

094/2018

Question Booklet
Alpha Code

A

Question Booklet
Serial Number

100337

Total Number of Questions : 100

Time : 75 Minutes

Maximum Marks : 100

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. A blank sheet of paper is attached to the question booklet. This 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.

SEA

094/2018

1. Which country will host the first International Solar Alliance Summit ?
(A) China (B) USA (C) Russia (D) India
2. The idea of Fundamental Duties of the Indian Constitution is derived from :
(A) Russian Constitution (B) British Constitution
(C) American Constitution (D) French Constitution
3. When is the Earth Day celebrated ?
(A) April 21 (B) April 22 (C) May 21 (D) May 22
4. Which national cricket team is called by "The Lions" ?
(A) Newzealand (B) Australia (C) Sri Lanka (D) Pakistan
5. Who is the founder of the socio religious movement Prathyaksha Raksha Daiva Sabha ?
(A) Poykayil Yohannan (B) Pandit K.P. Karuppan
(C) Ayya Vaikundar (D) Vagbhatanandan
6. Most area in India is covered by :
(A) Hills (B) Mountains (C) Plains (D) Plateaus
7. The first medical graduate from Ezhava community in Travancore is :
(A) G.P. Pillai (B) Velayudhan (C) Nataraja Guru (D) Dr. Palpu
8. Among the Five Year Plan of India which of the following period is known as Plan holiday ?
(A) 1969 to 1974 (B) 1966 to 1969 (C) 1965 to 1968 (D) 1961 to 1966
9. Name the committee, will be constituted by the Haryana Govt. to find out solution to polluted water flowing in Yamuna river.
(A) Ram Bilas Sharma Committee (B) Om Prakash Dhankar Committee
(C) Krishnalal Panwar Committee (D) Narbeer Singh Committee
10. "The whole universe is one mind. Between mind and mind there is no vacuum." Who said this ?
(A) Sree Narayana Guru (B) Ayyankali
(C) Brahmananda Sivayogi (D) Chattampi Swamikal
11. The country which is firstly decided to introduce Baby Olympics for children is :
(A) Bahrain (B) Greece (C) China (D) Japan

12. Stephen Hawking, the legendary theoretical physicist was died on :
(A) 12th March, 2018 (B) 13th March, 2018
(C) 14th March, 2018 (D) 15th March, 2018
13. The first Finance Minister of India who presented the Budget is :
(A) Charan Singh (B) Jawaharlal Nehru
(C) R.K. Shanmukham Chetty (D) Morarji Desai
14. Who among the following was a member of the Simon Commission ?
(A) Clement Atlee (B) Stanley Baldwin
(C) Neville Chamberlin (D) Strafford Cripps
15. The platform has been launched by the India Govt. on 2018 International Women's Day is :
(A) Women Literacy Platform (B) Women Entrepreneurship
(C) Women Power Platform (D) Women Combat Platform
16. Asiatic Society of Bengal was founded by :
(A) Raja Rammohan Roy (B) Surendranath Bannerjee
(C) C.F. Andrews (D) William Johns
17. Name the country to host the 2021 Champions Trophy and 2023 World Cup Cricket.
(A) Iran (B) South Africa (C) Pakistan (D) India
18. Who built the Khajuraho temples ?
(A) Chauhans (B) Chandelas (C) Bundelas (D) Satavahanas
19. "Balyakalasakhi", the famous romantic work in Malayalam by Vaikom Muhammed Basheer is a :
(A) Drama (B) Poetry (C) Novel (D) Short story
20. Thirunavaya, famous for Mamangam is located in the banks of the river :
(A) Bharathapuzha (B) Periyar (C) Pampa (D) Kabani
21. Hemidesmosomes are found :
(A) Between extracellular matrix and cell.
(B) Between two adjacent plant cells.
(C) Between two adjacent animal cells.
(D) Between bacterial membrane and cell wall.
22. Find the possible pathway for the production of a secondary protein.
(A) Secretory vesicles → Golgi apparatus → Ribosomes → Rough ER
(B) Rough ER → Ribosomes → Secretory vesicles → Golgi apparatus
(C) Rough ER → Secretory vesicles → Ribosomes → Golgi apparatus
(D) Ribosomes → Rough ER → Golgi apparatus → Secretory vesicles

23. Select the correct order from least to more complex.
- (A) Glucuronate, Hyaluronate, Proteoglycans, GAG chains
 - (B) Glucuronate, Hyaluronate, GAG chains, Proteoglycans
 - (C) Hyaluronate, Glucuronate, Proteoglycans, GAG chains
 - (D) Hyaluronate, Glucuronate, GAG chains, Proteoglycans
24. Bacterial operon contains three genes P, Q, R in the same order. If polar mutation occurs in gene Q then the effect in protein would be observed in :
- (A) All proteins P, Q, R
 - (B) Only in Q and R
 - (C) Only in Q
 - (D) Loss of all proteins
25. The function of Okazaki fragments is to elongate :
- (A) Lagging strand away from the replication fork
 - (B) Leading strand away from the replication fork
 - (C) Lagging strand towards the replication fork
 - (D) Leading strand towards the replication fork
26. In prokaryotes and eukaryotes DNA replication is initiated :
- (A) At multiple sites on each chromosome, with each site generating two replication fork.
 - (B) In a tightly regulated manner so that replication is initiated once per cell cycle at each initiation site.
 - (C) At multiple sites on each chromosome, with each site generating one replication fork.
 - (D) At each end of each chromosome.
27. In termination of transcription the role of rho protein is :
- (A) It is a DNA binding protein that blocks the movement of RNA polymerase down the template.
 - (B) It is a sub unit of RNA polymerase that binds to RNA hairpins and starts transcription.
 - (C) It is a nuclease that degrades the 3' ends to RNA transcripts.
 - (D) It is a helicase that actively breaks base pairs between the template and transcript.
28. Number of energy bonds expended for the formation of a peptide bond is :
- (A) Six
 - (B) Two
 - (C) Four
 - (D) Eight
29. Even if other sugars are present bacteria utilize glucose first, the mechanism is called :
- (A) Glucose utilization
 - (B) Catabolic repression
 - (C) Enzyme repression
 - (D) Operon repression
30. Which is the specialized protein complex that create an aqueous pore between the cytoplasm of two adjacent cells ?
- (A) Ion channel
 - (B) Gap junction
 - (C) Hormone
 - (D) Receptor

31. Select the false statement about cyclins.
- (A) Cyclins regulate the activity of M-phase kinase.
 - (B) Cyclins are degraded rapidly when the cell enters mitosis.
 - (C) There are several families of cyclins that differ in amino acid sequence and in their proteins.
 - (D) Cyclins are present at a constant steady state level throughout the cell cycle.
32. Which among the following is most likely to happen if there is more than one tunica layer in a stem apex ?
- (A) Only the outer layer will develop into epidermal cell
 - (B) All the layers will develop into epidermal cell
 - (C) All the layers will develop into cortex
 - (D) Inner layer develop into cortex
33. In a fully turgid cell :
- (A) $DPD = OP$ (B) $DPD = TP$ (C) $DPD = 0$ (D) $DPD = 1$
34. Which of the following statement is correct ?
- (A) DNA repair system typically work in three major steps - detection of error, removal of the abnormality, and replacement of the removed DNA.
 - (B) Luria-Delbruck fluctuation test was designed to differentiate between appearance of a trait due to random, spontaneous mutations appearance of the trait due to adaptation to environmental conditions.
 - (C) A splice site mutation leading to loss of an exon can affect production of regions of the protein encoded in downstream exons even if they are spliced correctly.
 - (D) All the above.
35. Genetic drift operates only in :
- (A) Smaller population (B) Mendalian population
 - (C) Larger population (D) Island population
36. Interferons are :
- (A) Proteins released by the cells in response to viral infection
 - (B) Protein molecules which render unattacked cells susceptible to viral attack
 - (C) Specific type of immunoglobulin
 - (D) Both (A) and (B)
37. Cell wall with peptidoglycan is a characteristic constituent of :
- (A) Eubacteria and cyanobacteria
 - (B) Eubacteria and unicellular eukaryotes
 - (C) All members of monera and protista
 - (D) Archaeobacteria and eukaryotes

38. Both endogenous and exogenous spores are found in :
(A) Rhizopus (B) Agaricus (C) Mucor (D) Penicillium
39. Which is the smallest gymnosperm ?
(A) *Pinus gerardiana* (B) *Cycas revoluta* (C) *Gnetum gnemon* (D) *Zamia pygmaea*
40. Oxidative electron transport occurs in :
(A) Chloroplast (B) Endoplasmic reticulum
(C) Cristae (D) Outer mitochondrial membrane
41. Which among the following is the sulphur containing amino acid ?
(A) Glutamic acid, aspartic acid (B) Cysteine, methionine and cystine
(C) Valine, lysine and cystine (D) Tryptophan
42. A short length of DNA molecule contains 120 adenine and 120 cytosine bases. The total number of nucleotide in this DNA segment is :
(A) 480 (B) 60 (C) 240 (D) 120
43. Two daughter cells formed during mitosis contain :
(A) Same amount of DNA and the same set of chromosomes as those of the parent.
(B) Same amount of DNA but a set of chromosomes different from those of the parent cell.
(C) Double the amount of DNA and the set of chromosomes different from those of the parent cell.
(D) Half the amount of DNA and same set of chromosomes as those of the parent cell.
44. In higher plants Chromosomes are made up of :
(A) DNA only (B) DNA + histones (C) DNA + RNA (D) DNA + pectines
45. A homozygous plant having red flowers is crossed with a homozygous plant bearing white flowers, the offspring are :
(A) All with red flowers (B) All with white flowers
(C) Half with white flowers (D) Half with red flowers
46. The term mutation was introduced by :
(A) Darwin (B) Mendel (C) Hugo de vries (D) Lamark
47. Which of the following is true for Reverse transcriptase ?
(A) DNA dependant DNA polymerase
(B) DNA dependant RNA polymerase
(C) RNA dependant DNA polymerase
(D) RNA dependant RNA polymerase

48. Aggregate fruit differ from simple fruit, because it develops from :
(A) Multicarpellary apocarpous ovary
(B) Multicarpellary ovary
(C) Multicarpellary syncarpous ovary
(D) Whole inflorescence
49. In some plants the mechanism of seed dispersal is by censor mechanism, the plants belong to the family :
(A) Malvaceae (B) Papilionaceae (C) Papaveraceae (D) Boraginaceae
50. Concentric amphicribal vascular bundle is that in which :
(A) Centrally located phloem is surrounded by xylem
(B) Xylem is flanked by phloem on exterior sides only
(C) Phloem is flanked by xylem on exterior sides only
(D) Centrally located xylem is surrounded by phloem
51. In which type of grafting many scions are selected ?
(A) Crown grafting (B) Wedge grafting
(C) Bud grafting (D) Approach grafting
52. Polyembryony was first discovered in orange seeds by :
(A) Robert Brown (B) Winkler (C) Leeuwenhock (D) Linnaeus
53. What is the type of ovule in which the funiculus is large, long and coiled around the ovule
(A) Anatropous ovule (B) Hemianatropous ovule
(C) Campylotropous ovule (D) Circinotropous ovule
54. The type of fruit in Pineapple is :
(A) Caryopsis (B) Sorosis (C) Syconus (D) Simple fleshy
55. In Angiosperm of the endosperm of seed is develops from :
(A) Tetraploid nucleus (B) Triploid nucleus
(C) Diploid nucleus (D) Haploid nucleus
56. Which of the following is **not** properly matched ?
(A) Anther culture - Haploid plants
(B) Somatic embryo - Embryo produced from somatic cells
(C) Cytokinin - Root initiation in callus
(D) All the above

57. Which one of the following statement is correct ?
- (A) Extensive use of chemical fertilizers may lead to eutrophication of nearby water bodies.
 - (B) At present it is not possible to grow maize without chemical fertilizers.
 - (C) Cyanobacteria such as *Anabaena* and *Nostoc* are important mobilisers of phosphates and for plant nutrition in soil.
 - (D) Both *Azotobacter* and *Rhizobium* fix atmospheric nitrogen in root nodules of plants.
58. Select the wrong pair from the following :
- (A) Nuclear power - radioactive wastes
 - (B) Solar energy - greenhouse effect
 - (C) Biomass burning - release of CO_2
 - (D) Fossil fuel burning - release of CO_2
59. Select the incorrect statement.
- (A) Stellar's sea cow and passenger pigeon got extinct due to over exploitation by man.
 - (B) *Lantana* and *Eichhornia* are invasive weed species in India.
 - (C) The histological convention on biological diversity was held in 1992.
 - (D) Species diversity increases as we move away from equator towards the pole.
60. Beta diversity refers to :
- (A) Diversity within a population
 - (B) Diversity between Eco zones
 - (C) Diversity between communities
 - (D) Diversity within a community
61. Among the following which Organisms are associated with first and third trophic level ?
- (A) Phytoplanktons
 - (B) Macrophytes
 - (C) Insectivorous plants
 - (D) Chemoautotrophs
62. *Acacia*, *Capparis*, *Prosopis* are examples of tropical :
- (A) Grasslands
 - (B) Thorn forests
 - (C) Evergreen forests
 - (D) Deciduous forests
63. Howard Florey and Ernst Chain's contribution was :
- (A) Isolating the bacterial plasmid
 - (B) Discovery of streptokinase
 - (C) Establishing the potential of penicillin as an effective antibiotic
 - (D) Discovery of DNA sequence
64. Second generation vaccines are prepared by recombinant DNA technology. Which out of the following are the examples of such vaccines ?
- (A) Herpes virus vaccine
 - (B) Hepatitis B virus vaccine
 - (C) Both (A) and (B)
 - (D) None of the above

65. Galic acid used in making ink is obtained from :
- (A) *Penicillium purpurogenum* (B) *Aspergillus niger*
(C) *Lactobacillus bulgaricus* (D) *Streptococcus lactis*
66. Which among the following is the true statement ?
- (A) *Penicillium notatum* restrict the growth of Staphylococci.
(B) *Saccharomyces cerevisiae* is used as clot buster.
(C) Methanogens are found in aerobic conditions.
(D) *Acetobacter aceti* produces citric acid.
67. In virus infected plants the meristematic tissues in both apical and axillary buds are free of virus because :
- (A) Virus cannot multiply within meristem cells
(B) Meristems have antiviral components
(C) Dividing cells are virus resistant
(D) Cell division of meristem are faster than the rate of viral multiplication
68. Select the correct statements.
- (a) Genetic drift changes the existing gene or allelic frequency in future generations.
(b) Changes in allelic frequency in a population will lead to Hardy-Weinberg equilibrium
(c) When more individuals of a population acquire a mean character value, it is called disruption.
(d) Increase in melanised moths after industrialization in Great Britain is a proof for natural selection.
- (A) (d) alone is correct (B) (a) alone is correct
(C) (a) and (c) are correct (D) (a) and (d) are correct
69. A blue green algae which is 2.9 billion years old is the oldest fossil record from India. It is
- (A) *Archaeopteryx* (B) *Archaeospheroides*
(C) *Chlamydomonas* (D) *Oscillatoria*
70. Eukaryotic and Prokaryotic genome differs by having :
- (A) DNA is circular and single stranded in prokaryotes.
(B) DNA is complexed with histone in prokaryotes.
(C) Genes in the former case are organized into operons.
(D) Repetative sequences are present in eukaryotes.
71. Association between Trichonympha and Termite is an example for :
- (A) Facultative mutualism (B) Obligate mutualism
(C) Commensalism (D) Amensalism

72. A woman with two genes for haemophilia and one gene for colour blindness on one of the "X" chromosomes marries a normal man. What is the progeny ?
- (A) All sons and daughters haemophilic and colour blind.
 - (B) 50% haemophilic colour blind sons and 50% normal sons.
 - (C) No sons and daughters haemophilic and colour blind.
 - (D) 50% haemophilic daughters (carrier) and 50% colour blind daughters (carrier).
73. The variability of a seed is tested by :
- (A) 2, 5-triphenyl tetrazolium chloride
 - (B) 2, 6-dichlorophenol indophenols
 - (C) DMSO
 - (D) IAA
74. If a plant produces flowers when exposed only to alternating periods of 5 hours light and 3 hours dark, in a 24 hour cycle then the plant should be a :
- (A) Long day plant
 - (B) Short day plant
 - (C) Day neutral plant
 - (D) None of the above
75. Select the **incorrect** statement.
- (A) Succinyl CoA takes part in synthesis of pyrrole compounds.
 - (B) Respiratory substrate is formed by hydrolysis of starch or sucrose.
 - (C) In the preparatory phase of glycolysis glucose is broken down to glyceraldehyde 3-phosphate.
 - (D) Citric acid is the first product of Kreb's cycle.
76. The term guttation was coined by :
- (A) Bergerstein
 - (B) Kramer
 - (C) Priestley
 - (D) Stephen Hales
77. If CO_2 concentration suddenly increases around the leaf, one of the following events occurs :
- (A) Decrease in transpiration due to sudden closure of stomata
 - (B) Transpiration will not be affected
 - (C) Stomata open gradually
 - (D) Stomata open suddenly
78. Cell P has $\text{OP} = 12 \text{ atm}$ and $\text{TP} = 6 \text{ atm}$; cell Q has $\text{OP} = 8 \text{ atm}$ and $\text{TP} = 4 \text{ atm}$. The movement of water will be :
- (A) From P to Q
 - (B) Exosmosis
 - (C) From Q to P
 - (D) No net movement

79. Sclerotium is formed under unfavourable conditions by :
- (A) Plasmotomy (B) Thickening of sporangium
(C) Rounding of Myxamoebae (D) Rounding of Plasmodium
80. Binomial nomenclature was mentioned for the first time in the book :
- (A) Historia plantarum (B) Systema Naturae
(C) Philosophie Zoologique (D) None of these
81. Secondary metabolites is considered to be of much importance in :
- (A) Karyotaxonomy (B) Chemotaxonomy
(C) Biochemical taxonomy (D) Numerical taxonomy
82. Select the correct definition.
- (A) Pedology : It is the study of adaptations.
(B) Ecotone : It is the regulation of organisms behaviour.
(C) Synecology: Interrelationship of the organisms of a species in a given environment.
(D) Autecology : Interrelationship of an organism to environment.
83. Montreal protocol deals with :
- (A) Use for alternatives of CFC
(B) Limiting the use of ODS
(C) Reducing green house gas emission
(D) Both (A) and (B)
84. The function of filiform apparatus is to :
- (A) Produce nectar (B) Stimulate division of generative cell
(C) Guide the entry of pollen tube (D) Recognise the suitable pollen at the stigma
85. Molecular formula of "Chlorophyll a" is :
- (A) $C_{55}H_{70}O_5N_4Mg$ (B) $C_{55}H_{72}O_5N_4Mg$
(C) $C_{55}H_{72}O_4N_4Mg$ (D) $C_{55}H_{70}O_6N_4Mg$
86. Select the immobile element in plants.
- (A) Sulphur (B) Potassium (C) Phosphorus (D) Magnesium
87. Chlorenchyma is known to develop in the :
- (A) Spore capsule of a moss (B) Cytoplasm of Chlorella
(C) Pollen tube of Pinus (D) Petiole of Canna

88. Prokaryotic organisms devoid of cell wall are :
 (A) Cyanobacteria (B) Bacteria (C) Mycoplasma (D) Actinomycetes
89. Read the following statements and select the correct option :
 (a) Tapetum nourishes the developing pollen grains.
 (b) Hilum represents the junction between ovule and funicle.
 (c) In water Hyacinth and water Lilly, pollination is by water.
 (d) The Primary endosperm nucleus is triploid.
 (A) (a) and (d) are correct, but (b) and (c) are incorrect
 (B) (a) and (b) are correct, but (c) and (d) are incorrect
 (C) (b), (c) and (d) are correct, but (a) is incorrect
 (D) (a), (b) and (d) are correct, but (c) is incorrect
90. *Delphinium*, *Anemone* and *Aquilegia* are grown as ornamentals, belongs to the family :
 (A) Rhamnaceae (B) Euphorbiaceae (C) Ranunculaceae (D) Magnoliaceae
91. The plane of cell wall formation in a dividing cell is determined by :
 (A) Endoplasmic reticulum (B) Microfilaments
 (C) Golgi apparatus (D) Microtubules
92. The book on "Diversity of life" was written by :
 (A) Linnaeus (B) E.O. Wilson (C) Charles Darwin (D) Aldo Leopold
93. The binary name in which the specific epithet exactly repeats the generic name is called :
 (A) Tautonym (B) Autonym (C) Basionym (D) Homonym
94. A syntype is :
 (A) Specimens used by the author as a nomenclatural type
 (B) Anyone of two or more specimens cited by the author when no holotype was designated
 (C) Any duplicate of the holotype
 (D) Specimen cited in the protologue other than the holotype
95. Succession in acidic water or acidic soil is called :
 (A) Mesosere (B) Halosere (C) Oxylosere (D) Acidosere
96. Different pollination mechanism in plants are given below. Which among the following is incorrect ?
 (A) Flap trap mechanism - *Aristolochia*
 (B) Trap door mechanism - *Ficus*
 (C) Bristle mechanism - *Pinguicula alpina*
 (D) Lever mechanism - *White centaurea*

97. Developmental sequence of male gametophyte is given. Select the correct sequence.
- (A) Sporogenous tissue → pollen mother cell → microspore tetrad → male gamete → pollen grain.
 - (B) Sporogenous tissue → microspore tetrad → pollen mother cell → male gamete → pollen grain.
 - (C) Sporogenous tissue → pollen mother cell → microspore tetrad → pollen grain → male gamete.
 - (D) Sporogenous tissue → pollen mother cell → pollen grain → microspore tetrad → male gamete.
98. *Killinga monocephala* belongs to the family :
- (A) Cyperaceae (B) Poaceae (C) Celastraceae (D) Caryophyllaceae
99. Which one of the following statement is not true for Bryophytes ?
- (A) They lack tracheids and sieve tube
 - (B) They undergo meiosis to produce sporophyte
 - (C) They are photosynthetic gametophyte
 - (D) Their spore germinate to produce gametophyte
100. Which of the following is not an essential element for plants ?
- (A) Aluminium (B) Zinc (C) Copper (D) Iron

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