

018/2021

Question Booklet
Alpha Code

A

Question Booklet
Serial Number

Total No. of Questions : 100

Maximum : 100 Marks

Time : 75 Minutes

INSTRUCTIONS TO CANDIDATES

1. The question paper will be given in the form of a Question Booklet. There will be four versions of question booklets with question booklet alpha code viz. A, B, C & D.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the question booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a question booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator IMMEDIATELY.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your question booklet is un-numbered, please get it replaced by new question booklet with same alpha code.
6. The question booklet will be sealed at the middle of the right margin. Candidate should not open the question booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the question booklet supplied to him contains all the 100 questions in serial order. The question booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. Blank sheets of paper is attached to the question booklet. These may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball-Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

018/2021-A



1. Which among the following is an example for cytokinin ?
 (A) Phenylacetic acid
 (B) Phosphon D
 (C) Dihydrozeatin
 (D) 2-methoxy-3, 6-dichlorobenzoic acid
2. The active site of Rubisco contains _____ ion.
 (A) Magnesium
 (B) Potassium
 (C) Copper
 (D) Zinc
3. Which is the oldest carbon-14 dated seed that has grown into viable plant ?
 (A) *Nelumbo nucifera*
 (B) *Archaeofructus liaoningensis*
 (C) *Michelia champaka*
 (D) *Silene stenophylla*.
4. C-4 epimer of D-glucose is _____
 (A) Mannose
 (B) Arabinose
 (C) Allose
 (D) Galactose
5. Match the following correctly :

Set – A	Set – B
(a) non-polar aminoacid	i. lysine
(b) aromatic aminoacid	ii. proline
(c) positively charged aminoacid	iii. cysteine
(d) polar aminoacid	iv. tryptophan
(A) a-ii, b-iv, c-i, d-iii	(B) a-iii, b-i, c-iv, d-ii
(C) a-ii, b-iv, c-iii, d-i	(D) a-iv, b-iii, c-ii, d-i.
6. Which among the following is a molybdenum requiring enzyme ?
 (A) Urease
 (B) Cytochrome oxidase
 (C) Dinitrogenase
 (D) Pyruvate kinase
7. Which among the following is used for polymerization agent in PAGE ?
 (A) Ammonium persulfate
 (B) Sodium dodecyl sulfate
 (C) Mercaptoethanol
 (D) Sodium hydroxide
8. Smallest genome size is seen in _____
 (A) *E. coli*
 (B) *Helicobacter pylori*
 (C) *Carsonella ruddii*
 (D) *Saccharomyces cerevisiae*
9. Which human chromosome has the highest number of genes ?
 (A) X chromosome
 (B) Y chromosome
 (C) Chromosome 1
 (D) Chromosome 8
10. A human with a karyotype of 48, XXXY is an example for _____
 (A) Turner's syndrome
 (B) Klinefelter's syndrome
 (C) Down's syndrome
 (D) Triplo X

11. Match the following correctly :

- | Set – A | | Set – B | |
|----------------------------|------|---------------------------------|--|
| (a) Fumonisin | i. | <i>Aspergillus falvus</i> | |
| (b) Aflatoxin | ii. | <i>Claviceps purpurea</i> | |
| (c) Ergot toxin | iii. | <i>Amanita phalloides</i> | |
| (d) Mushroom toxin | iv. | <i>Fusarium verticillioides</i> | |
| (A) a-ii, b-iv, c-i, d-iii | | (B) a-iv, b-i, c-ii, d-iii | |
| (C) a-ii, b-iv, c-iii, d-i | | (D) a-iv, b-iii, c-ii, d-i. | |

12. Pick out the wrong statement.

- (A) Clamp connections are seen in Basidiomycota
- (B) Dolipore septum is present in Basidiomycota
- (C) Fairy rings are formed by *Agaricus*
- (D) Genus *Pilobolus* belongs to Ascomycota

13. Find out the correct statement about lichens.

- (A) *Cladonia* is an example for foliose lichen
- (B) Isidia is an asexual reproductive structure
- (C) Soredia are sexual reproductive structures
- (D) Cyanophycophilous lichen has green algae as phycobiont

14. Which among the following statements is correct about algae ?

- (A) Branched filaments are seen in *Zygnema*
- (B) *Oedogonia* thallus is branched
- (C) Branched thallus is present in *Cladophora*
- (D) Thallus is branched in *Ulothrix*.

15. Match the following.

- | Set – A | | Set – B | |
|----------------------------|------|-----------------------------|--|
| (a) Hormogonia | i. | <i>Polysiphonia</i> | |
| (b) Amylum stars | ii. | <i>Lyngbya</i> | |
| (c) Tetraspores | iii. | <i>Vaucheria</i> | |
| (d) Synzoospore | iv. | <i>Chara</i> | |
| (A) a-ii, b-iii, c-i, d-iv | | (B) a-ii, b-iv, c-i, d-iii | |
| (C) a-ii, b-iv, c-iii, d-i | | (D) a-iv, b-iii, c-i, d-ii. | |

16. Heterospory is present in _____

- (A) *Isoetes*
- (B) *Azolla*
- (C) *Selaginella*
- (D) All the above

17. Which among the following is the commonly cultivated 'Maidenhair fern' ?

- (A) *Adiantum*
- (B) *Pteridium*
- (C) *Gleichenia*
- (D) *Equisetum*

18. Which among the following produces Interferon- β (IFN- β) ?

- (A) Leucocytes
- (B) Sensitized T cells
- (C) Fibroblasts
- (D) Natural killer cells

19. Polyembryony is found in
 (A) Citrus (B) Maize
 (C) Kiwi (D) All the above
20. Which among the following is an example for crop species introduced in India ?
 (A) Cabbage (B) Cauliflower
 (C) *Hevea brasiliensis* (D) All the above.
21. Pick out the wrong statement :
 (A) Selfing reduces homozygosity
 (B) Inbreeding depression is absent on self pollinated crops
 (C) Heterosis is the superiority of F1 hybrids over both of its parents
 (D) Selfing decreases heterozygosity
22. The new plant species from West Bengal named after former President of India Dr APJ Abdul Kalam belongs to the genera _____
 (A) *Oryza* (B) *Drypetes*
 (C) *Santalum* (D) *Eriocaulon*
23. Which among the following is not related with family *Orchidaceae* ?
 (A) Resupination (B) Follicle
 (C) Pollinium (D) Rostellum
24. Which Indian state has got highest area under mangrove forest ?
 (A) West Bengal (B) Kerala
 (C) Gujarat (D) Tamil Nadu
25. The height in cm of 11 plants are given below. Which is the median height ?
 16, 17, 10, 14, 20, 8, 22, 31, 5, 10, 13.
 (A) 10 (B) 15
 (C) 14 (D) 17
26. Covid-19 genome is _____
 (A) Single stranded DNA (B) Single stranded RNA
 (C) Double stranded RNA (D) Double stranded DNA
27. Match the following :
- | Set – A | | Set – B | |
|-----------------------|-------------|----------------------------|----------------------------|
| (a) Western blotting | i. DNA | (A) a-ii, b-i, c-iv, d-iii | (B) a-ii, b-iv, c-iii, d-i |
| (b) Southern blotting | ii. Protein | (C) a-ii, b-iv, c-i, d-iii | (D) a-iv, b-iii, c-i, d-ii |
| (c) Northern blotting | iii. PCR | | |
| (d) Taq polymerase | iv. RNA | | |
28. Which among the following points is not correct about bryophytes ?
 (A) Air chambers and air pores are absent in Anthocerotopsida
 (B) The archesporium is endothecial in origin in Hepaticopsida
 (C) Sporogenous tissue is amphithecial in origin in Anthocerotopsida
 (D) Oblique septa is absent in the rhizoids of bryopsida

29. Which of the following families have anomocytic type of stomata ?
 (A) Rubiaceae (B) Cruciferae
 (C) Ranunculaceae (D) Caryophyllaceae
30. Find out the neutral stain.
 (A) Safranin (B) Giemsa stain
 (C) Methyl blue (D) Ferric sulphate
31. Find out the wrong statement about geological time scale from the following :
 (A) Holocene epoch belongs to Quaternary period
 (B) Cretaceous period belongs to Mesozoic era
 (C) Devonian period belongs to Palaeozoic era
 (D) Silurian period is belongs to Mesozoic era
32. Find out the correct answer related with *Trichopus zeylanicus* from the following statements :
 i. It has anti-fatigue property
 ii. Fruits and leaves are used
 iii. It belongs to Dioscoreaceae family
 iv. It is used by Kani tribes of Western Ghats.
 (A) Only i & iv correct. (B) i, ii, iii & iv correct
 (C) i, iii & iv only correct (D) ii & iv only correct
33. Which among the following is not the main goal of the Convention on Biological Diversity (CBD) ?
 (A) Eliminating hunger and improving nutrition and standards of living by increasing agricultural productivity.
 (B) Share any benefits from genetic diversity equally
 (C) Use of diversity without destroying it
 (D) To protect biodiversity
34. Match the following :
- | Set – A | | Set – B | |
|----------------------------|------|----------------------------|--|
| (a) Chilgoza | i. | Tumboa | |
| (b) Sagopalm | ii. | <i>Pinus gerardiana</i> | |
| (c) Maidenhairtree | iii. | <i>Cycas revoluta</i> | |
| (d) Welwitschia | iv. | <i>Ginkgo biloba</i> | |
| (A) a-iv, b-iii, c-ii, d-i | | (B) a-iv, b-iii, c-i, d-ii | |
| (C) a-ii, b-iii, c-iv; d-i | | (D) a-iii, b-i, c-iv, d-ii | |
35. Which bacteria produce the antibiotic Chloramphenicol ?
 (A) *Streptomyces venezuelae* (B) *Streptomyces fradiae*
 (C) *Streptomyces rimosus* (D) *Pencillium* sp.
36. Which among the following is the binomial for black gram ?
 (A) *Vigna radiata* (B) *Vigna unguiculata*
 (C) *Vigna mungo* (D) *Cajanus cajan*
37. Perianth in Poaceae is represented by
 (A) Lema (B) Lodicules
 (C) Palea (D) glume

38. DNA topoisomerase V is reported in
 (A) *Bacillus subtilis* (B) *Methanopyrus kandleri*
 (C) *Thiobacillus denitrificans* (D) *Micrococcus luteus*
39. Which among the following is a stop codon in vertebrate mitochondrial DNA ?
 (A) UUU (B) AGA
 (C) UGA (D) GUC
40. Find out the advantage of haploids from the following.
 (A) High vigour (B) Mutations can be easily detected
 (C) Sterility (D) Expression of dominant alleles
41. Choose the name of chemicals used in somatic hybridization technique.
 (A) PEG (B) Hemicellulase
 (C) Sorbitol (D) All the above
42. Who among the following coined the term bioinformatics ?
 (A) Younan Nowzardan (B) Pauline Hogeweg
 (C) David J Lipman (D) M Gromiha
43. Which among the following is a nucleotide data base ?
 (A) DDBJ (B) PDB
 (C) BLAST (D) Pylip
44. In which plant corm is present ?
 (A) Sweet potato (B) Cassava
 (C) Coleus (D) Gladiolus
45. The grass species *Agrostis tenuis* is an example for _____ speciation.
 (A) Sympatric speciation (B) Allopatric speciation
 (C) Parapatric speciation (D) Peripatric speciation
46. Choose a stenopalynous plant family from the following :
 (A) Graminieae (B) Verbenaceae
 (C) Rubiaceae (D) Asteraceae
47. Black dammer is obtained from
 (A) *Vateria indica* (B) *Pterocarpus marsupium*
 (C) *Pterocarpus santalinus* (D) *Canarium strictum*
48. The chromosomes are arranged at the metaphase plate by a process called-
 (A) Congression (B) Centromere splitting
 (C) Microtubule pulling (D) Microtubule pushing
49. Which among the following is a microfilament ?
 (A) Acidic keratins (B) Desmin
 (C) Vimentin (D) Actin
50. What is the causative organism for soft rot of ginger ?
 (A) *Phytophthora capsici* (B) *Hemileia vastatrix*
 (C) *Pythium aphanidermatum* (D) *Phytophthora palmivora*

51. Which of the following hormones affect Na^+ , Cl^- , Ca^{2+} and water reabsorption and K^+ secretion by renal tubules ?

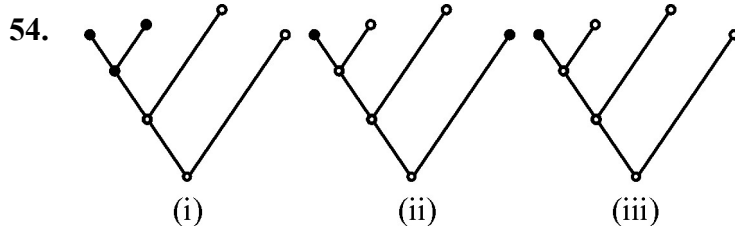
- (i) Angiotensin II
 - (ii) Aldosterone
 - (iii) ADH
 - (iv) Atrial natriuretic peptide
 - (v) Thyroid hormone
 - (vi) Parathyroid hormone
- (A) (ii), (iii), (iv), (v) & (vi) (B) (i), (ii), (iii), (iv) & (vi)
 (C) (i), (ii), (iii), (v) & (vi) (D) (i), (iii), (iv), (v) & (vi)

52. Aminoacyl tRNAs are escorted to the ribosome by the elongation factor

- (A) EF-T_u (B) eEF-2
 (C) EF-T_s (D) EF-G

53. A set of statistical methods (Column A) and their applications (Column B) in a random manner are given below :

Column – A	Column – B
1. Variance	a. Measures strength of association between two variables
2. Correlation coefficient	b. Prediction of value of a dependent variable based on known value of an associated variable
3. Regression analysis	c. Calculation of deviation between observed & expected values
4. Chi-square analysis	d. Calculate the spread of distribution
(A) 1-b; 2-d; 3-a; 4-c	(B) 1-c; 2-b; 3-d; 4-a
(C) 1-d; 2-a; 3-b; 4-c	(D) 1-a; 2-c; 3-b; 4-d



Which of the following is the correct definition for the character evolution patterns shown above ?

- (A) (i) – Autapomorphy ; (ii) – Synepomorphy ; (iii) – Homoplasy
 (B) (i) – Autapomorphy ; (ii) – Homoplasy ; (iii) – Synepomorphy
 (C) (i) – Synepomorphy ; (ii) – Autapomorphy ; (iii) – Homoplasy
 (D) (i) – Synepomorphy ; (ii) – Homoplasy ; (iii) – Autapomorphy

55. Which of the following events will NOT lead to transformation of a normal cell into a cancer cell ?
- (A) Gain of function of oncogenes
 - (B) Loss of function of tumor suppressors
 - (C) Gain of function of genes involved in nucleotide excision repair
 - (D) Loss of function of pro-apoptosis related genes
56. What can be the impact of excessive use of nitrogenous fertilizers in agriculture ?
- (i) Proliferation of nitrogen fixing microorganism in soil can occur
 - (ii) Increase in the acidity of soil can occur
 - (iii) Leaching of nitrate to the ground water can occur
- Select the correct one.
- (A) (i) & (iii) only
 - (B) (ii) only
 - (C) (ii) & (iii) only
 - (D) (i), (ii) & (iii)
57. Which of the following is NOT a chromosomal anomaly ?
- (A) Cri du Chat syndrome
 - (B) Jacob's syndrome
 - (C) Proteus syndrome
 - (D) Patau syndrome
58. Baula project is meant for
- (A) Turtles
 - (B) Snow leopard
 - (C) Lion
 - (D) Crocodiles
59. Which one of the following does NOT contribute to micro-evolutionary change ?
- (A) Natural selection
 - (B) Random mating
 - (C) Genetic drift
 - (D) Mutation
60. Choose the agent that can cause relaxation of mesangial cells.
- (A) Dopamine
 - (B) Histamine
 - (C) Thromboxane A₂
 - (D) Norepinephrine
61. Which one of the following does not belong to human antimicrobial proteins and Peptides at epithelial surfaces forming part of innate immunity ?
- (A) Lactoferrin
 - (B) Defensin
 - (C) Calprotectin
 - (D) Vimentin
62. Alveolar cells of the lung derived from
- (A) Ectoderm
 - (B) Mesoderm
 - (C) Endoderm
 - (D) Both Ectoderm & Mesoderm
63. Entry of enveloped viruses into host cells is mediated by
- (A) Only endocytosis
 - (B) Only pericytosis
 - (C) Both endocytosis and membrane fusion
 - (D) Both endocytosis and phagocytosis

64. Which one of the following is NOT true for cholesterol metabolism ?
- (A) Biosynthesis takes place in the cytoplasm.
 - (B) HMG-CoA reductase is the key regulator of cholesterol biosynthesis.
 - (C) Reduction reactions use NADH as cofactor.
 - (D) Cholesterol is transported by LDL in plasma.
65. If a cell has committed to a particular fate, during development, it is said to be
- (A) Differentiated
 - (B) Totipotent
 - (C) Pluripotent
 - (D) Determined
66. Lacewings belong to which insect order ?
- (A) Diptera
 - (B) Neuroptera
 - (C) Megaloptera
 - (D) Coleoptera
67. Which gas does NOT contribute to global warming through its greenhouse effect ?
- (A) Nitrous oxide
 - (B) Methane
 - (C) Carbon dioxide
 - (D) Nitric oxide
68. Lectotype is
- (A) Duplicate of holotype
 - (B) Specimen selected from original material for nomenclature type where there is no holotype
 - (C) Specimen described along with holotype
 - (D) Specimen cited by author making one holotype
69. Which of the following geological period is known as the “Age of Amphibians” ?
- (A) Carboniferous
 - (B) Devonian
 - (C) Ordovician
 - (D) Cretaceous
70. Which of the following is NOT a second messenger ?
- (A) Cyclic GMP
 - (B) Diacylglycerol
 - (C) Inositol triphosphate
 - (D) Phosphatidylinositol
71. Which of the following statements is true ?
- (A) Trademark registrations can be renewed for an unlimited number of 10 years.
 - (B) Trademark law is intended to protect the owner’s original work.
 - (C) Surnames alone can be trademarked.
 - (D) To qualify for federal protection, a mark must be distinctive and have a “secondary meaning”.
72. What is the effect produced when a bee carries pollen from one population to another ?
- (A) Assortative mating
 - (B) Gene flow
 - (C) Founder effect
 - (D) Diversifying selection
73. GFP protein was originally isolated from
- (A) Drosophila melanogaster
 - (B) Carnorhabditis elegans
 - (C) Arabidopsis thaliana
 - (D) Aequoria victoria

74. The S wave of normal human ECG originates due to the
- (A) Left to right septal depolarization
 - (B) Repolarization of atrium
 - (C) Septal and left ventricular depolarization
 - (D) Late depolarization of the ventricular walls moving back toward the AV junction
75. Two siblings who inherit 50% of the genome from the mother and 50% from the father show lots of phenotypic differences. Which one of the following events during gametogenesis of the parents will maximally contribute to this difference ?
- (A) Mutation
 - (B) Independent assortment
 - (C) Recombination
 - (D) Environment
76. Nick translation is done by
- (A) DNA polymerase I
 - (B) Kinase
 - (C) DNA ligase
 - (D) DNA polymerase II
77. The Philadelphia chromosome
- (A) An example of gene amplification
 - (B) A product of a reciprocal translocation
 - (C) Causes retinoblastoma
 - (D) Causes Burkitt's lymphoma
78. Which of the following is true regarding Anthrax ?
- (A) Anthrax is highly contagious
 - (B) Anthrax is caused by a virus
 - (C) Inhalation anthrax requires infection with a large number of spores
 - (D) Inhalation anthrax and cutaneous anthrax are caused by separate strains of Bacillus anthracis
79. Capacitation of sperms in humans
- (A) Takes place in the ampulla of the oviduct
 - (B) Occurs during copulation
 - (C) Occurs after the acrosome reaction
 - (D) Takes place in the epididymis of testis
80. Which one of the following technique is generally used to produce transgenic animals ?
- (A) Entire foreign nucleus is introduced in enucleated unfertilized egg.
 - (B) Desired DNA is microinjected into fertilized eggs followed by implantation of embryo in a foster mother
 - (C) Processed mRNA containing only exons are introduced into blastocyst stage embryo.
 - (D) cDNA of desired gene is introduced into animal embryos and implanted in a foster mother

- 81.** Tautonym is a taxonomic designation used for animals referring to
- (A) Same name for genes and species
 - (B) The name of the author for the species
 - (C) Same name for species and sub-species
 - (D) Trinomial nomenclature
- 82.** Which of the following programs is used to conserve a species facing extinction ?
- (A) Sustainable use
 - (B) Edge effects
 - (C) Natural resources
 - (D) Captive breeding
- 83.** Cladistic classification is based on
- (A) Sequential order in which branches arise from a phylogenetic tree
 - (B) Cellular organization and cytoskeleton
 - (C) Morphological features and skeleton of individuals
 - (D) The order of sequence divergence
- 84.** Which is the correct chronological order among the following events in the history of life ?
- (i) Prokaryotic cell
 - (ii) Eukaryotic cell
 - (iii) Natural selection
 - (iv) Organic molecules
 - (v) Self replicating molecules
- (A) (iv), (v), (iii), (i), (ii)
 - (B) (iv), (v), (i), (ii), (iii)
 - (C) (v), (iv), (i), (iii), (ii)
 - (D) (iv), (v), (i), (iii), (ii)
- 85.** A person suffering from thyrotoxicosis has extremely high level of thyroid hormone in blood. There is a failure of feedback regulation hypothalamic-pituitary-thyroid axis. The detailed blood investigation exhibited high level of the following :
- (i) Thyroid Stimulating Hormone
 - (ii) Thyroid Stimulating Immunoglobulin
 - (iii) Thyrotropin Releasing Hormone
 - (iv) Parathyroid Hormone
- Which one of the following is the reason for such thyrotoxicosis ?
- (A) (i) only
 - (B) (ii) only
 - (C) (i) & (iii)
 - (D) (iii) & (iv)
- 86.** Human serum immunoglobulin takes part in classical complement fixation pathway is
- (A) IgD
 - (B) IgE
 - (C) IgA
 - (D) IgG

87. The following are the statements regarding the development and maintenance of anterior and posterior compartments in each segment of *Drosophila* :
- (i) Expression of wingless and engrailed is activated by pair-rule genes.
 - (ii) Continued expression of wingless and engrailed is maintained by interaction between the cells expressing Engrailed and Wingless proteins
 - (iii) Hedgehog is expressed in wingless expressing cells and forms short range gradient
 - (iv) Hedgehog is a transcription factor
 - (v) Engrailed is a secretory factor and binds with the patched receptor of the wingless expressing cells.
- Which of the following combinations of above statements is correct ?
- (A) (iii) & (v)
 - (B) (iii), (iv) & (v)
 - (C) (iv) & (v)
 - (D) (i) & (ii)
88. Some *Drosophila* larvae are exposed to 37 °C during their growth. One of the adult flies first emerged had a crossveinless phenotype. Crossveinless is a known mutant in *Drosophila*. When this crossveinless fly was crossed to a known crossveinless mutant fly, all the progeny had a normal phenotype. The observed phenotype is an example of :
- (A) Phenocopy
 - (B) Pleiotropy
 - (C) Penetrance
 - (D) Conditional mutant
89. The International treaty adopted to regulate the production and use of chemicals that contribute to the depletion of Earth's ozone layer is known as :
- (A) Rio de Janeiro Conference
 - (B) Montreal Protocol
 - (C) The Vienna Convention
 - (D) The Kyoto Protocol
90. G. Protein Coupled Receptors (GPCRs) are used to detect and respond in many different types of signals and function as molecular switches. Regarding GPCR which one of the following statements is INCORRECT ?
- (A) The 'on' form gets bound to β & γ subunits and activates a membrane bound effects like adenylyl cyclase, phospholipase C or ion channel.
 - (B) GPCRs are coupled to trimeric G proteins comprising three subunits α , β & γ .
 - (C) The α subunit is a GTPase switch protein that alternates between an active (on) state with bound GTP and an inactive (off) state with GDP.
 - (D) GPCRs with a common structure of seven membrane spanning α helices.
91. Following are the key points about the effect of genetic drift :
- (i) Genetic drift can cause allele frequencies to change in a pre-directed way.
 - (ii) Genetic drift is significant in small populations
 - (iii) Genetic drift can lead to a loss of genetic variation within populations
 - (iv) Genetic drift can cause harmful alleles to become fixed.
- Which one of the following combinations are true ?
- (A) (i) & (ii) only
 - (B) (ii) & (iii) only
 - (C) (i), (ii) & (iii)
 - (D) (ii), (iii) & (iv)
92. Which of the following is a sequence alignment tool ?
- (A) BLAST
 - (B) PROSITE
 - (C) PIR
 - (D) PRINTS

93. What is the function of ω subunit of RNA polymerase ?
- (A) Cation binding (B) Promoter binding
(C) Initiation and elongation (D) Subunit association
94. Which one of the following statement is INCORRECT regarding the classification of stains ?
- (A) Bismark brown is a basic stains
(B) Janus green B and Methylene blue are examples of neutral stains
(C) Eosin is an acidic stain
(D) Neutral red and Janus green are vital stains
95. In eukaryotic cell division, metaphase to anaphase transition is regulated by degradation of
- (A) Aurora A Kinase (B) Cyclin B1
(C) CDK1 (D) Polo-like Kinase
96. Which of the following statements is INCORRECT in the context of diversity patterns of a species ?
- (A) Alpha diversity is diversity within a single community
(B) Beta diversity is a measure of the change in species composition from one community or habitat to another
(C) Alpha diversity is the regional diversity found among range of communities in a geographical region
(D) Gamma diversity is the regional diversity found among range of communities / habitats in a geographical region
97. Which of the following bacteria has subcellular localization in lysosomes ?
- (A) Salmonella typhi (B) Sheplococcus pneumoniae
(C) Vibrio cholerae (D) Mycobacterium tuberculosis
98. The presence & distribution of specific mRNAs within a cell can be detected by
- (A) Northern blot analysis (B) In situ hybridization
(C) Real time PCR (D) ELISA
99. The “Red Queen Hypothesis” is related to
- (A) The evolutionary arms race between the host and parasite.
(B) The mating order in the harem of a polygamous male
(C) The elimination by deleterious mutations by sexual reproduction
(D) Mate selectin process by a female in a lek
100. Production of excessive amount of corticotropin (ACTH) occur in which of the following diseases ?
- (A) Greve’s disease (B) Greig’s syndrome
(C) Cushing’s syndrome (D) Alport syndrome

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