonia

(B) Reduction of nitrogen gas to nitrite

(C) Reduction of nitrogen gas to nitrate

(D) Reduction of nitrogen gas to ammonium nitrate

93. How many ATP molecules are required to convert one molecule of nitrogen (N_2) into ammonia ?

(A) 2 ATP (B) 16 ATP

(C) 8 ATP (D) 12 ATP

94. The nitrogenase complex consists of :

(A) Nitrogenase

(B) Reductase

(C) Phosphatase

(D) Both nitrogenase and reductase

95. The component that protects nitrogenase from inactivation by O_2 is :

(A) Ferredoxin (B) Leghemoglobin

(C) Glutamine (D) None of these

96. Initiation codon AUG codes the amino acid :

(A) Methionine (B) Tryptophan

(C) Proline (D) Cysteine

97. In eukaryotic cell, nearly how much DNA is expressed at any one time ?

(A) 1% (B) 20%

(C) 50% (D) 80%

98. What "turn off" the *lac* operon ?

(A) Presence of lactose (B) β-galactosidase

(C) Absence of lactose (D) Both (B) and (C)

99. Cryopreservation is usually done at about :

(A) –96°C temp. (B) –196°C temp.

(C) –40°C temp. (D) 0°C temp.

100. A piece of nucleic acid used to detect a gene, by forming a hybrid with it, is called :

(A) Probe (B) Vector

(C) Restriction sequence (D) Retrovirus

101. In recombinant DNA technology, a plasmid vector must be cleaved by :

(A) Four separate enzymes

(B) Modified DNA ligase

(C) A heated alkaline solution

(D) The same enzyme that cleaves the donor gene

102. In gene therapy, DNA is inserted into a cell to compensate for :

(A) The lack of copy DNA

(B) Mutant alleles

(C) The absence of plasmids

(D) Holes in the DNA made by viruses

103. A section of DNA with bases A-T-T-C-G-C will line up with bases :

(A) T-A-A-G-C-G (B) A-C-G-C-T-T

(C) C-G-C-T-T-A (D) C-G-C-A-A-T

104. A polypeptide is assembled on a :

(A) DNA molecule (B) Nuclear membrane

(C) Nuclear pores (D) Ribosomes

105. If a cell is treated with a chemical that blocks nucleic acid synthesis, whic of the following processes would most likely be affected first ?

(A) DNA replication (B) tRNA synthesis

(C) mRNA synthesis (D) Protein synthesis

106. A secondary metabolite "amotoxin" is derived from :

(A) *Amanita* (B) *Penicillium*

(C) *Fusarium* (D) *Aspergillus*

107. If a part of the molecule is soluble in water and another part is insoluble, such a molecule is called :

(A) Amphoteric (B) Hydrophilic

(C) Amphipathic (D) Hydrophobic

108. Transgenic golden rice provides :

(A) Vit. B_{12} (B) Vit. A

(C) Insect resistance (D) None of these

109. Which of the following statements is *correct* ?

(A) Introns are present in all eukaryotic genes

(B) Introns do not play any role in controlling gene expression

(C) Introns are more prevalent in lower eukaryotes than higher eukaryotes

(D) None of the above

110. The amino acids present in high proportion in the histones are :

(A) Lysine and methionine

(B) Methionine and cysteine

(C) Arginine and lysine

(D) Arginine and methionine

111. The first completely sequenced cellular genome was of :

(A) *Escherichia coli*

(B) *Haemophilus influenzae*

(C) *Drosophila melanogaster*

(D) *Arabidopsis thaliana*

112. Identify the *incorrect* statement :

(A) Topoisomerase I breaks just one strand of DNA

(B) Topoisomerase II breaks both the strands of DNA

(C) Topoisomerase I breaks both the strands of DNA

(D) All the above are correct

113. Identify the *correct* statement :

(A) Telomerase is a reverse transcriptase

(B) Telomeric DNA does not have any repeats

(C) Both the above statements are correct

(D) Both are incorrect

114. Which of the following chaperon proteins is *not* a member of the Hsp 90 protein family ?

(A) HtpG (B) Grp94

(C) Hsp90 (D) SSC1

115. The only non-glycerol phospholipid present in the cell membrane is :

(A) Ceramide (B) Phosphatidylserine

(C) Phosphatidylcholine (D) Sphingomyelin

116. Identify the *incorrect* statement :

(A) Actin genes are expressed only in muscle cell

(B) The phenomenon of treadmilling illustrates the dynamic behaviour of actin filaments

(C) The cytochalasins bind to the plus ends of actin filaments and block their elongation

(D) The drug taxol stabilises microtubules and thus blocks cell division

117. The major cell surface receptors responsible for the attachment of cells to the extracellular matrix are :

(A) Adhesins (B) Laminins

(C) Integrins (D) Eutactin

118. A sort of signalling in which the hormones are carried through circulatory system to act on the distant target cells is called :

(A) Autocrine signalling (B) Endocrine signalling

(C) Paracrine signalling (D) Direct cell-cell signalling

119. Which of the following has only one codon ?

(A) Glycine (B) Arginine

(C) Methionine (D) Tyrosin

120. Choose the *correct* statement :

(A) In southern blotting, before transfer, DNA is denatured with alkali

(B) In southern blotting, before transfer, DNA is denatured with acid

(C) Northern blots cannot be used to determine the size of *m*RNA

(D) All of the above are correct

121. The full cellular component of protein kinases is :

(A) Kinosome (B) Kinasome

(C) Proteome (D) Kinome

122. The two hybrid analysis reveals :

(A) DNA-DNA interactions

(B) Protein-protein interactions

(C) RNA-RNA interactions

(D) DNA-protein interactions

123. Non-viral method for introduction of nucleic acids into eukaryotic cells is called :

(A) Conjugation (B) Transduction

(C) Translocation (D) Transformation

124. Which of the following is *not* a DNA sequence database ?

(A) Gene Bank (B) EMBL

(C) Both (A) and (B) (D) Swiss prot

125. In *E. coli* holiday junction recognition and branch migration are catalysed by :

(A) RuvC (B) RecBCD helicase/nuclease

(C) RuvAB complex (D) Rad 51

126. Which of the following is virus-like retrotransposon ?

(A) Ty elements (B) Phage mU

(C) F elements (D) P elements

127. The phenomenon of transposition target immunity is associated with :

(A) LAT family elements

(B) LINE and SINE elements

(C) Phage mU

(D) Alu sequences

128. For active transport to occur the following must be present :

(A) Carrier proteins, ADP and cell membrane

(B) ATP, cell membrane and vacuole

(C) Carrier proteins, ATP and cell membrane

(D) Cell membrane, water and ATP

129. Primeval atmosphere on the earth did *not* contain :

(A) Free O_2 (B) CO_2 and CO

(C) N_2 and NH_3 (D) Free O_2 and H_2

130. Rate of change in number of species per unit area of habitat is known as :

(A) α-diversity (B) β-diversity

(C) ν-diversity (D) Species heterogeneity

131. Which of the following alternatives is *correct* with respect to secondary pollutant ?

(A) PAN (B) O_3

(C) NO_2 (D) All of these

132. Boreal forests are :

(A) Northern temperate coniferous forests

(B) Tropical rain forests

(C) Dry tropical deciduous forests

(D) Tropical equatorial vegetation

133. Which of the following has the highest global warming potential ?

(A) CO_2 (B) CH_4

(C) CFC-11 (D) CFC-12

134. Which range of wavelength is absorbed by the atmospheric O_3 :

(A) < 280 nm (B) 280-320 nm

(C) 321-390 nm (D) > 390 nm

135. Who is known as father of Indian Ecology ?

(A) Birbal Sahani (B) K.C. Mishra

(C) Ramdev Mishra (D) K.C. Mehta

136. NEERI is situated at :

(A) Pune (B) New Delhi

(C) Nagpur (D) Bengaluru

137. Which state of India has maximum area of saline soils ?

(A) U.P. (B) Rajasthan

(C) West Bengal (D) Haryana

138. Landslides mainly occur in :

(A) Gangetic plains (B) Hilly areas

(C) Grasslands (D) Savannas

139. Grasslands with clumps of trees are known as :

(A) Chaparral biomes (B) Desert biomes

(C) Tropical savannas (D) Tundra biomes

140. Which of the following gives the best picture of food chain ?

(A) Standing crop (B) Pyramid of number

(C) Pyramid of biomass (D) Pyramid of energy

141. Which of the following is *not* an *in situ* approach of biodiversity conservation ?

(A) Biosphere reserves (B) Nature reserves

(C) Botanical gardens (D) Sanctuaries

142. Cell cycle is regulated by :

(A) Amino acids (B) Fatty acids

(C) Carbohydrates (D) Proteins

143. The largest period of cell cycle is :

(A) Interphase (B) Prophase

(C) Metaphase (D) Anaphase

144. Mendel selected pea as the experimental material because :

(A) It is an annual plant with comparatively short life cycle

(B) The flowers are self-pollinated

(C) The number of seeds produced is quite large

(D) All of the above

145. Complete linkage is found in :

(A) Male birds (B) Female snakes

(C) Male *Drosophila* (D) Female *Drosophila*

146. Synaptonemal complex is associated with :

(A) Chromosome condensation

(B) Chromosome alignment and recombination

(C) Chromosome doubling

(D) Chromosome replication

147. Which of the following has always stood the test of time ?

(A) Law of segregation of factors

(B) Law of dominance

(C) Law of independent assortment of factors

(D) All of the above

148. Isochromosomes are the chromosomes :

(A) Which are similar in morphology

(B) Which are dissimilar in morphology

(C) Whose both arms are similar

(D) Whose both arms are dissimilar

149. Crosses between diploid male and triploid female plants practised to produce :

(A) Monosomic plants

(B) Double monosomic plants

(C) Trisomic plants

(D) Nullisomic plants

150. The frequency of crossing over for an allele would never be more than :

(A) 30% (B) 50%

(C) 80% (D) 85%