

UP-CPMT - 2005

Paper-1

Zoology

1. Class Crustacea differs from Insecta in having :
 - 1) two pairs of antennae
 - 2) jointed foot
 - 3) chitinous cuticle
 - 4) none of the above
2. Ex-flagellation in the life cycle of *Plasmodium* occurs in :
 - 1) trophozoites
 - 2) microgametocytes
 - 3) macrogametocytes
 - 4) merozoites
3. In DNA, which is absent?
 - 1) Adenine
 - 2) Thymine
 - 3) Guanine
 - 4) Uracil
4. Food storage in *Leucosolenia* occur by :
 - 1) ostia
 - 2) osculum
 - 3) thesocyte
 - 4) spongocoel
5. Cleavage in frog's zygote is :
 - 1) diploblastic
 - 2) heteroblastic
 - 3) holoblastic
 - 4) meroblastic
6. Major nitrogenous waste product in ureotelic animals like rabbit and other mammals is :
 - 1) uric acid
 - 2) urea
 - 3) ammonia

- 4) amino acids
7. Chloragogen cells help in :
- 1) respiration
 - 2) reproduction
 - 3) circulation
 - 4) nutrition
8. Which have not left any evidences of organic evolution?
- 1) Archaeopteryx
 - 2) Cow
 - 3) Peripatus
 - 4) Neopilina
9. A haemophilic woman marries a normal man then :
- 1) all the children will be normal
 - 2) all the sons will be haemophilic
 - 3) all the girls will be haemophilic
 - 4) half girls will be haemophilic
10. Which one is single membrane cell organelle ?
- 1) Endoplasmic reticulum
 - 2) Mitochondria
 - 3) Lysosomes
 - 4) Chloroplast
11. Chloragogen cells of earthworms are analogous to vertebrate :
- 1) lungs
 - 2) liver
 - 3) gut
 - 4) kidneys
12. Acrosome is formed by:
- 1) nucleus
 - 2) Golgi apparatus
 - 3) mitochondria
 - 4) none of these
13. Which is present in male rabbit but not present in female rabbit?
- 1) Urethra
 - 2) Vagina
 - 3) Uterus

4) Vasdeferens

14. Lymphocytes are formed by :

- 1) plasma cells
- 2) mast cells
- 3) liver cells
- 4) none of these

15. Urine is concentrated in :

- 1) kidney
- 2) liver
- 3) colon
- 4) heart

16. Example of analogous organs is :

- 1) wings of bird and insect
- 2) forelimbs of horse and man
- 3) teeth of elephant and man
- 4) none of the above

17. Striped muscles are characterised by :

- 1) syncytial
- 2) spindle shape
- 3) uninucleate
- 4) none of the above

18. If dorsal nerve of spinal cord is broken down then its effect is :

- 1) no impulse is transmitted
- 2) impulse is transmitted but slowly
- 3) impulse is transmitted fast
- 4) no effect on impulse

19. Trochophore is the larva of :

- 1) Neopilina
- 2) Chiton
- 3) Pila
- 4) All of these

20. Maximum absorption of water occurs in :

- 1) colon
- 2) rectum
- 3) large intestine

4) small intestine

21. Which extinct animal shows evidences of evolution ?

- 1) Peripatus
- 2) Neopilina
- 3) Echidna
- 4) Archaeopteryx

22. How many sperms are formed by four primary spermatocytes?

- 1) 1
- 2) 4
- 3) 16
- 4) 32

23. Bowman's capsule is found in :

- 1) glomerulus
- 2) uriniferous tubule
- 3) nephron
- 4) Malpighian capsule

24. Mutations are generally :

- 1) recessive
- 2) polymorphic
- 3) lethal
- 4) dominant

25. Which is gonadotropin hormone ?

- 1) GH
- 2) MSH
- 3) ADH
- 4) FSH and LH

26. Cell membrane in animals is composed mainly of the molecules of :

- 1) lipids
- 2) proteins
- 3) both (1) and (2)
- 4) carbohydrates

27. Which is called soluble RNA?

- 1) r-RNA
- 2) t-RNA
- 3) m-RNA
- 4) hn-RNA

28. Which leaves the liver and moves towards kidney?

- 1) Ammonia
- 2) Urea
- 3) Glycogen
- 4) Bile

29. On high mountains, difficulty in breathing is due to :

- 1) decrease in partial pressure of O_2
- 2) decrease in amount of O_2
- 3) increase in CO_2 concentration
- 4) all of the above

30. Blood leaving liver and going towards heart is rich in :

- 1) bile
- 2) urea
- 3) ammonia
- 4) oxygen

31. Which type of connective tissue produced antibodies?

- 1) Mast cells
- 2) Collagenous fibres
- 3) Plasma cells
- 4) None of these

32. How many ATP are formed by oxidation of one glucose molecule in liver cells?

- 1) 36
- 2) 38
- 3) 2
- 4) 8

33. 'Sea fan' belongs to :

- 1) Coelenterata
- 2) Porifera
- 3) Echinodermata
- 4) Mollusca

34. Set which includes only analogous organs is :

- 1) wings of butterfly, housefly and bat
- 2) hindlegs of horse, grasshopper and bat
- 3) wings of butterfly and wingspread of bat and birds
- 4) mandibles of cockroach, mosquito and honey bee

35. Osphradium in mollusca has function of :

- 1) respiration
- 2) reproduction

- 3) grinding of food
- 4) testing physical and chemical qualities of food

36. Which of the following hormone stimulates the gastric secretion?

- 1) Enterogastrone
- 2) Gastrin
- 3) CCK-PZ
- 4) Villikinin

37. Fertilization in earthworm occurs in :

- 1) cocoon
- 2) spermathecae
- 3) coelom
- 4) seminal vesicles

38. Husband has blood group A and wife has blood group B. What is the blood group of children?

- 1) A
- 2) B
- 3) AB
- 4) A, B, AB and O

39. Which insect is useful for us ?

- 1) Periplaneta
- 2) Musca
- 3) Bombyx
- 4) Mosquitoes

40. 'Convergent evolution' is shown by :

- 1) homologous organs
- 2) analogous organs
- 3) vestigial organs
- 4) all of the above

41. Organs which differ in origin but perform similar functions :

- 1) analogous
- 2) homologous
- 3) vestigial
- 4) all of these

42. Neural canal is present in :

- 1) humerus

- 2) tibio-fibula
- 3) vertebral column
- 4) cranial bones

43. Sequence of DNA (non-coding) is known as :

- 1) exon
- 2) intron
- 3) cistron
- 4) none of these

44. Sigmoid notch is formed by :

- 1) cavity formed by humerus
- 2) cavity formed by radio ulna
- 3) cavity formed by tibio-fibula
- 4) cavity formed by femur

45. Which of the following character is present essentially in chordates?

- 1) Ventral spinal chord
- 2) Dorsal heart
- 3) Pharyngeal gill slits
- 4) Blood flow in forward direction in ventral blood vessels

46. Number of cranial nerves in frog :

- 1) 10 pairs
- 2) 9 pairs
- 3) 12 pairs
- 4) None of these

47. How many genes are present in *E. coli* ?

- 1) 200
- 2) 230
- 3) 231
- 4) None of these

48. 'Digestion' word means :

- 1) burning of food
- 2) oxidation of food
- 3) hydrolysis of food
- 4) breakdown of food

49. Newt and *Hemidactylus* differ in :

- 1) body divided into head, trunk and tail

- 2) limbs four
- 3) heart chambered division
- 4) none of the above

50. During starvation what will be sequence of ending of food stuffs?

- 1) Carbohydrate - fat - protein
- 2) Carbohydrate - protein - fat
- 3) Fat - protein - carbohydrate
- 4) Fat - carbohydrate - protein

Botany

51. If centromere is in the middle the chromosome is called :

- 1) sub-metacentric
- 2) meta-centhic
- 3) acenthic
- 4) telocenthic

52. Mutation is more common when it is present in :

- 1) dominant condition
- 2) recessive condition
- 3) constant in population
- 4) none of the above

53. Jumping genes in maize were discovered by :

- 1) Hugo de Vries
- 2) T.H. Morgan
- 3) Barbara McClintock
- 4) Mendel

54. Respiratory roots are found in :

- 1) Rhizopus
- 2) Orchid
- 3) Vallisnaria
- 4) Mangrove plants

55. Which hormone is responsible for mobilization of storage food during seed germination ?

- 1) Auxin
- 2) Gibberellin
- 3) Cytokinin
- 4) Ethylene

56. Which cell organelle is covered by only one unit membrane?

- 1) Nucleus
- 2) Plastids
- 3) Mitochondria
- 4) Lysosome

57. Pneumatophores are meant for :

- 1) respiration
- 2) anchorage
- 3) protection
- 4) nutrition

58. Core of chlorophyll is formed by :

- 1) Fe
- 2) Mn
- 3) CH₃
- 4) Mg

59. Mark the correct sequence of layers found in root anatomy :

- 1) Epiblema, cortex, endodermis, pericycle
- 2) Cortex, epiblema, pericycle, endodermis
- 3) Epiblema, cortex, pericycle, endodermis
- 4) Cortex, epiblema, endodermis, epidermis

60. 'Heterosis' is related to :

- 1) cloning
- 2) selection
- 3) hybridization
- 4) introduction

61. Induction of cell division and delay in senescence is due to :

- 1) gibberellin
- 2) auxin
- 3) cytokinin
- 4) ethylene

62. The organelles, those take part in photorespiration are :

- 1) chloroplast and mitochondria
- 2) chloroplast, mitochondria and peroxisome
- 3) mitochondria and peroxisome
- 4) mitochondria only

63. Humus is present in :

- 1) horizon-A
- 2) horizon-O
- 3) horizon-B
- 4) horizon-C

64. By anaerobic process, the cow dung is used to produce :

- 1) methane
- 2) butane
- 3) ethane
- 4) propane

65. Stomatal opening is regulated by :

- 1) light
- 2) temperature
- 3) atmospheric humidity
- 4) wind

66. P-proteins belong to :

- 1) xylem parenchyma
- 2) trichomes
- 3) sieve tube elements
- 4) tracheids and vessels

67. Which economically important product is obtained from *Cycas circinalis*?

- 1) Timber
- 2) Sago
- 3) Essential oil
- 4) Resin

68. Parasitic and saprophytic conditions are more familiar in :

- 1) fungi
- 2) bacteria
- 3) algae
- 4) ferns

69. Which enzyme is most specific ?

- 1) Trypsin
- 2) Pepsin
- 3) Sucrase
- 4) Nuclease

70. CO₂ in CAM plants is in :

- 1) mesophyll cells
- 2) bundle sheath
- 3) both (1) and (2)
- 4) none of these

71. The wall of bacteria consists of :

- 1) N-acetyl glucosamine
- 2) N-acetyl muramic acid
- 3) both (1) and (2)
- 4) cellulose

72. Guttation occurs through :

- 1) lenticels
- 2) hydathodes
- 3) pneumatophores
- 4) epidermis

73. C-DNA is formed from m-RNA by which enzyme ?

- 1) Restriction endonuclease
- 2) Reverse transcriptase
- 3) DNA polymerase
- 4) RNA polymerase

74. Living in same habitat, organisms of same species form :

- 1) biosphere
- 2) community
- 3) population
- 4) niche

75. O₃ depletion is due to :

- 1) PAN
- 2) NO_x
- 3) CFCs
- 4) Sulphates

76. In RNA, which is absent?

- 1) Adenine
- 2) Guanine
- 3) Thymine
- 4) Cytosine

77. Lichens show :

- 1) mutualism
- 2) commensalism
- 3) parasitism
- 4) saprophytism

78. In which of the following, oxygen does not evolve during photosynthesis?

- 1) Photosynthetic red algae
- 2) Photosynthetic green algae
- 3) Photosynthetic blue-green algae
- 4) Photosynthetic bacteria

79. Structures not similar in structure and origin but perform same function :

- 1) homologous structures
- 2) analogous structures
- 3) adaptive structures
- 4) variable structures

80. Quiescent centre is present in :

- 1) Root apex
- 2) shoot apex
- 3) parenchyma
- 4) collenchyma

81. Enzymes of electron transport system are present in :

- 1) inner mitochondrial membrane
- 2) matrix
- 3) intermembranous space
- 4) endoplasmic reticulum

82. Which statement is incorrect ?

- 1) Plant virus contain RNA
- 2) Animal virus contain DNA
- 3) T₄ contains double standard DNA
- 4) TMV contains double stranded RNA

83. Which of the following accepts terminal electron?

- 1) Molecular O₂
- 2) Molecular H₂
- 3) Molecular CO₂

4) NADPH₂

84. A distinct mechanism that usually involves a short segment of DNA with remarkable capacity to move from one location in a chromosome to another is called :

- 1) DNA replication
- 2) DNA hybridizaion
- 3) DNA recombination
- 4) DNA transposition

85. Most cytogenic activity occur during :

- 1) interphase
- 2) telophase
- 3) prophase
- 4) anaphase

86. The S-phase of cell cycle is characterised by :

- 1) duplication of chromosome
- 2) shortening of chromosome
- 3) duplication of DNA
- 4) duplication of centriole

87. Protonema is formed in :

- 1) moss
- 2) liverworts
- 3) ferns
- 4) Cycas

88. Necessary conditions for seed germination is :

- 1) light and O₂
- 2) light and high temperature
- 3) vernalization and scarification
- 4) water and O₂

89. The fruit of Solanaceae is :

- 1) berry or capsule
- 2) pome
- 3) legume or pod
- 4) drupe

90. Aleurone layer is found in :

- 1) embryo
- 2) nucellus

- 3) endosperm
- 4) endodermis

91. Pollination occurring from one flower to another of same plant is :

- 1) autogamy
- 2) allogamy
- 3) geitonogamy
- 4) none of these

92. Mosses are attached to substratum by :

- 1) roots
- 2) capsule
- 3) rhizoids
- 4) main axis

93. Loss of water from the tip of leaves is known as :

- 1) transpiration
- 2) bleeding
- 3) exudation
- 4) guttation

94. Initiation codon is :

- 1) AUG
- 2) UUU
- 3) UAG
- 4) AAG

95. Cell membrane is made up of :

- 1) protein
- 2) cellulose
- 3) lipids
- 4) lipids, carbohydrates and protein

96. Fruits are formed in :

- 1) Brassica
- 2) Fern
- 3) Cycas
- 4) Funaria

97. Casparian strips are present in :

- 1) endodermis
- 2) epidermis
- 3) cortex
- 4) pericycle

98. Which of the following constitute about 10-20% of total cellular RNA :

- 1) m-RNA
- 2) r-RNA
- 3) t-RNA
- 4) hn-RNA

99. Coding sequences of DNA in split genes are :

- 1) exon
- 2) intron
- 3) rhizoids
- 4) cistron

100. Phytotron is :

- 1) a controlled condition chamber for tissue culture
- 2) leaf culture process
- 3) special culture of plants
- 4) root culture process

Answer Key

1) 1	2) 2	3) 4	4) 3	5) 3	6) 2	7) 4	8) 2	9) 2	10) 3
11) 2	12) 2	13) 4	14) 1	15) 1	16) 1	17) 1	18) 1	19) 4	20) 1
21) 4	22) 3	23) 4	24) 1	25) 4	26) 3	27) 2	28) 2	29) 1	30) 2
31) 3	32) 2	33) 1	34) 3	35) 4	36) 2	37) 1	38) 4	39) 3	40) 2
41) 1	42) 3	43) 2	44) 2	45) 3	46) 1	47) 4	48) 3	49) 3	50) 1
51) 2	52) 1	53) 3	54) 4	55) 2	56) 4	57) 1	58) 4	59) 1	60) 3
61) 3	62) 2	63) 1	64) 1	65) 1	66) 3	67) 2	68) 1	69) 4	70) 1
71) 3	72) 2	73) 2	74) 3	75) 3	76) 3	77) 1	78) 4	79) 2	80) 1
81) 1	82) 4	83) 1	84) 4	85) 1	86) 3	87) 1	88) 4	89) 1	90) 3
91) 3	92) 3	93) 4	94) 1	95) 4	96) 1	97) 1	98) 3	99) 1	100) 1