

DO NOT BREAK THE SEAL OF THE BOOKLET UNTIL YOU ARE TOLD TO DO SO

QUESTION BOOKLET

SERIES III

Subjects : General English, General Knowledge, Botany / Zoology

BOOKLET SERIAL NO.

3231

Marks : 300

Time : 2½ hours

Read the following instructions carefully before you
begin to answer the questions.

INSTRUCTIONS TO CANDIDATES

1. This booklet contains **150** questions to be answered in a separate OMR Answer Sheet using Black Ball Pen in following three parts:
Part-I-General English : 25 questions, Part-II-General Knowledge : 25 questions,
Part-III-Botany OR Zoology : 100 questions
2. All Questions are compulsory. **Part III is optional. Candidates has to opt either Botany or Zoology**
3. You will be supplied the Answer sheet separately by the invigilator. You must complete the details of particulars asked for.
4. Answers must be shown by completely blackening the corresponding circles in the Answer Sheet against the relevant question number by Black Ball Pen. OMR Answer Sheet without marking series/double series marking shall not be evaluated.

Example :

Supposing the following question is asked :-

The Capital of Meghalaya is-

- A. Guwahati
- B. Kohima
- C. Shillong
- D. Delhi

You will have four alternatives in the Answer Sheet for your response corresponding to each question of the Question Booklet as below :-

In the above illustration, if your chosen response is alternative C i.e. Shillong, then the same should be marked on the Answer Sheet by blackening the relevant circle with a Black Ball Point Pen only as below :-

(A) (B) (C) (D)

WHICH IS THE ONLY CORRECT METHOD OF ANSWERING

(A) (B) (C) (D)

5. Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any one question.
6. There will NOT be any negative marking for wrong answers.
7. The Answer Sheet must be handed over to the invigilator before you leave the Examination Hall.
8. No rough work is to be done on the Answer Sheet. Space for rough work has been provided in the question booklet.

PART - I-GENERAL ENGLISH

Marks 50

Each question carries 2 marks :

Directions (Q.1-4) : In the following questions, a sentence is given. Find out which part of the sentence has an error and choose the option corresponding to it. If the sentence is free from error, choose 'No error'.

1. Everyone considered him as a brave man but he fled from the battlefield.
a) Everyone considered him as
b) A brave man
c) But he fled from the battlefield
d) No error

2. During the rainy season many rivers overflowed their banks and caused great difficulty
a) During the rainy season
b) Many rivers overflowed their banks
c) And caused great difficulty
d) No error

3. He was borne of poor parents but brought up in an affluent family
a) He was borne of poor parents
b) But brought up
c) In an affluent family
d) No error

4. It is a known fact that time does not return back once it is lost
a) It is a known fact
b) That time does not return back
c) Once it is lost
d) No error

Directions (Q.5-6) : Rearrange the parts of the sentence in correct order and mark the correct option from the given four alternatives.

5. The reference
P - is simultaneously a matter
Q - to the size of a vulnerable community
R - of legal as well as political and ethical perspective
a) RPQ
b) QRP
c) QPR
d) PRQ

6. Do people take
P - rejection of every candidate ?
Q - the trouble to go and
R - vote only to register their
a) RQP
b) RPQ
c) PRQ
d) QRP

Directions (Q.7-8) : Out of the four given alternatives, choose the one which can be substituted for the given words/sentence.

7. The depository where state records and documents are preserved.
a) Emporium
b) Archive
c) Library
d) Museum

8. The firing of many guns at the same time to mark an occasion is called
a) Fusillade
b) Salvo
c) Attack
d) Volley

Directions (Q.9-10) : In the following questions four alternatives are given for idioms and phrases. Choose the one that best expresses the meaning of the given idiom/phrase.

9. A Cut above
a) To object at something
b) Quite taller
c) Rather superior
d) A little rougher than

10. As daft as a brush
a) Extremely old
b) Extremely kind
c) Extremely sick
d) Extremely silly

Directions (Q.11-15) : In the following passage there are blanks, each of which has been numbered. These numbers are printed below the passage and against each, four options are suggested, one of which fits the blank appropriately. Find out the appropriate word from the given options.

There is a considerable amount of

research about the factors that make a company innovate. So, is it possible to create an environment ____ (11) ____ for innovation ? This is a particularly pertinent ____ (12) ____ for India today. Massive problems in health, education, etc., ____ (13) ____ be solved using a conventional approach, but ____ (14) ____ creative and innovative solutions that can ensure radical change and ____ (15) ____.

- | | |
|-------------------|----------------|
| 11. a) stimuli | b) conducive |
| c) incentive | d) facilitated |
| 12. a) objective | b) controversy |
| c) doubt | d) issue |
| 13. a) cannot | b) should |
| c) never | d) must |
| 14. a) necessary | b) apply |
| c) need | d) requires |
| 15. a) advantages | b) increase |
| c) chaos | d) growth |

Directions : (Q.No.16-25), Read the passage given below and answer the questions that follow :

With Lok Sabha speaker Purno Sangma abolishing the discretionary quota for gas and telephone connections enjoyed by members of parliament last week, demands are being made for doing away with the same privilege for Union ministers.

Imposing a fine of Rs.50 lakh on former petroleum minister Satish Sharma for arbitrarily allotting petrol pumps, the Supreme Court had said last year that absolute discretion was an **anathema** to the Constitution and advised the 'judicious' use of discretionary powers.

Citing the use of the so-called privileges as "prejudicial to public interest and a breach of trust", HD Shourie of Common Cause has sought the Prime Minister's intervention to "stop this practice of discretionary quota for ministers to present to the public an image of clean functioning of the government."

In a letter written to the Cabinet Secretary, he has drawn the PM's **attention** to the misuse of this **privilege** by more than a dozen ministers. In the railways, discretionary quota

covers platform stalls, passes, tickets and berths on trains. In civil aviation and tourism, the **largesse** includes free international air tickets, out-of-turn seats and stalls in ITDC hotels.

16. The tone of the speaker in the passage is that of

- | | |
|---------------------|----------------|
| a) A disciplinarian | b) Relief |
| c) Concern | d) Prohibition |

17. ".... he has drawn the PM's attention...." In this line 'He' refers to

- | |
|-----------------------------|
| a) Speaker of the Lok Sabha |
| b) Supreme Court |
| c) HD Shourie |
| d) Ministers |

18. A Union minister has not got the power of

- | |
|----------------------------------|
| a) Allotting petrol pumps |
| b) Allotting shops in the market |
| c) Allotting platform stalls |
| d) Allotting berth on trains |

19. What did the Supreme Court suggest ?

- | |
|-----------------------------------|
| a) Not to use discretionary power |
| b) Not to allot petrol pump |
| c) Fair use of quota |
| d) Abolition of quota |

20. "Prejudicial to public interest and a breach of trust" - in this quote prejudicial means

- | |
|---|
| a) An opinion formed in the mind beforehand |
| b) Previous suggestion |
| c) Prehistoric knowledge |
| d) Being harmful |

21. Choose the word which is nearly the same in meaning as the following words as used in the passage.

'Discretionary'

- | | |
|-------------------|-----------------|
| a) Separate | b) Doubt |
| c) Not continuous | d) Unrestricted |

22. Choose the word which is nearly the same in meaning as the following words as used in the passage.

'Privilege'

- | | |
|----------------|------------------|
| a) Monopoly | b) Immunity |
| c) Clandestine | d) None of these |

23. Choose the word which is nearly the same in meaning as the following words as used in the passage.

'Largesse'

- a) Bulky
- b) Abundant
- c) Gift
- d) Ostentatiously

24. Choose the word which is nearly the opposite in meaning to the following words according to the passage.

'Anathema'

- a) Curse
- b) Blessing
- c) Excommunication
- d) Probe

25. Choose the word which is nearly the opposite in meaning to the following words according to the passage.

'Attention'

- a) Neglect
- b) Default
- c) Forget
- d) Omit

PART - II-GENERAL KNOWLEDGE

Marks : 50

Each question carries 2 marks :

26. The largest tiger reserve in India is

- a) Corbett
- b) Sunderbans
- c) Nagarjunsagar-Srisailem
- d) Manas

27. Who was the first woman president of the Indian National Congress ?

- a) Anne Besant
- b) Sucheta Kriplani
- c) Sarojini Naidu
- d) Indira Gandhi

28. Which is NOT a part of the circulatory system?

- a) Blood
- b) Trachea
- c) Heart
- d) Blood Vessels

29. Solar eclipse occurs when

- a) Earth comes in between Sun and Moon
- b) Moon is at right angle of the Earth
- c) Moon comes in between Sun and Earth
- d) Sun comes in between Moon and Earth

30. The office of Lokpal and Lokayukta in India is based on which one of the following?

- a) Parliamentary Commissioner of UK
- b) Ombudsman of Scandinavia
- c) Procurator General of Russia
- d) Council of state in France

31. The number pi (π) has how many digits?

- a) 4
- b) 5
- c) 11
- d) Infinite

32. Which food-delivery start-up recently acquired Uber's food delivery platform, Uber Eats in India ?

- a) Zomato
- b) Swiggy
- c) Faasos
- d) Domino's

33. The death anniversary of which former Indian Prime Minister is observed as 'Anti-terrorism Day'?

- a) Rajiv Gandhi
- b) Atal Bihari Vajpayee
- c) Morarji Desai
- d) Lal Bahadur Shastri

34. Where is India's super computer "PARAM"

located ?

- a) Mumbai
- b) Kolkata
- c) Leh
- d) Pune

35. Who won the Best Actor (male) award in the IIFA 2022 ?

- a) Sidharth Malhotra
- b) Vicky Kaushal
- c) Pankaj Tripathi
- d) Ahan Shetty

36. As per the world language database Ethnologue, which is the third most spoken language of the world in 2021 ?

- a) Spanish
- b) Hindi
- c) French
- d) Bengali

37. Which is the longest irrigation canal in India?

- a) Sirhind Canal
- b) Yamuna Canal
- c) Indira Gandhi Canal
- d) Munak Canal

38. Optical fibres are based upon the phenomenon of which of the following ?

- a) Interference
- b) Dispersion
- c) Diffraction
- d) Total Internal Reflection

39. Which state is set to have India's first privately-run railway station ?

- a) Tripura
- b) Odisha
- c) Kerala
- d) Madhya Pradesh

40. Which country stunned 14-time champions Indonesia at the men's finals for a historic win at the 2022 Thomas Cup ?

- a) Malaysia
- b) Chinese Taipei
- c) India
- d) Denmark

41. Rayon is made from

- a) Cellulose
- b) Wool
- c) Cotton
- d) Silk

42. The Bermuda Triangle is located in which ocean ?

- a) Pacific Ocean
- b) Atlantic Ocean
- c) Arctic Ocean
- d) Indian Ocean

43. The first Indian ruler to be shown in images as wearing a dress akin to trousers is

- a) Chandragupta b) Ashoka
- c) Kanishka d) Samudragupta

44. Which among the following parts of Constitution of India, includes the concept of welfare states ?

- a) Preamble
- b) Directive Principles
- c) Fundamental Rights
- d) Fourth Schedule

45. Which Indian language is known as “Italian of the East”?

- a) Marathi b) Assamese
- c) Telugu d) Gujarati

46. Which among the following is a Bank rate?

- a) The rate at which a central Bank lends to commercial Banks
- b) The rate at which a commercial Bank lends to its best customers
- c) The rate at which a central Bank lends to its best customers
- d) The rate at which a Commercial Bank lends to Central bank

47. Who won the Orange Cap award in the recently concluded IPL 2022 ?

- a) Virat Kohli b) K.L.Rahul
- c) Jos Buttler d) Quinton de Kock

48. The Chief Election Commissioner of India holds office for a period of

- a) Six years
- b) As per the directives of the President
- c) 5 years or till the age of 60 years, whichever is earlier
- d) 6 years or till the age of 65 years, whichever is earlier

49. ‘Whitley Gold Award’ is presented to people who contribute in which field ?

- a) Literature
- b) Wildlife and Bio-diversity Conservation
- c) Social Service
- d) Sports and Games

50. The world economic report is published by?

- a) IMF b) UNDP
- c) World Bank d) UNCTAD

PART - III - BOTANY

(OPTIONAL)

Marks :200

Each question carries 2 marks :

51. In Bread wheat the chromosome complement is $6n = 42$. What shall be the Chromosome number in its monosomic, haploid and monoploid state
a) 13,7,7 b) 15,7,7
c) 41,21,7 d) 43,7,7
52. Genotypic ratio of 1:2:1 is obtained in a cross of
a) ABxAB b) AbxAB
c) Abxab d) abxab
53. In a point mutation adenine is replaced by guanine. It is
a) Insertion b) Frame shift mutation
c) Transversion d) Transition
54. Removal of stamens from floral buds in breeding new varieties is
a) Bagging b) Emasculation
c) Tagging d) Anthesis
55. Nullisomic organism will have a genetical complement of
a) $2n-1$ b) $2n-2$
c) $2n+2$ d) $2n+1$
56. A single recessive allele will produce its phenotypic effect when it occurs
a) Any chromosome
b) An autosome
c) X-chromosome of female
d) X-chromosome of male
57. Nicotinamide can be synthesised in human body from
a) Fructose b) Lactose
c) Tyrosine d) Tryptophan
58. In double helix model of DNA how far is each base pair from the next
a) 34nm b) 3.4nm
c) 2nm d) 0.34nm
59. Number of structural genes in tryptophan operon is
a) 5 b) 4
c) 3 d) 2
60. Who discovered DNA polymerase
a) Okazaki
b) Kornberg
c) Meselson and Stahl
d) Watson and Crick
61. First codon discovered by Nirenberg and Matthei is
a) AAA b) CCC
c) UUU d) GGG
62. The last of ultimate electron acceptor in electron-transport system is
a) Cytochrome C b) Cytochrome a_3
c) Cytochrome b d) NADPH_2
63. In DNA finger printing
a) A positive identification can be made
b) Multiple restriction enzyme digest/generates unique fragments
c) The polymeras chain reaction amplifies fewer DNA
d) The variability of repeated sequence between two restriction sites is evaluated
64. In negative operon
a) Inducer binds to repressor
b) Inducer binds to co-repressor
c) Co-repressor binds to apo repressor
d) A repressor is not formed
65. Complex formed by a pair of synapsed homologous chromosome is known as
a) Kinetochore b) Axoneme
c) Equatorial plate d) Bivalent
66. Continuously functional genes are
a) Gene Battery
b) Luxury Genes
c) Mild genes
d) House keeping genes
67. Chance elimination of alleles from small population is
a) Adaptation b) Genetic drift

- c) Speciation d) Selection pressure
68. Which are immortal ?
 a) Germ Cells b) Liver Cells
 c) Kidney Cells d) Neutrons
69. Morphologically similar but reproductively isolated sympatric population are :
 a) Sympatric species b) Demes
 c) Clones d) Sibling species
70. Recapitulation theory was proposed by
 a) Van Baer b) Darwin
 c) Haeckel d) Aristotle
71. Chloroplast stroma contains
 a) Chlorophyll
 b) Light dependent reaction enzymes
 c) Light independent reaction enzymes
 d) Ribosomes
72. The technique required for obtaining virus free plant is
 a) Root tip Culture
 b) Shoot tip Culture
 c) Callus Culture
 d) Suspension Culture
73. Amino acid absent in pulses are
 a) Methionine and alanine
 b) Alanine and Cysteine
 c) Methionine and Cysteine
 d) Lysine and Tryptophan
74. Pure line breed shows
 a) Homozygosity only
 b) Heterozygosity only
 c) Homozygosity as well as independent assortment
 d) Heterozygosity as well as linkage
75. Borlaug developed new varieties of
 a) Wheat b) Rice
 c) Sugarcane d) Mango
76. Electrofusion or Chemofusion is used for
 a) Cloning b) Mutation
 c) Protoplast fusion d) Eugenics
77. Natural cytokinins are synthesised in tissues for
 a) Differentiating b) Senescent
 c) Dividing d) Storing food

78. Sporeine was first commercially produced in
 a) USA b) Russia
 c) France d) Germany
79. *Azolla* is used as biofertilizer because it
 a) Forms massive biomass
 b) Has association with nitrogen fixing *Rhizobium*
 c) Possesses association with nitrogen fixing cyanobacteria
 d) Has association with mycorrhiza
80. Devine and Collego are
 a) Bioinsecticides b) Bio fungicides
 c) Bioherbicides d) Rodenticides
81. Erythromycin and Chloramphenicol are extracted from
 a) *Penicillium* species
 b) *Aspergillus* species
 c) *Streptomyces* species
 d) *Bacillus* species
82. Single Cell protein represents
 a) Protein extracted from a microorganism
 b) Protein from a clone of cells
 c) Protein mass from single cell animals
 d) Biomass from growth of a microorganism
83. Bio fertilisers include
 a) Blue-green algae, Rhizobia, other nitrogen fixing bacteria and mycorrhiza fungi
 b) Blue-green algae, rhizobia and other nitrogen fixing bacteria
 c) Rhizobia, other nitrogen-fixing bacteria and mycorrhiza fungi
 d) Blue-green algae, rhizobia and mycorrhiza fungi
84. The book 'Families of Flowering Plants' was written by
 a) Bentham and Hooker
 b) John Hutchinson
 c) Engler and Prantle
 d) John Ray
85. Penicillin inhibits bacterial multiplication because it
 a) Checks RNA synthesis
 b) Checks DNA synthesis
 c) Destroys Chromatin
 d) Inhibits cell wall formation

86. Supply of oxygen to the biogas plant will have

- a) Positive effect b) Negative effect
- c) No effect d) None of these

87. Construction of a recombinant DNA involves

- a) Cleaving and rejoining DNA segments with 'ligase' alone
- b) Cleaving DNA segments with 'ligase' and joining them with 'endonuclease'
- c) Cleaving DNA segments with 'endonuclease' and joining them with 'ligase'
- d) Cleaving and rejoining DNA segments with 'endonuclease' alone

88. Which is used extensively for genetic engineering in plants ?

- a) *Agrobacterium tumefaciens*
- b) *Xanthomonas citri*
- c) *Bacillus coagulans*
- d) *Clostridium septicum*

89. An organic substance essential for activity of an enzyme is

- a) Apoenzyme b) Holoenzyme
- c) Isoenzyme d) Co-enzyme

90. Km value of enzyme is substrate concentration is

- a) $\frac{1}{4} V_{\max}$ b) V_{\max}
- c) $2V_{\max}$ d) $\frac{1}{2}V_{\max}$

91. Which of the following metabolites is common to respiration mediated breakdown of fat, carbohydrate and proteins ?

- a) Glucose-6-phosphate
- b) Glucose-1,6-bisphosphate
- c) Pyruvic acids
- d) Acetyl Co-A

92. Biopiracy is related to which of the following

- a) Traditional Knowledge
- b) Biomolecule and regarding bioresources genes isolated from Bioresource
- c) Bioresource
- d) All of the above

93. Chromosomes become visible during

- a) Leptotene b) Zygotene
- c) Pachytene d) Diplotene

94. What is true

- a) *FlavrSavr* Tomato has more ethylene for improving taste
- b) Bt as in Bt cotton signifies biotechnology
- c) Anticoagulant hirudin is produced by transgenic *Brassica napus* seeds
- d) Somatic hybridisation involves fusion of two complete cells with desired genes

95. In plants micronutrient are those which are needed less than or equal to the following amount per gram of dry matter

- a) 0.1mg b) 0.1g
- c) $0.1 \mu\text{g}$ d) $1.0 \mu\text{g}$

96. The first transgenic crop was

- a) Cotton b) Flax
- c) Pea d) Tobacco

97. Soil water available to plant roots is

- a) Capillary water
- b) Surface water
- c) Hygroscopic water
- d) Gravitational water

98. A trait not found in xerophytes is

- a) Thick cuticle
- b) Well developed mechanical tissues
- c) Sunken stomata
- d) Aerenchyma

99. Which of the following is wrong ?

- a) Lichen, an association of fungus and alga, is an example of mutualism
- b) Epiphytes, using other plants for support only and not for water or food, show commensalism
- c) Sea Anemone and Hermit Crab association is an example of protocoeoperation
- d) Mutualism, protocoeoperation and commensalism cannot be included under symbiosis

100. Maximum amount of water a soil can hold against pull of gravity after Percolation has stopped is

- a) Hygroscopic water b) Field capacity
- c) Capillary water d) Storage water

101. Unrestricted reproductive capacity is

- a) Birth rate b) Carrying capacity
- c) Biotic potentiality d) Fertility

102. Cyclic photophosphorylation results in the

production of

- a) ATP only
- b) NADPH only
- c) ATP & NADPH
- d) ATP, NADPH and O_2

103. Exponential population growth is

- a) $dN/dt=rN$
- b) $dt/dN=rN$
- c) $dN/rN=dt$
- d) $rN/dN=dt$

104. A protective device in a community is

- a) Commensalism
- b) Mimicry
- c) Parasitism
- d) Competition

105. Name the habitat in which decimal soil temperature vary most

- a) Forest
- b) Grassland
- c) Shrubland
- d) Desert

106. Study of inter-relationships between community and environment is

- a) Species ecology
- b) Autecology
- c) Resource ecology
- d) Synecology

107. Living beings have been divided into the three domains. What is true of archaea

- a) Completely differ from prokaryotes
- b) Resembles eukaryotes in all respects
- c) It has novel features absent in prokaryotes and eukaryotes
- d) Completely different from prokaryotes and eukaryotes

108. Holotype is

- a) Specimen used by the person as nomenclature type
- b) Duplicate of the the nomenclature type
- c) Specimen mentioned while describing a new taxa on which the description is not based
- d) Specimen of a taxa deposited by different workers

109. Which of the following statement is correct ?

- a) Photorespiration is useful process
- b) C_4 plants are more efficient than C_3 plants
- c) C_3 plants require more ATP for photosynthesis
- d) Photorespiration occurs in chloroplast lysosomes and mitochondria

110. Enzymes are not found in

- a) Fungi
- b) Cyanobacteria

c) Viruses

d) Algae

111. Nomenclature is governed by certain universal rules. Which one of the following is contrary to the rules of nomenclature ?

- a) The first word in a biological name represents the genus name and the second is a specific epithet
- b) The names are written in latin and are italicised
- c) When written by hand, the names are to be underlined
- d) Biological names can be written in any language

112. Endosperm in gymnosperm is formed

- a) At the time of fertilization
- b) Before fertilization
- c) After fertilization
- d) Along with development of embryo

113. During retting of Jute fibres, the fermenting microbe is

- a) Butyric acid bacteria
- b) *Streptococcus lactis*
- c) *Helicobacter pylori*
- d) Methanophillic bacteria

114. Which is true of mycoplasma ?

- a) They lack cell wall
- b) They have the smallest cell
- c) They can survive without oxygen
- d) All of the above

115. Episome is a type of

- a) Plasmid
- b) Gene
- c) Membrane
- d) Cell wall

116. Which does not belong to Monera ?

- a) Archaeobacteria
- b) Slime mold
- c) Eubacteria
- d) Mycoplasma

117. *Cycas* possesses two cotyledons but is not a dicot because of

- a) Compound leaves
- b) Naked seed
- c) Circinate ptyxis
- d) Monocot like stem

118. Which one produces carageenin ?

- a) Green algae
- b) Blue green algae
- c) Red algae
- d) Brown algae

119. In *Ulothrix*, meiosis occurs in

- a) Hold fast
- b) Zygote

- c) Zoospore d) Cells of filament

120. Most primitive member in which roots are not present

- a) Psilotum b) Rhynia
c) Lycopodium d) Selaginella

121. Mannitol is stored food in

- a) Chara b) Porphyra
c) Fucus d) Gracilaria

122. Lacunate collenchyma occurs in stem of

- a) Leucas b) Cucurbita
c) Sunflower d) Sambucus

123. The balloon shaped structures called tyloses are

- a) Linked to ascent of sap through xylem vessels
b) Originate in the lumen of vessels
c) Characterise the sapwood
d) Are extensions of xylem parenchyma cells into vessels

124. An old trunk of *Dalbergia* tree would have maximum amount of

- a) Primary phloem b) Primary xylem
c) Secondary xylem d) Secondary cortex

125. Ribosomes are granules formed of

- a) rRNA+tRNA b) mRNA+tRNA
c) rRNA+proteins d) mRNA+proteins

126. Lysosomes are produced by

- a) Mitochondria b) Endoplasmic reticulum
c) Golgi bodies d) Leucoplasts

127. What is the percentage of photosynthetically active radiation in the incident solar radiation

- a) 100% b) 50%
c) 1-5% d) 2-10%

128. Which is not a primary coloniser

- a) Viruses b) Lichens
c) Blue-green algae d) Mosses

129. First national park of India is

- a) Kanha national park
b) Periyar national park
c) Corbett national park
d) Bandipur national park

130. Which one is endangered species of India

- a) Horse b) Fox
c) Indian wild ass d) Elephant

131. The most effective method of conservation of biodiversity is

- a) Tissue Culture b) Botanical gardens
c) Biosphere reserves d) Seed bank

132. Addition of Phosphates and nitrates/fertilizers into water leads to

- a) Increased growth of decomposers
b) Reduced algal growth
c) Increased algal growth
d) Nutrient enrichment/eutrophication

133. Ultra violet light causes

- a) Formation of pyrimidines
b) Sticky metaphases
c) Destruction of hydrogen bond between complementary DNA strand
d) Photodynamic action

134. Intensity of sound in normal conversation is

- a) 10-20dB b) 30-60dB
c) 70-90dB d) 120-150dB

135. Environment Protection Act was passed in

- a) 1986 b) 1981
c) 1974 d) 1968

136. Minamata and itai-itai are due to pollution of

- a) Lead and Tin
b) Mercury and Lead
c) Mercury and Cadmium
d) Lead and Strontium

137. Why is apple categorised as a false fruit ?

- a) Because Endocarp also contributes to the formation of fruit
b) Because Mesocarp also contributes to the formation of fruit
c) Because Thalamus also contributes to the formation of fruit
d) Because Pericarp also contributes to the formation of fruit

138. A few drops of sap were collected by cutting across a plant stem by a Suitable method.

The sap was tested chemically. Which one of the following test results indicates that it is a phloem sap ?

- a) Absence of sugar
- b) Acidic
- c) Alkaline
- d) Low refractive index

139. The number of chromosomes in the shoot tip cell of a maize plant is 20. The number of chromosomes in the microspore mother cell of the same plant shall be :

- a) 20
- b) 10
- c) 40
- d) 15

140. In Mitochondria, protons accumulate in

- a) Outer membrane
- b) Intermembrane space
- c) Inner membrane
- d) Matrix

141. Milky water of green coconut is

- a) Liquid endosperm
- b) Nucellus
- c) Liquid female gametophyte
- d) All of the above

142. Ubisch bodies are connected with the development of

- a) Embryo sac
- b) Embryo
- c) Pollen grains
- d) Endosperm

143. Which does not pertain to facilitated transport

- a) High selectivity
- b) Transport saturation
- c) Uphill transport
- d) Requirement of Special membrane

144. Meiosis is best observed in dividing

- a) Cells of apical meristem
- b) Cells of lateral meristem
- c) Microspore of anther wall
- d) Microsporocytes

145. Pollengrains are able to withstand extreme of temperature and desiccation because their exine is composed of

- a) Cutin
- b) Suberin
- c) Sporopollenin
- d) Callose

146. Pollination by ants is

- a) Malacophily
- b) Myrmecophily

c) Entomophily

d) Ornithophily

147. Father's blood group is 'A' that of his child is 'O', then what will be the genotype of the father ?

- a) $I^A I^A$
- b) $I^A i$

c) $I^A I^B$

d) ii

148. Phloem sap is mainly

- a) Water and minerals
- b) Water and sucrose
- c) Oligosaccharides and hormones
- d) None of the above

149. Two genes present nearby on a chromosome will have

- a) Double crossing over
- b) No crossing over
- c) Hardly any crossing over
- d) Regular crossing over

150. A gene influencing many traits is

- a) Additive
- b) Pleiotropic
- c) Epistatic
- d) Supplementary

PART - III - ZOOLOGY

(OPTIONAL)

Marks :200

Each question carries 2 marks :

51. Sometimes chromosome number increases or decreases due to

- a) Non-disjunction of chromosome
- b) Genetic repetition
- c) Mutation
- d) All of the above

52. The exchange of genetic material between chromatids of paired homologous chromosomes during meiotic I division is called

- a) Transformation
- b) Chiasmata
- c) Crossing over
- d) Synapsis

53. Prokaryotic cells are devoid of

- a) DNA
- b) RNA
- c) Nuclear membrane
- d) Cell membrane

54. Polytene chromosomes are formed by the process of

- a) Replication
- b) Endoreplication
- c) Exoreplication
- d) Transcription

55. The pairing of homologous chromosome takes place during which stage of meiotic prophase ?

- a) Leptotene
- b) Pachytene
- c) Zygotene
- d) Diplotene

56. Which type of cancer affects the connective tissue ?

- a) Leukaemia
- b) Sarcoma
- c) Lymphoma
- d) Carcinoma

57. The term 'gene' was coined by

- a) Bateson, 1905
- b) Mendel, 1866
- c) Boveri and Sutton, 1902
- d) Johanssen, 1909

58. A cross between F_1 hybrid and recessive parental type is called

- a) Testcross
- b) Backcross
- c) Codominance
- d) Incomplete dominance

59. Sex determining mechanism in *Drosophila* is

- a) XX-XO
- c) XX-XY

- b) ZZ-ZW
- d) XW-XY

60. Aneuploidy is a

- a) Numerical chromosomal aberration
- b) Structural chromosomal aberration
- c) Simple aberration
- d) Point mutation

61. Saliva contains an enzyme called

- a) Rennin
- b) Ptyalin
- c) Pepsin
- d) Trypsin

62. Maintenance of salt and water balance is known as

- a) Osmosis
- b) Osmoregulation
- c) Endocytosis
- d) Excretion

63. Which of the following glands is associated with the consumption of iodized salt ?

- a) Pituitary
- b) Adrenal
- c) Thyroid
- d) Parathyroid

64. Which of the following is a monosaccharide ?

- a) Maltose
- b) Glucose
- c) Galactose
- d) Cellulose

65. A complete turn of two strands of the polynucleotide occurs at a distance of every

- a) 34 \AA
- b) 32 \AA
- c) 33 \AA
- d) 35 \AA

66. Pulmonary gaseous exchange takes place in

- a) Tracheoles
- b) Bronchioles
- c) Alveoli
- d) Tracheae

67. Skeletal muscles has the following characteristics, except

- a) Striated and voluntary
- b) Multinucleated
- c) Contractile
- d) Autorhythmic

68. The hormone not secreted by adrenal gland

is

- a) Epinephrine b) Norepinephrine
- c) Cortisone d) Ecdysone

69. In DNA helix, cytosine pairs with guanine by

- a) Phosphate bond
- b) Covalent bond
- c) Two hydrogen bonds
- d) Three hydrogen bonds

70. Nephrons are the functional units of the

- a) Circulatory system
- b) Nervous system
- c) Excretory system
- d) Respiratory system

71. The structural and functional unit of a striated muscle is

- a) I-band b) Z-line
- c) Myofilament d) Sarcomere

72. The cells that secrete testosterone are called

- a) Seminiferous cells b) Leydig cells
- c) Sertoli cells d) Spermatocytes

73. At the end of glycolysis, glucose, the six-carbon compound ultimately changes into.

- a) ATP b) Pyruvic acid
- c) Acetyl CoA d) Ethyl alcohol

74. A lipid which tends to get deposited on the walls of blood vessels is

- a) Cholesterol b) Suberin
- c) Cutin d) Linolenic acid

75. The two pyrimidine bases found in RNA molecule are

- a) Adenine and uracil
- b) Cytosine and uracil
- c) Guanine and uracil
- d) Guanine and cytosine

76. Most of the enzymes are chemically

- a) Inorganic compound b) Metals
- c) Proteins d) Vitamins

77. Germ layers are formed during

- a) Cleavage b) Fertilization
- c) Gastrulation d) Blastulation

78. Acrosome reaction in sperm is triggered by

- a) Release of sperm lysins

b) Release of fertilizing

- c) Capitulation
- d) All of the above

79. Energy flow in an ecosystem is

- a) Bidirectional b) Unidirectional
- c) Multidirectional d) None of the above

80. Which of the following utilizes inorganic materials ?

- a) Decomposers b) Saprophytes
- c) Autotrophs d) Heterotrophs

81. Ecological pyramids are

- a) Pyramids of number
- b) Pyramids of biomass
- c) Pyramids of energy
- d) All of the above

82. Individuals of a species occupying a particular geographical area at a given time form a

- a) Biome b) Society
- c) Community d) Population

83. An interspecific association where one species gains and the other is neither helped nor harmed is termed as

- a) Symbiosis b) Commensalism
- c) Parasitism d) Neutralism

84. Beeswax is secreted by

- a) Queen bee b) Worker bees
- c) Drone d) Larvae

85. The end products of spermatogenesis are

- a) Spermatozoa
- b) Spermatocytes
- c) Spermatids
- d) Secondary spermatocytes

86. Echinopluteus larva belongs to

- a) Crustacean b) Echinodermata
- c) Mollusc d) Insect

87. *Hypophthalmichthys molitrix* is the scientific name of

- a) Grass carp b) Rohu
- c) Mrigal d) Silver carp

88. An ecosystem consists of

- a) Green plants and animals
- b) Green plants and decomposers

- c) Green plants, animals, decomposers and abiotic environment
- d) Producers and consumers

89. The hormone involved in the metamorphosis of tadpole is

- a) Insulin b) Thyroxine
- c) Adrenaline d) Somatotrophin

90. After the discharge of oocyte, the Graafian follicle forms a yellow body known as

- a) Corpus allatum b) Corpus callasum
- c) Corpus luteum d) Carpus cardiacum

91. Eggs of birds are

- a) Isolecithal b) Telolecithal
- c) Alecithal d) Centrolecithal

92. Synecology is the study of

- a) Community
- b) Community in relation to animal population
- c) Community in relation to environment
- d) Relation of an individual to other biotic communities

93. Which of the following is not a fossil fuel?

- a) Coal b) Biomass
- c) Natural gas d) Petroleum

94. The pupa of silkworm is also called

- a) Sericin b) Imago
- c) Chrysalis d) Caterpillar

95. Sertoli cells are responsible for

- a) Anchoring
- b) Nutrition
- c) Formation of spermatids
- d) None of the above

96. Cavity formed during gastrulation is called

- a) Archenteron b) Blastocoel
- c) Exocoel d) Morula

97. Plants and animals living in a given area formed a

- a) Biome b) Ecotone
- c) Bioindicator d) Biotic community

98. In induced breeding, the fish mostly use as pituitary donor is

- a) Labeo rohita
- b) Catla catla
- c) Cyprinus carpio

d) Hypophthalmichthys molitrix

99. The silk, that we get from *Bombyx mori* is called

- a) Muga silk b) Mulberry silk
- c) Oak silk d) Eri silk

100. Autecology is the study of

- a) One species b) Community
- c) Ecological nich d) Population

101. The birth rate of an individual in unit time is known as

- a) Emigration b) Immigration
- c) Mortality d) Natality

102. Muga silk is obtained from

- a) *Antheraea asamensis*
- b) *Bombyx mori*
- c) *Attacus recini*
- d) *Antheraea mylitta*

103. Freshly emerged worker bees are first entrusted with

- a) Indoor duties
- b) Outdoor duties
- c) Both indoor and outdoor duties
- d) None of the above

104. The intensity of water pollution can be minimized by

- a) Adequate sewage treatment
- b) Treatment of industrial effluents
- c) Recycling
- d) All of the above

105. Which one of the following represents a renewable source of energy ?

- a) Tree b) Coal
- c) Petroleum d) Nuclear fuel

106. *Channa punctatus* is a culturable fish found in

- a) Cold water b) Brackish water
- c) Fresh water d) Salt water

107. Outer covering of *Paramecium* is known as

- a) Pellicle b) Cuticle
- c) Plasmalemma d) None of the above

108. Malignant or pernicious malaria is caused by

- a) Plasmodium vivax
- b) Plasmodium falciparum
- c) Plasmodium malariae
- d) All of the above

109. Cellular autophagy is the function of

- a) Ribosome
- b) Lysosome
- c) Chromosome
- d) Nucleosome

110. Taenia solium is commonly known as

- a) Beef tapeworm
- b) Pork tapeworm
- c) Canine tapeworm
- d) All of the above

111. For aquatic respiration, *Pila* possesses which of the following organs ?

- a) Ctenidia
- b) Radula
- c) Lungs
- d) All of the above

112. Tornaria is a larval form of

- a) Amphioxus
- b) Balanoglossus
- c) Herdmania
- d) Hirudinaria

113. The larva of *Petromyzon* is known as

- a) Ammocoete larva
- b) Bipinnaria larva
- c) Brachiolaria larva
- d) None of the above

114. In rabbit, trypsin is a constituent of

- a) Saliva
- b) Pancreatic juice
- c) Gastric juice
- d) All of the above

115. The first "upright walking man" was

- a) Homo habilis
- b) Homo erectus
- c) Homo sapiens
- d) All of the above

116. The Jurassic period falls under the

- a) Cenozoic era
- b) Palaeozoic era
- c) Mesozoic era
- d) Archeozoic era

117. The term "binomial system of nomenclature" was introduced by

- a) Linnaeus
- b) Darwin
- c) John Ray
- d) Bentham and Hooker

118. Reproduction in *Paramecium* takes place through

- a) Conjugation
- b) Endomixis
- c) Autogamy
- d) All of the above

119. The mouth of *Hirudinaria* has a

- a) Monoradiate aperture
- b) Biradiate aperture
- c) Triradiate aperture
- d) Tetraradiate aperture

120. Excretion in grasshopper is through

- a) Hepatic caeca
- b) Malpighian tubules
- c) Nephridia
- d) None of the above

121. *Pila* exhibits

- a) Branchial respiration
- b) Pulmonary respiration
- c) Semi aquatic respiration
- d) Both (a) and (b)

122. Which of the following is not related to Echinodermata

- a) Marine
- b) Podia
- c) Madreporite
- d) Asymmetry

123. Amphioxus is also known as

- a) Branchiostoma
- b) An amphibian
- c) A urochordate
- d) A hemichordate

124. *Petromyzon* has

- a) Placoid scales
- b) Cosmoid scales
- c) Ctenoid scales
- d) No scales

125. Wings of insect, bird and mammal represent

- a) Homologous organs
- b) Analogous organs
- c) Vestigial organs.
- d) Exoskeletal organs

126. Phospholipids are synthesized in the

- a) Golgi complex
- b) Nucleus
- c) Ribosomes
- d) Endoplasmic reticulum

127. Nematocysts are present only in

- a) Cnidaria
- b) Platyhelminthes
- c) Nematode
- d) Porifera

128. Antibodies are

- a) Carbohydrates
- b) Proteins
- c) Lipids
- d) Antibiotics

129. A radula is a unique organ found in

- a) Asterias
- b) Grasshopper
- c) Pila
- d) Hirudo

130. Multiple allelic forms in humans is represented by

- a) Dominance of genes
- b) Rh factor
- c) ABO blood group
- d) Recessive genes

131. Nematodes possess a

- a) A pseudocoelom
- b) A true coelom
- c) No coelom
- d) None of the above

132. An example of a marsupial mammal is

- a) Duck-billed platypus b) Kangaroo
- c) Mole d) Pangolin

133. Pneumatic endoskeleton is found in

- a) Class Pisces b) Class Amphibia
- c) Class Reptilia d) Class Aves

134. Leishmania causes the disease

- a) Malaria b) Typhoid
- c) Kala-azar d) Cholera

135. The lowest category in the taxonomic hierarchy is

- a) Family b) Genus
- c) Species d) Order

136. The six-kingdom classification was introduced by

- a) T.Cavalier Smith b) Charles Darwin
- c) Linnaeus d) John Ray

137. Slipper animalcule is often referred to as

- a) Plasmodium b) Paramecium
- c) Euglena d) Entamoeba

138. Entamoeba histolytica causes a disease called

- a) Malaria b) Kala-azar
- c) Dermatitis d) Amoebic dysentery

139. Microfilariae are the immature juvenile stage of

- a) Giardia intestinalis
- b) Ascaris lumbricoides
- c) Wuchereria bancrofti
- d) Taenia solium

140. The classification of Porifera is based on

- a) Symmetry b) Locomotion
- c) Spicules d) Pores

141. Leech feeds on blood and hence it is

- a) Herbivorous b) Omnivorous
- c) Carnivorous d) Sanguivorous

142. Ovipositor is found in

- a) Male grasshopper
- b) Female grasshopper
- c) Both the sexes
- d) None of the above

143. Respiration in rabbit is

- a) Pulmonary b) Cutaneous
- c) Tracheal d) Branchial

144. Charles Darwin's theory of evolution was based on

- a) Environment
- b) Mutations
- c) Chromosome pairing
- d) Natural selection

145. Lamarck's theory of evolution is called

- a) The theory of special creation
- b) Survival of fittest
- c) Inheritance of acquired characters
- d) None of the above

146. Which of the following statements is not correct ?

- a) Ribosomes are powerhouse of a cell
- b) Lysosomes are called suicidal bags
- c) Viruses lack their own enzyme system
- d) Bacteria lack a definite cell wall

147. Active transport is

- a) Movement of molecules against concentration gradient
- b) Movement of molecules along the concentration gradient
- c) Movement of molecules to and fro of plasma membrane
- d) None of the above

148. Synthesis of DNA takes place in which of the following phases of the cell cycle ?

- a) G₁ phase b) S phase
- c) G₂ phase d) Both G₁ and G₂ phases

149. The centromere is found at the centre of the two arms in

- a) Telocentric b) Metacentric
- c) Acrocentric d) Submetacentric

150. In mammals, dosage compensation for X-linked gene is achieved by

- a) Inactivating one of the two X chromosomes in female
- b) Inactivating both the X chromosomes in female
- c) Inactivating the X chromosome in male
- d) Inactivating the Y chromosome in male
