

91. The following group of plants belong to how many families?

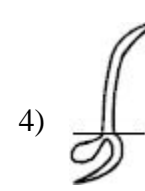
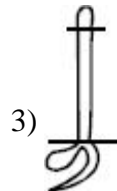
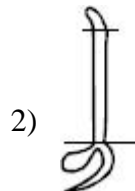
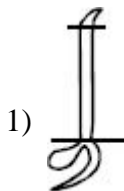
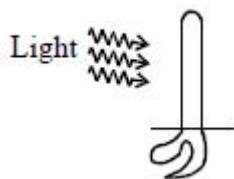
Lupin, Ashwagandha, Tulip, Tobacco, *Petunia*, *Trifolium*, Brinjal, *Gloriosa*

- 1) 3                                      2) 4                                      3) 2                                      4) 8

92. Choose the incorrect match regarding ETS of Respiration for one Glucose molecule

- 1) Cofactors oxidized ( $\text{NADH}_2$  and  $\text{FADH}_2$ )                                      12  
 2) Number of water molecules produced in ETS                                      12  
 3) Complexes involved in transfer of electrons                                      4  
 4) Oxygen atoms utilized in ETS                                      6

93. A canary grass seedling is exposed to light. Which one of the diagram given below best describes the condition of the coleoptiles tip at the end of the experiment ?



94. Choose the correct set of statements about Lac operon

- 1) Operator lies upstream to 'structural genes'  
 2) Lactose is the inducer  
 3) Repressor is a protein which binds to the 'operator'  
 4) All the above

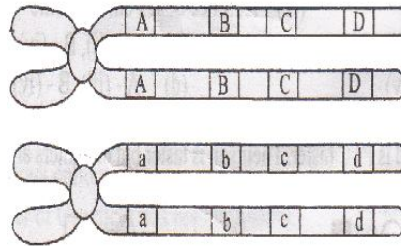
95. Choose the mismatch

- 1) Single cell protein – *Spirulina*, *Chlorella*                                      2) Medicinal plants – *Arnica*, *Cinchona*  
 3) Food for astronauts – *Chlorella*                                      4) Petroplants – *Datura*, *Digitalis*

96. Immuno suppressive agent 'cyclosporin A' is produced by

- 1) *Monascus purpureus*                                      2) *Streptococcus*  
 3) *Trichoderma polysporum*                                      4) *Propionibacterium sharmanii*

97. Given in the diagram shows at a pair of homologous chromosomes during meiosis maximum crossing over will occur between genes



- 1) A and a, D and d      2) C and d, c and D      3) B and c, b and C      4) A and d, a and D
98. T.W. Engelmann's experimental plant for his discovery of first action spectrum of photosynthesis is
- 1) *Azotobacter*      2) *Chlorella*      3) *Cladophora*      4) *Chlamydomonas*
99. What is the ratio of total number of floral leaves in one flower of *Pisum* to one flower of *Allium*?
- 1) 5 : 6      2) 4 : 5      3) 7 : 5      4) 4 : 3
100. Radial, Collateral, and Bicollateral vascular bundles are present respectively in anatomy of
- 1) Dicot and Monocot roots, dicot and monocot stem, and *cucurbita* stems  
 2) Dicot and Monocot stem, dicot and monocot root and *cucurbita* stem  
 3) Dicot and Monocot Root, *cucurbita* stem, dicot and Monocot stem  
 4) Dicot and monocot stem, *cucurbita* stems and Dicot and monocot root
101. Osmosis is involved in
- 1) Ascent of sap in xylem vessels  
 2) Translocation of sucrose in sieve tube elements  
 3) Turgidity and flaccidity of guard cells  
 4) Loss of water vapour into atmosphere from sub stomatal cavity
102. Statement - I : The initial appearance of deficiency symptoms is related to mobility of elements in plant system
- Statement - II : Deficiency symptoms first appear in senescent leaves and young leaves for mobile and immobile elements respectively
- 1) Statement I and II both are correct  
 2) Statement I is correct, statement II is wrong  
 3) Statement II is correct, statement I is wrong  
 4) Statement I and II both are wrong

103. First pair of enzymes catalytic the transfer of groups and second pair of enzyme catalyse breakdown/ removal of groups from substrate. What would be the correct options ?

**Transfer**

**Removal**

- |                                     |                                  |
|-------------------------------------|----------------------------------|
| 1) Oxidoreductases and transferases | Hydrolases and Lyases            |
| 2) Oxidoreductases and transferases | Hydrolases and Ligases           |
| 3) Hydrolases and Ligases           | Oxidoreductases and transferases |
| 4) Oxidoreductases and transferases | Ligases and Lyases               |

104. A round and yellow plant is crossed to a round and green plant and progeny produced have all four phenotypes in 3 : 3 : 1 : 1 ratio (round yellow, round green, wrinkled yellow, wrinkled green) respectively. Predict the genotypes of parents and choose the correct option.

- 1) RrYY × RRyy      2) RrYy × Rryy      3) RRYy × Rryy      4) RRyy × RRyy

105. Two genera are given below. In the genus A, its aerial roots possess multilayered dead epidermis with chlorenchymatous cortex. In the genus B, a whorl of leaves at each node possess multilayered epidermis with well developed chlorenchymatous palisade tissue on both sides of leaf. The two genera A and B respectively

- 1) *Pisum* and *Taeniophyllum*      2) *Nerium* and *Pisum*  
 3) *Ficus* and *Taeniophyllum*      4) *Taeniophyllum* and *Nerium*

106. The common character observed in members of Infracae, Heteromerae and Bicarpellatae in Bentham and Hookers classification is

- 1) Inferior ovary      2) Superior ovary      3) Free petals      4) Fused petals

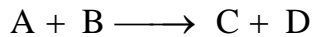
107. A cell organelle "A" produce polysaccharides, glycoproteins and glycolipids. A cell organelle "B" oxidize carbohydrates, proteins, and lipids and help in release of energy. A & B cell organelles respectively are

- 1) Golgi complex and Endoplasmic reticulum      2) Golgi complex and Mitochondria  
 3) E. R and Chloroplasts      4) E.R and Mitochondria

108. A vascular element "A" is dead, cylindrical, lignified and conduct substances due to a negative pressure created in it due to transpiratory pull. A vascular element "B" is living, cylindrical, non lignified, enucleated and conduct substances due to a positive pressure created in it. A & B conducting elements respectively are

- 1) Xylem parenchyma & Sieve tubes      2) Xylem vessels & Sieve tubes  
 3) Sieve tubes & Xylem tracheids      4) Sieve tubes & Xylem vessels

109. An enzymatic reaction format occurring in respiration is given below



**A = six carbon aldose sugar**

**B = Nucleotide called energy currency**

**C = Hexose 6 phosphate**

**With the information provided to you, what could be the enzyme catalysing the above reaction and its enzyme code**

- |                                 |                                     |
|---------------------------------|-------------------------------------|
| 1) Malic dehydrogenase, 2.7.1.2 | 2) Fructose 1, 6 di kinase, 2.7.1.2 |
| 3) Glucose isomerase, 2.7.1.2   | 4) Hexokinase, 2.7.1.2              |

110. Linkage is exhibited by

- 1) Genes that are located on homologous chromosomes
- 2) Genes that are located on same chromosome
- 3) Alleles of the same gene located on homologous chromosomes
- 4) Genes that are located on non homologous chromosomes

111. Choose the correct match

- |                          |   |                                     |
|--------------------------|---|-------------------------------------|
| 1) Probiotics            | - | <i>Salmonella, Methanobacillus</i>  |
| 2) Biofertilisers        | - | <i>Spirulina, Chlorella</i>         |
| 3) Therapeutic chemicals | - | <i>Clostridium, Aspergillus</i>     |
| 4) Bio control           | - | <i>Trichoderma, NPV, Dragon fly</i> |

112. Pick the incorrect match

- |                                 |         |                                                                          |
|---------------------------------|---------|--------------------------------------------------------------------------|
| 1) <i>Oxalis, strawberry</i>    | Runner  | Rooted at each node                                                      |
| 2) <i>Pistia, Eichhornia</i>    | Offsets | One internodal length branch with respiratory roots and leaves at a node |
| 3) <i>Nerium, Jasminium</i>     | Stolon  | Axillary branch bending downwards                                        |
| 4) <i>Chrysanthemum, Ananas</i> | Suckers | Underground branch moving upwards                                        |

113. Pick the wrong match

Placentation	Placenta	Example
1) Marginal	Margins of ventral suture	<i>Pisum</i>
2) Axial	Axis formed due to fusion of many ventral sutures	<i>Hibiscus</i>
3) Free central	Central axis with bilocular or multilocular condition	<i>Dianthus</i>
4) Parietal	Inner wall of the ovary	<i>Argemone</i>

**114. Pick the incorrect match**

- |                         |                                    |                                 |
|-------------------------|------------------------------------|---------------------------------|
| 1) <i>Rhizopus</i>      | Asexual endogenous sporangiospores | Bread preparation               |
| 2) <i>Chlamydomonas</i> | Motile asexual zoospores           | Biflagellated gametes           |
| 3) <i>Penicillium</i>   | Asexual exogenous conidiospores    | Roquefort cheese and antibiotic |
| 4) <i>Cladophora</i>    | Isogamy                            | Biflagellated gametes           |

**115. Bacterial transformation is**

- 1) Discovered by F. Griffith in *Streptococcus pneumoniae*
- 2) Absorption of DNA from surroundings to recipient cell
- 3) Artificially induced by changing the permeability of host cell
- 4) All the above are correct

**116. Choose the palindromic sequence in the following**

- |                 |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|
| 1) 5' ACGTAC 3' | 2) 5' GACCAG 3' | 3) 5' AACGTC 3' | 4) 5' ATTACG 3' |
| 3' TGCATG 5'    | 3' CTGGTC 5'    | 3' TTGCAG 5'    | 3' TAATGC 5'    |

**117. Plant 'A' exhibit apocarp with many free carpels on conical thalamus. Plant 'B' exhibit syncarpy and is without style. Plant C exhibit syncarpy with five free stigmas. A, B and C respectively are**

- |                                       |                                       |
|---------------------------------------|---------------------------------------|
| 1) <i>Michelia, Papaver, Hibiscus</i> | 2) <i>Papaver, Michelia, Hibiscus</i> |
| 3) <i>Hibiscus, Papaver, Michelia</i> | 4) <i>Michelia, Hibiscus, Papaver</i> |

**118. Read the following four statements and pick the incorrect match**

- 1) Herbarium - Preserve only plant specimens
- 2) Museum - Preserve both plant and animal specimens in preservative solutions or in dry conditions
- 3) Botanical gardens - Live plant specimens grown for the purpose of identification
- 4) Manual - Information about any one taxon

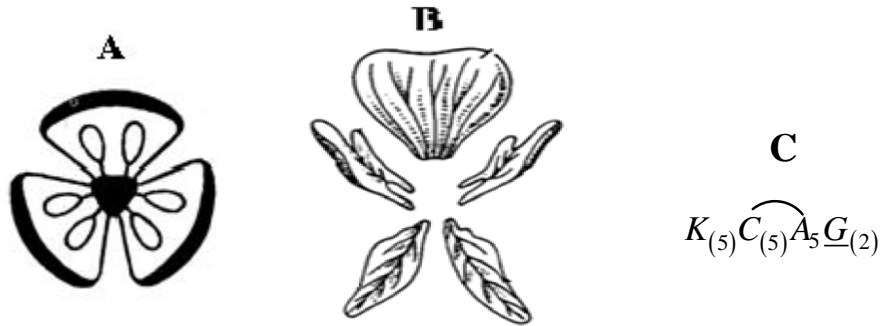
**119. Choose the incorrect match**

Genus	Fruit	Edible part
1) <i>Annona</i> (Annonaceae)	Aggregate of berries	Mesocarp and endocarp of fruitlet
2) <i>Ananas</i> (Bromeliaceae)	Sorosis	Peduncle, fleshy bracts
3) <i>Artocarpus</i> (Moraceae)	Syconus	Fleshy perianth
4) <i>Pyrus</i> (Rosaceae)	Pome	Fleshy thalamus

**120. A linear double stranded DNA and a circular double stranded DNA, each with 4 target sites for a particular restriction endonuclease were cleaved with that enzyme. The number of fragments generated from linear and circular DNA respectively**

- |          |          |          |          |
|----------|----------|----------|----------|
| 1) 5 & 5 | 2) 5 & 4 | 3) 4 & 4 | 4) 4 & 5 |
|----------|----------|----------|----------|

121. The ratio between the number of male gametes and that of female gametes produced due to one meiotic division occurring in their respective spore mother cells is  
 1) 1 : 1                                      2) 2 : 1                                      3) 8 : 1                                      4) 2 : 7
122. One of the following is not a benefit of symbiotic association of fungus namely *Glomus* in plants. What is it ?  
 1) Absorption of phosphorus from the soil                                      2) Resistance to root - borne pathogens  
 3) Tolerance to salinity and drought                                      4) Nitrogen fixation
123. Choose the correct matches from the following  
 1) Red colour of Red sea                                      - *Trichodesmium*  
 2) Red tides in Mediterranean sea                                      - *Gonyaulax*  
 3) Red colour of red algae                                      - r. phycoerythrin  
 4) All the above
124. Choose the correct sequence of genera that are characterised by palmella stage, coenobium, kelp body and strobilus respectively  
 1) *Spirulina, Volvox, Fucus, Pinus*                                      2) *Euglena, Volvox, Fucus, Equisetum*  
 3) *Amoeba, Slime mould, Porphyra, Annona*                                      4) *Chara, Funaria, Adiantum, Cycas*
125. Assign the floral diagrams and floral formula to their respective families



- 1) A-Brassicaceae B- Fabaceae C- Liliaceae                                      2) A - Solanaceae, B- Fabaceae, C- Brassicaceae  
 3) A- Liliaceae, B- Fabaceae, C- Solanaceae                                      4) A- Liliaceae, B - Fabaceae, C- Brassicaceae
126. N- terminal and C- terminal ends are present in macromolecule A, reducing end and non reducing end are found in B, and 5' end and 3' end are found in macromolecule C. What does A, B, C respectively represent?  
 1) Polysaccharides                                      Proteins                                      DNA  
 2) Collagen                                      Cellulose                                      RNA  
 3) Chitin                                      DNA                                      Haemoglobin  
 4) Triglycerides                                      Polysaccharides                                      Nucleic acids

127. Permanent tissues may undergo \_\_\_\_\_ while secondary meristem form secondary permanent tissues by \_\_\_\_\_
- 1) Differentiation, Redifferentiation                      2) Differentiation, Dedifferentiation  
3) Dedifferentiation, Redifferentiation                      4) Redifferentiation, Differentiation
128. Sexual reproduction method in bacteria that provides the basis for understanding DNA as genetic material
- 1) Binary fission                      2) Transformation                      3) Conjugation                      4) Transduction
129. What would be the ratio of number of ATP molecules required for the production of two molecules of  $\text{NH}_3$  in biological nitrogen fixation, six RUBP in regeneration phase of Calvin cycle and one molecule of fructose 1, 6 diphosphate in glycolysis.
- 1) 4 : 3 : 1                      2) 4 : 6 : 1                      3) 8 : 9 : 1                      4) 16 : 6 : 0
130. The ratio of megasporophylls of modified reproductive shoots of mustard, pea, makoi and onion plants is
- 1) 6 : 10 : 5 : 6                      2) 4 : 5 : 5 : 3                      3) 2 : 1 : 2 : 3                      4) 16 : 21 : 17 : 15
131. A four carbon dicarboxylic acid that is an intermediate of  $\text{C}_4$  pathway, CAM pathway and Kreb's cycle is
- 1) Aspartic acid                      2) Oxalosuccinic acid                      3) Malic acid                      4) Succinic acid
132. A free floating hydrophyte with subaerial stem modification and a succulent xerophyte with aerial stem modification respectively are
- 1) *Musa, Bryophyllum*                      2) *Chrysanthemum, Casuarina*  
3) *Eichhornea, Opuntia*                      4) *Dioscorea, Asparagus*
133. Succession that starts on a bare rock is an example for
- 1) Primary succession                      2) Lithosere                      3) Xerosere                      4) All the above
134. Plant physiologist among the following scientists is
- 1) Carolus Von Linnaeus                      2) G.N. Ramachandran  
3) Sir J.C. Bose                      4) M.S. Swaminathan
135. A genus with woody unbranched stem, spadix inflorescence, single seeded drupe fruit and endospermic seed is
- 1) *Mangifera*                      2) *Colacasia*                      3) *Ricinus*                      4) *Cocos*