

**Entrance Test for  
M.Sc. Life Science Programme 2011  
June, 2011**

Name \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**Total No. of Questions : 150**

**Time : 3 Hours**

- All questions are *Compulsory*.
- Use of calculator is *not allowed*. Rough work may be done in the space provided at the back of the Test Booklet.
- Read the instructions given on the OMR Response Sheet carefully before you start.

## How to fill up the information on the OMR Response Sheet

### (Examination Answer Sheet)

1. Write your complete enrolment no. in 9 digits. This should correspond to the enrolment number indicated by you on the OMR Response Sheet. Also write your correct name, address with pin code in the space provided. Put your signature on OMR Response Sheet with date. Ensure that the Invigilator in your examination hall also puts his /her signature with date on the OMR Response Sheet at the space provided.
2. On the OMR Response Sheet student's particulars are to be filled in by pen. However use HB pencil for writing the Enrolment No. and Examination Centre Code as well as for blackening the circle bearing your choice of answer number against the serial number of the question.
3. Do not make any stray remarks on this sheet.
4. Write correct information in numerical digit in Enrolment No. and Examination Centre Code columns. The corresponding circle should be dark enough and should be filled in completely.
5. Each question is followed by four probable answers which are numbered 1, 2, 3 and 4. You should select and show only one answer to each question considered by you as the most appropriate or the correct answer. Then by using HB pencil, blacken the circle bearing your choice of answer number against the serial number of the question. (If you find that answer to any question is none of the four alternatives given under the question, you should darken the circle with '0')
6. If you wish to change your answer, ERASE completely the already darkened circle by using a good quality eraser and then blacken the circle bearing your revised answer number. If incorrect answer is not erased completely, smudges will be left on the erased circle and the question will be read as having two answers and will be ignored for giving any credit.
7. No credit will be given if more than one answer is given for one question. Therefore, you should select the most appropriate answer.

## GENERAL INSTRUCTIONS

1. No cell phones, calculators, books, slide-rules, note-books or written notes, etc. will be allowed inside the examination hall.
2. You should follow the instructions given by the Centre Superintendent and by the Invigilator at the examination venue. If you violate the instructions, you will be disqualified.
3. Any candidate found copying or receiving or giving assistance in the examination will be disqualified.
4. The Test Booklet and the OMR Response Sheet (Answer Sheet) would be supplied to you by the Invigilators. **After the examination is over, you should hand over the OMR Response Sheet to the Invigilator before leaving the examination hall.** Any candidate who does not return the OMR Response Sheet will be disqualified and the University may take further action against him/her.
5. All rough work is to be done on the test booklet itself and not on any other paper. Scrap paper is not permitted. For arriving at answers you may work in the margins, make some markings or underline in the test booklet itself.
6. The University reserves the right to cancel scores of any candidate who impersonates or uses/adopts other malpractices or uses any unfair means. The examination is conducted under uniform conditions. The University would also follow a procedure to verify the validity of scores of all examinees uniformly. If there is substantial indication that your performance is not genuine, the University may cancel your score.
7. In the event of your qualifying the Entrance Test, the hall ticket should be enclosed with your admission form while submitting it to the University for seeking admission in M.Sc. (Life Sciences) Programme along with your testimonials and programme fee. Admission forms received without hall ticket in original will be summarily rejected.



9. During opening of stomata which ions are transported from neighbouring cells to guard cells :
- (1)  $K^+$  ion                      (2)  $Cl^-$  ion                      (3)  $Na^+$  ion                      (4)  $Ca^{++}$  ions
10. Concentration of urine in mammals depends on :
- (1) Glomerulus's                      (2) Length of Henley's loop  
(3) Osmotic pressure of blood                      (4) Size of organism
11. If mutation changes codon in such a way that there is no effect on functioning and overall structure of protein. This type of mutation is termed as :
- (1) Silent                      (2) Mis-sense                      (3) Transition                      (4) Frameshift
12. Age of the fossils with an organic content in them can be determined by the use of :
- (1) Radioactive carbon                      (2) Serology  
(3) Calorimetry                      (4) Chromatography
13. In meiosis crossing over occurs during :
- (1) Prophase - I                      (2) Prophase - II  
(3) Metaphase                      (4) Anaphase
14. If the  $K_m$  of enzyme for substrate A is  $1 \times 10^{-6}$  and for substrate B is  $4 \times 10^{-8}$ , it means :
- (1) Enzyme has more affinity for substrate A than substrate B  
(2) Enzyme has more affinity for substrate B than substrate A  
(3) Enzyme has equal affinity for substrate A and substrate B  
(4) Enzyme is non - specific
15. Resolving power of scanning electron microscope is :
- (1) 0.001 nm                      (2) 0.01 nm                      (3) 0.1 nm                      (4) 0.0001 nm

16. Neurodegeneration leads to all of the following, except :
- (1) Alzheimer's disease                      (2) Schizophrenia  
(3) Parkinson's disease                      (4) Retinoblastoma
17. The definitive evidence in favor of common descent for all living beings is :
- (1) That they all contain RNA              (2) The universality of DNA as the genetic material  
(3) The universality of genetic code      (4) That they all use carbohydrate as energy source
18. If the partial nucleotide sequence of a gene is 5' - TTGCATTACCGGCTAT - 3', the corresponding mRNA sequence will be :
- (1) 5' - ATAGCCGGTAATGCAA - 3'      (2) 5' - AACGUAAUGGCCGAUA - 3'  
(3) 5' - AACGTAATGGCCGATA - 3'      (4) 5' - UUAGCCGGUAAUGCAA - 3'
19. Which one of the following is **not** a characteristic of a bacterial cell wall ?
- (1) It harbors the electron transport chain  
(2) It defines the size and shape of the bacterium  
(3) It contains modified sugars  
(4) Sometimes it contributes to its pathogenic function
20. When a mouse cell was placed in a solution, the cell volume increased. Thus, as compared to the cell, the solution is :
- (1) Hypertonic      (2) Isotonic              (3) Hypotonic              (4) Mesotonic
21. Which one of the following stains is used to detect *Mycobacterium* species ?
- (1) Acid - fast stain      (2) Fuchsin stain      (3) Gram stain              (4) Giemsa stain
22. The post translational modification commonly found in the proline residues of a protein is :
- (1) Methylation      (2) Acetylation              (3) Hydroxylation      (4) Phosphorylation

23. During photosynthesis, light reactions produce :
- (1) GTP                      (2) NADH                      (3) FADH<sub>2</sub>                      (4) NADPH
24. Human mitochondria are :
- (1) Generated de novo in the zygote    (2) Inherited from the father  
(3) Inherited from both parents        (4) Inherited from the mother
25. When the genome of a bacteriophage is integrated into a cellular genome, it is called a :
- (1) Lytic virus                                      (2) Prophage  
(3) Transducing virus                              (4) Microphage
26. What is allele ?
- (1) A physical location on chromosome  
(2) Different genes present on different chromosomes  
(3) Alternate form of the same gene  
(4) Different gene encoding different subunits of a heteromeric enzyme
27. Which one of the following is found only in animal cells ?
- (1) Plastids                      (2) Mitochondria    (3) Golgi apparatus    (4) Centrioles
28. Synaptic transmission is an example of which type of signaling ?
- (1) Endocrine                      (2) Paracrine                      (3) Autocrine                      (4) Neurocrine
29. Which one of the following is *not* an immediate event following activation of cell surface receptors ?
- (1) GTP hydrolysis                                      (2) Tyrosine phosphorylation  
(3) Receptor dimerization                              (4) Acetylation of histones

30. 'Kozak' consensus sequence is a characteristic of :
- (1) Gene promoter (2) Origin of replication  
(3) 5' - UTR of eukaryotic mRNA (4) 3' - UTR of eukaryotic mRNA
31. The evolution of a new species is called :
- (1) Differentiation (2) Ontogeny (3) Organogenesis (4) Speciation
32. Which of the molecular methods for assessing similarity gives the crudest approximation of relatedness ?
- (1) DNA hybridization (2) PCR  
(3) 16S rDNA sequencing (4) DNA - base composition
33. Chloroplast and mitochondria contain DNA. This supports the concept of :
- (1) Chromosomal mutation (2) Cytoplasmic inheritance  
(3) Transformation (4) Multiple alleles
34. Which of the following is **not** a micronutrient for plants ?
- (1) B (2) Cu (3) Zn (4) Ca
35. The most important event in apoptosis involves :
- (1) Discrete lesions in cell membrane  
(2) Loss of cell membrane  
(3) Loss of phosphatidylserine from membranes  
(4) DNA fragmentation
36. Natural genetic engineer, is a term used for :
- (1) *Agrobacterium* (2) *Azotobacter* (3) *Azospirillum* (4) *Aspergillus*



37. In BT cotton, the active ingredient that kills insect is :
- (1) Bacterial toxin (2) Alkaloids (3) Terpenoids (4) Salicylic acid
38. Photosystem I is essential for the production of :
- (1) ATP (2) Plastoquinol (3) NADH (4) FMNH
39. In photorespiration, CO<sub>2</sub> is released from :
- (1) Mitochondria (2) Chloroplast (3) Peroxisome (4) Glyoxisome
40. Sickle - cell anemia is caused by :
- (1) Viral infection of red blood cells  
(2) Amino acid substitution in the hemoglobin molecule  
(3) Excessive diphosphoglycerate  
(4) Deficiency of biotin
41. A student has written his name on the trunk of a tree at a height of 100 cm from the soil. If the tree grows by 15 cm every year, where will be his name after three years ?
- (1) At 100 cm from the soil (2) At 130 cm from the soil  
(3) At 115 cm from the soil (4) At 145 cm from the soil
42. Restriction enzymes are :
- (1) Enzymes that restrict uncontrolled growth of cells which result in cancer  
(2) Enzymes that restrict DNA synthesis to the minimum necessary level and prevent polyploidy  
(3) Enzymes that cleave phosphodiester linkages in DNA only at a specific sequence yielding fragments of reproducible sizes  
(4) Enzymes that cleave polycistronic mRNA to yield individual cistrons
43. The cells involved in the bone formation are :
- (1) Osteoclast (2) Osteocytes (3) Osteoblast (4) Odontoblast

44. Citric acid is industrially produced by :
- (1) *Penicillium notatum* (2) *Saccharomyces cerevisiae*  
(3) *Aspergillus niger* (4) *Pseudomonas aeruginosa*
45. Common lesion found in DNA after exposure to ultraviolet light is :
- (1) pyrimidine dimers (2) single strand break  
(3) base deletions (4) purine dimers
46. If a subcellular fraction from liver tissue exhibits a high level of acid phosphatase activity, it most likely contains :
- (1) Nuclei (2) Lysosomes  
(3) Endoplasmic reticulum (4) Mitochondrion
47. Cells that recall the previous contact with a particular antigen and on further exposure to such an antigen produce a more rapid and larger population of antibodies are :
- (1) T cells (2) BCGF (3) BCDF (4) Interlukin II
48. How many ATP molecules can be derived from each molecule of acetyl CoA that enters the Krebs' Cycle ?
- (1) 6 (2) 12 (3) 18 (4) 38
49. The lysosomal sorting signal is :
- (1) N - acetyl - glucosamine (2) Ran : GTP  
(3) Mannose - 6 - phosphate (4) Ribose - 6 - phosphate
50. End product of repression differs from feedback inhibition by regulating :
- (1) Enzyme activity (2) Enzyme synthesis  
(3) Enzyme stability (4) Enzyme folding



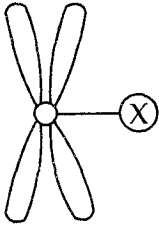
58. Select the pair which does not match :
- (1) Honey bee : Apiculture
  - (2) Silk worm moth : Sericulture
  - (3) Silver fish : Silviculture
  - (4) Fish : Pisciculture
59. Huntington's chorea has more chances of affecting the bearer of the gene than those possessing Cystic Fibrosis gene because it is caused by a :
- (1) dominant allele
  - (2) recessive allele
  - (3) co dominant genes
  - (4) multiple alleles
60. Amniocentesis and Chorionic villi sampling are screening techniques wherein :
- (1) base sequence of DNA is checked
  - (2) chromosomes are observed and counted
  - (3) resting nuclei are cytochemically analysed
  - (4) fluid containing dividing nuclei is separated and analysed
61. Choose the correct option.  
Broad Spectrum antibiotics do not :
- (1) halt microbial growth
  - (2) kill target bacteria
  - (3) destroy wide range of bacteria
  - (4) kill pathogenic viruses
62. Of the following, the one which is not used as a vector for inserting genes to raise transgenic organisms is :
- |                                |                                      |
|--------------------------------|--------------------------------------|
| (1) Plasmid                    | (2) Bacteriophage                    |
| (3) <i>Penicillium notatum</i> | (4) <i>Agrobacterium tumefaciens</i> |

63. Which one of the following pair of terms is not synonymous ?
- (1) Recombinant DNA technology and Genetic Engineering
  - (2) Genetically modified crops and Transgenic crops
  - (3) Restriction enzyme and Restriction endonuclease
  - (4) Virus and bacteriophage
64. Eutrophication does not result in :
- (1) Algal bloom
  - (2) Increase in aerobic decomposers
  - (3) Death of aerobic organisms, such as fish
  - (4) Increase in chlorine content of water
65. Natality means :
- (1) Net increase in the population
  - (2) Net decrease in the population
  - (3) Production of new individuals in the population
  - (4) No change in the population
66. The process by which eventual fate of a population of cells is altered because of interaction with neighbouring cells is called :
- (1) Embryonic induction
  - (2) Delamination
  - (3) Stem cell culture
  - (4) Morphogenesis
67. Courtship behaviour between male and female stickleback fishes in spring is an example of environmental cues triggering :
- |                           |                      |
|---------------------------|----------------------|
| (1) Territorial behaviour | (2) Innate behaviour |
| (3) Learned behaviour     | (4) Reflex action    |



75. The term which explains the evolution of similar features in organisms of two different stocks is :
- (1) Adaptive Radiation                      (2) Macro evolution  
(3) Convergent evolution                      (4) Divergent evolution
76. GM crops, Bt cotton and Bt brinjal are called so because :
- (1) they produce a toxin which kills boll worms  
(2) they possess a gene responsible for producing a toxin which kills boll worms  
(3) they have recombinant DNA from target crop and a bacterium  
(4) they are named after the bacterium from whom they received a particular gene through genetic engineering
77. In the alcoholics, liver cirrhosis sets in due to the deposition in the hepatic cells, of :
- (1) fat                      (2) protein                      (3) starch                      (4) alcohol
78. When red blood cells are stacked together they :
- (1) crenate                      (2) burst  
(3) form a rouleaux                      (4) form a column of blood
79. Which forms the subsidiary circulatory system ?
- (1) Mucus                      (2) Serum                      (3) Hormones                      (4) Lymph
80. The term used for inadequacy of oxygen in blood is :
- (1) Anoxia                      (2) Hypoxia                      (3) Asphyxia                      (4) Anorexia
81. When impulse arrives at the synapse it first :
- (1) triggers entry of calcium ions  
(2) releases Acetylcholine  
(3) depolarises pre synaptic membrane  
(4) depolarises post synaptic membrane

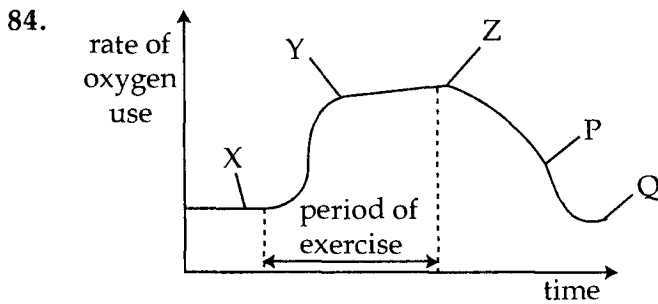
82. The *incorrect* statement about the part of chromosome labelled ⊗ in the diagram given below is :



- (1) it is called primary constriction
- (2) it divides at mitotic anaphase
- (3) it is an indispensable part of the chromosome
- (4) it contains DNA, RNA and proteins

83. One of the following is not a consequence of global warming :

- (1) Melting Ice caps
- (2) Hurricanes
- (3) Ozone depletion
- (4) Drought



The graph shows rate of oxygen use by a person. The point at which lactic acid concentration will be highest is :

- (1) Y
- (2) Z
- (3) P
- (4) Q

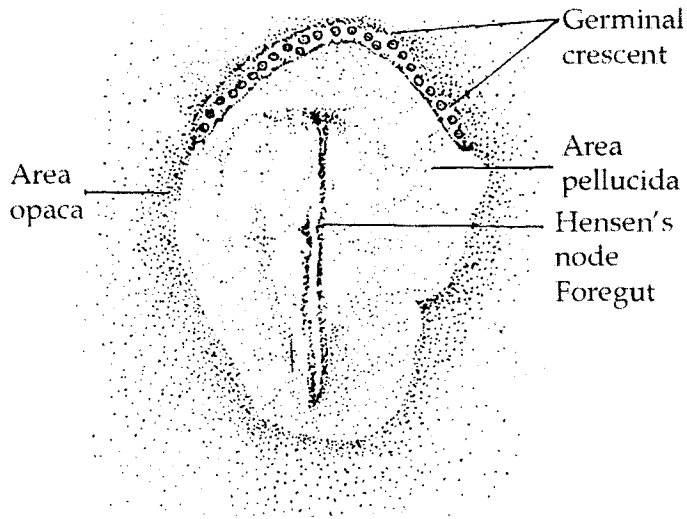
85. The allele for right handedness is H and that for left handedness is h. The chances of offspring inheriting left handedness from two left handed parents is :

- (1) 25%
- (2) 50%
- (3) 75%
- (4) 100%



86. The amount of DNA in the renal cells of a calf was estimated to be 6.4 picograms. The DNA amount in its RBC and sperms would respectively be :
- (1) 6.4 and 3.2 picograms                      (2) zero and 3.2 picograms  
(3) 3.2 and 3.2 picograms                      (4) 6.4 and 6.4 picograms
87. The ageing of a lake is accelerated by addition of effluents from homes and industries. This is termed :
- (1) senescence                                      (2) bioaccumulation  
(3) biomagnification                              (4) eutrophication
88. The inheritance pattern of ABO blood group shows :
- (1) only dominance  
(2) only co dominance  
(3) dominance, co dominance and multiple allelism  
(4) dominance, co dominance and pleiotrophy
89. If 1,000,000 joules of sunlight is available, the energy available to the tertiary consumer will be :
- (1) 10 J                      (2) 100 J                      (3) 1000 J                      (4) 10,000 J
90. One of the enzymes which is not involved in DNA replication is :
- (1) Ligase                                      (2) Endonuclease  
(3) DNA Polymerase                      (4) Lyase
91. The true statement regarding human embryonic development is :
- (1) no developmental event occurs in the fallopian tube  
(2) Cleavage begins after zygote implants in the uterus  
(3) The epiblast cells form the placenta  
(4) Inner cell mass of blastocyst eventually become the foetus

92.



The diagram shown above is :

- (1) the primitive streak stage of chick embryo
- (2) the neural fold stage of chick embryo
- (3) 25 - 26 hour old chick embryo
- (4) chick embryo after 10 hours incubation

93. When the lac operon is switched on, RNA polymerase recognises and attaches to the site of :

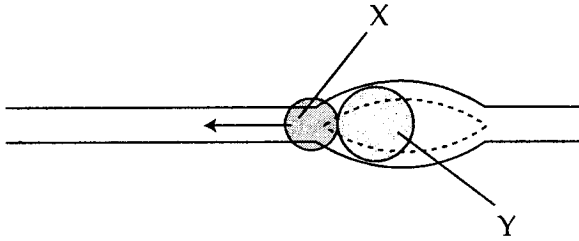
- |                        |                                |
|------------------------|--------------------------------|
| (1) Regulator (i) gene | (2) Promoter (p) gene          |
| (3) Operator (o) gene  | (4) Structural (z, y, a) genes |

94. DDT was found to accumulate in the phytoplankton, zooplankton, small fish, large fish and predatory bird which comprised a food chain. The maximum and minimum amounts of DDT were found in :

- (1) Large fish and small fish
- (2) Predatory bird and phytoplankton
- (3) Phytoplankton and zooplankton
- (4) Large fish and predatory bird



99.



The above diagram shows DNA replication. Two enzymes involved in the process are marked X and Y. Y is DNA polymerase. The name and function of X is :

- (1) Helicase : unwinds helix and breaks H-bonds
- (2) Helicase : holds unzipped strands tight
- (3) Topoisomerase : helps to form sugar - phosphate bonds
- (4) Ligase : Joins complementary bases

100. The site for TCA cycle in the mitochondria is :

- (1) Space between the two mitochondrial membranes
- (2)  $F_1$  particles
- (3) Mitochondrial matrix
- (4) Cristae

101. Which of the following belongs to Archaeobacteria ?

- (1) *Sulfolobus*      (2) *Agrobacterium*      (3) *Salmonella*      (4) *Escherichia coli*

102. Which one of the following viruses has RNA as its genome ?

- (1) HIV      (2) Epstein-Barr virus  
(3) Polyoma      (4) Human Papilloma viruses

103. The organisation which publishes the 'Red Data Book' is :

- (1) National Wildlife Action Plan
- (2) Convention on International Trade in Endangered species of Wild Fauna and Flora
- (3) International Union for conservation of Nature and Natural Resources
- (4) International Panel of Climate Change

104. Green Belt refers to :

- (1) Forest cover
- (2) Area demarcated around cities and towns to reduce noise and pollution
- (3) Protected areas in forests
- (4) Terai forest region

105. Ethylene, a growth regulator is used for :

- (1) Retarding ripening of tomatoes
- (2) Speeding up ripening of fruits
- (3) Slowing down ripening of apples
- (4) Both (2) and (3)

106. Iatropalynology is the science of study of :

- (1) Pollen grains of honey
- (2) Pollen grains causing allergy
- (3) Toxic pollen grains of honey
- (4) Fossil pollen flora

107. Chromosome number of an ovule in a gymnospermous plant is 8. What would be the chromosome number of its endosperm ?

- (1) 8                      (2) 16                      (3) 24                      (4) 32

108. Which one of these produce seeds without fruit ?

- (1) *Pisum*                      (2) *Cycas*                      (3) *Casuarina*                      (4) *Opuntia*

109. Tapetum occurs in the microsporangial wall between :

- (1) Epidermis and Endothecium
- (2) Endothecium and middle layers
- (3) Epidermis and Exothecium
- (4) Middle layers and sprogenous tissue

110. Quantosomes occur on the surface of :

- (1) Cristae
- (2) Plasmalemma of chloroplasts
- (3) Endoplasmic reticulum
- (4) Thylakoids

111. If the anthers and the stigma mature at different times, this condition is known as :

- (1) Dicliny
- (2) Dichogamy
- (3) Protogyny
- (4) Herkogamy

112. An antitranspirant used by farmers is :

- (1) Phenyl mercuric acid
- (2) Abscisic acid
- (3) Salicylic acid
- (4) All the above

113. A trihybrid cross is made in yeast, both the parents have a genotype of AaBbCc. What proportion of the offspring will be of genotype aabbcc ?

- (1) 0
- (2) 1/4
- (3) 1/16
- (4) 1/64

114. *Pinus* wood is non-porous, and is characterised by :

- (1) Absence of companion cells
- (2) Absence of vessels
- (3) Presence of tracheids
- (4) Absence of tracheids

115. *Welwitschia mirabilis* is found in :

- (1) Deserts of Rajasthan
- (2) Andaman islands
- (3) Coastal region of Namibia
- (4) Coastal region of Western Australia

116. In most of the intervarietal and interspecific crosses, embryos fail to form because :

- (1) of pollination which does not takes place
- (2) of failure of anther formation
- (3) of failure of endosperm formation
- (4) of failure of ovule formation

117. 'Heeng' or Asafoetida is latex obtained from :

- (1) stem of *Euphorbia tirucalli*
- (2) stem of *Manihot esculentum*
- (3) roots of *Ferula*
- (4) roots of *Euphorbia hirta*

118. Gynoecium of Fabaceae is :

- (1) Bicarpellary syncarpous
- (2) Polycarpellary apocarpous
- (3) Polycarpellary syncarpous
- (4) Monocarpellary

119. Peepal and *Ficus benghalensis* often grow in cracks of walls/drain pipes because their seeds are dispersed by :

- (1) Wind                      (2) Rain                      (3) Ants                      (4) Birds

120. Wind pollinated flowers are :

- (1) white in colour and less in number
- (2) bright coloured and scented
- (3) white in colour and more in number
- (4) bright coloured and large

121. Bt in popular Bt-Brinjal and Bt-Cotton stands for :

- (1) Biotechnically Produced
- (2) *Bacillus tomentosa*
- (3) *Bacillus thuringiensis*
- (4) Biologically tested

122. DNA finger printing technique is developed by :

- (1) Jeffreys and his co-workers
- (2) Boysen and Jensen
- (3) Edwards and Steptoe
- (4) Schleiden and Schwann

123. Which one is *not* a terminator codon ?

- (1) UAA
- (2) UAG
- (3) AUG
- (4) UGA

124. Barr bodies result from :

- (1) inactivation of one X chromosome by the Y chromosome
- (2) a third X chromosome
- (3) inactivation of one X chromosome for dosage compensation
- (4) inactivation of Y chromosome by the X chromosome

125. Which of the following scientists shared the Nobel prize with Watson and Crick for DNA structure ?

- (1) Rosalind Franklin
- (2) Pauling
- (3) Wilkins
- (4) Khorana



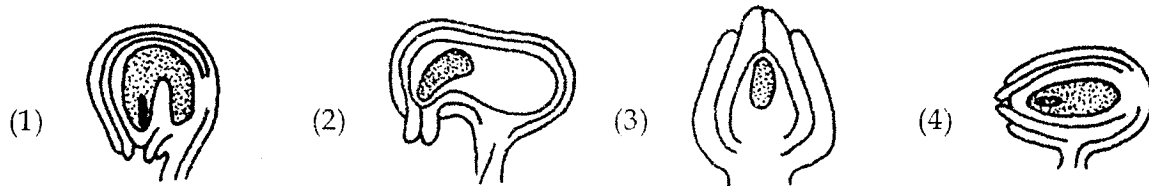
126. Three genes I G U show crossing over 20% between I and G, 28% between G and U and 8% between I and U. Sequence of genes will be :

- (1) GIU                      (2) IGU                      (3) IUG                      (4) None is correct

127. Which is the correct match in the following ?

- (1) Sickle cell anemia - X - chromosome  
(2) Down's syndrome - 21<sup>st</sup> chromosome  
(3) Haemophilia - Y - chromosome  
(4) Parkinson's disease - X and Y chromosomes

128. Which of the following is amphitropous ovule ?



129. Sexually reproducing organism can contribute to their offsprings :

- (1) All of the genes  
(2) One half of their genes  
(3) One fourth of their genes  
(4) Double the number of genes

130. During Iraq - America conflict, which of these were reportedly used as bioweapon ?

- (1) *Yersinia (Pasteurella) pestis*  
(2) *Bacillus anthracis*  
(3) *Streptococcus pyogenes*  
(4) *Treponema pallidum*



136. Alternate name of heartwood is :

- (1) Duramen (2) Alburnum  
(3) Primary Xylem (4) Spring wood

137. Three types of flowers occur in the inflorescence type of :

- (1) Capitulum (2) Hypanthodium  
(3) Cyathium (4) Umbel

138. A fruit without seed is not possible in case of :

- (1) Grape (2) Orange (3) Pomegranate (4) Berry

139. Trihybrid ratio is :

- (1) 27 : 9 : 9 : 9 : 3 : 3 : 3 : 1 (2) 27 : 9 : 9 : 6 : 6 : 3 : 3 : 1  
(3) 1 : 6 : 15 : 20 : 15 : 6 : 1 (4) 36 : 6 : 6 : 6 : 3 : 3 : 3 : 1

140. In which of these archegonium is present ?

- (1) *Spirogyra* (2) *Funaria* (3) *Rhizopus* (4) *Fucus*

141. The spread of genes from one breeding population to another by migration which may result in changes in gene frequency is called :

- (1) Genetic Drift (2) Gene Flow  
(3) Gene Frequency (4) None of the above

142. Secondary cortex cuts off from :

- |                          |               |
|--------------------------|---------------|
| (1) Intercalary meristem | (2) Protoderm |
| (3) Procambium           | (4) Phellogen |

143. Botanically Ragi is known as :

- |                              |                                 |
|------------------------------|---------------------------------|
| (1) <i>Avena Sativa</i>      | (2) <i>Sorghum Vulgare</i>      |
| (3) <i>Eleusine Coracana</i> | (4) <i>Pennisetum typhoides</i> |

144. Which one of the following is known as pond scum :

- |                      |                     |                     |                   |
|----------------------|---------------------|---------------------|-------------------|
| (1) <i>Spirogyra</i> | (2) <i>Ulothrix</i> | (3) <i>Anabaena</i> | (4) <i>Nostoc</i> |
|----------------------|---------------------|---------------------|-------------------|

145. National Botanical Research Institute is situated in :

- |               |             |             |                |
|---------------|-------------|-------------|----------------|
| (1) Bangaluru | (2) Kolkata | (3) Lucknow | (4) Ootacamand |
|---------------|-------------|-------------|----------------|

146. Bacteria (Monera) lack alternation of generations because there is :

- (1) Absence of syngamy and reduction division
- (2) Distinct chromosomes are absent
- (3) No conjugation
- (4) No exchange of genetic material

147. Mushroom is a :

- |                          |                       |
|--------------------------|-----------------------|
| (1) Saprophyte           | (2) Epiphyte          |
| (3) Facultative Parasite | (4) Obligate Parasite |

148. The deadliest mushroom is :

- |                      |                        |
|----------------------|------------------------|
| (1) <i>Agaricus</i>  | (2) <i>Amanita</i>     |
| (3) <i>Pleurotus</i> | (4) <i>Volvariella</i> |

149. A new genus of conifer is recently described from Australia and is also a 'living fossil', the name is :

- (1) *Metasequoia glyptostroboides*                      (2) *Wollemia nobilis*  
(3) *Ginkgo biloba*    (4) *Cycas Circinalis*

150. If the haploid number of chromosomes in a gymnosperm is 11, their number in endosperm cell would be ?

- (1) 22                      (2) 11                      (3) 33                      (4) 44
-