

UP-CPMT - 2001

Paper-1

Zoology

1. The age of fossils is determined by :
 - 1) analysis of bones
 - 2) radioactive C¹⁴ dating
 - 3) electron microscopy
 - 4) weighing the fossils

2. Which of the following snakes is non-poisonous ?
 - 1) Cobra
 - 2) Krait
 - 3) Viper
 - 4) Python

3. Syncytial epidermis is found in :
 - 1) Hydra
 - 2) Asterias
 - 3) Earthworm
 - 4) Starfish

4. The infection of *Entamoeba* takes place by :
 - 1) trophozoite
 - 2) binucleate cyst
 - 3) precystic stage
 - 4) quadrinucleate cyst

5. The colour of the body in earthworm is brown due to the presence of :
 - 1) porphyrin
 - 2) haemoglobin
 - 3) blood
 - 4) haemocyanin

6. In the development of a frog, the gastrulation process involves :
 - 1) epiboly
 - 2) emboly
 - 3) invagination

- 4) all of these
7. Order Primata contains :
- 1) shrew and hedge hog
 - 2) bats and vampire
 - 3) monkeys and man
 - 4) horses and zebra
8. Osteomalacia occurs due to the deficiency of
- 1) vitamin-A
 - 2) vitamin-B
 - 3) vitamin-C
 - 4) vitamin-D
9. Which of the following is concerned with the formation of urea in rabbit ?
- 1) Blood
 - 2) Kidney
 - 3) Spleen
 - 4) Liver
10. Which of the following taxonomic ranks contains organisms most similar to one another ?
- 1) Class
 - 2) Genus
 - 3) Family
 - 4) Species
11. Osphradium of *Pila globosa* is :
- 1) photoreceptor
 - 2) chemoreceptor
 - 3) thermoreceptor
 - 4) tangoreceptor
12. In the life cycle of *Plasmodium* exflagellation occurs in :
- 1) sporozoites
 - 2) microgametes
 - 3) macrogametes
 - 4) signet ring
13. Obturator foramen is found in :
- 1) frog's pelvic girdle
 - 2) frog's pectoral girdle
 - 3) rabbit's pelvic girdle

4) rabbit's pectoral girdle

14. Glisson's capsules are present in :

- 1) liver
- 2) lung
- 3) kidney
- 4) stomach

15. Which one of the following is an inhibitory neuro-transmitter ?

- 1) GABA
- 2) Adrenaline
- 3) Epinephrine
- 4) Acetylcholine

16. The junction between the axon of one neuron and the dendrite of the next is called :

- 1) a joint
- 2) a synapse
- 3) constant bridge
- 4) junction point

17. Nissl's granules are absent in :

- 1) axon
- 2) cyton
- 3) dendron
- 4) Schwann cells

18. Cestodes are distinguished from other flatworms by the absence of :

- 1) nervous system
- 2) digestive system
- 3) excretory system
- 4) reproductive system

19. The type of canal system found in *Leucosolenia* is :

- 1) ascon type
- 2) sycon type
- 3) leucon type
- 4) aphodal type

20. Loop of Henle is found in :

- 1) lung
- 2) liver
- 3) neuron

4) nephron

21. The infection of *Enterobius* is caused to man by :

- 1) flying
- 2) piercing
- 3) inoculation
- 4) contamination

22. The number of ATP molecules gained during aerobic respiration of 1 mole of glucose is :

- 1) 12
- 2) 18
- 3) 30
- 4) 38

23. Hydra punctures the victim by injecting the chemical :

- 1) sarafotoxin
- 2) toxoplasmin
- 3) hypnotoxin
- 4) kaliotoxin

24. In *Hydra*, nematocysts are found only in :

- 1) epidermis
- 2) gastrodermis
- 3) mesodermis
- 4) endodermis

25. The modern idea about ageing is that our body slowly loses the power of defence against the invasion of germs and pathogens. This process starts by the disappearance of which organ ?

- 1) Spleen
- 2) Thymus gland
- 3) Pituitary gland
- 4) Parathyroid gland

26. Polar bodies are produced during the formation of :

- 1) sperm
- 2) oogonium
- 3) spermatocytes
- 4) secondary oocyte

27. In frog, the vertebra with an anterior convex surface is :

- 1) atlas
- 2) urostyle
- 3) 8th vertebra
- 4) 9th vertebra

28. Progesterone is secreted by :

- 1) corpus aorta
- 2) corpus albicans
- 3) corpus luteum
- 4) corpus callosum

29. Which of the following malarial parasite has the longest incubation period ?

- 1) Plasmodium vivax
- 2) Plasmodium falciparum
- 3) Plasmodium ovale
- 4) Plasmodium malariae

30. The pyruvic acid is formed during :

- 1) Krebs cycle
- 2) glycolysis
- 3) ornithine cycle
- 4) photophosphorylation

31. In mammals, the brain centre, which regulates body temperature, is situated in :

- 1) cerebellum
- 2) cerebral lobe
- 3) hypothalamus
- 4) medulla oblongata

32. Which one of the following is a transparent tissue ?

- 1) Tendon
- 2) Ligament
- 3) Fibrous cartilage
- 4) Hyaline cartilage

33. The connecting link between Annelida and Mollusca is :

- 1) Neopilina
- 2) Nautilus
- 3) Glochidium larva
- 4) Valliger larva

34. Which of the following statements is correct ?

- 1) Homo erectus is the ancestor of man
- 2) Cro-magnon man's fossil has been found in Ethiopia
- 3) Australopithecus is the real ancestor of modern man
- 4) Cro-magnon man is the most recent ancestor of Homo sapiens

35. The part where fertilization of ovum takes place in rabbit, humans and other placental mammals is :

- 1) ovary
- 2) uterus
- 3) vagina
- 4) fallopian tube

36. Caterpillar and maggot are :

- 1) larvae
- 2) nymphs
- 3) adults
- 4) pupa

37. Tendons and ligament are specialized types of :

- 1) nervous tissue
- 2) epithelial tissue
- 3) muscular tissue
- 4) fibrous connective tissue

38. The possible blood groups of children born to parents having A and AB groups are :

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

39. Which of the following hormones stimulates the secretion of milk from female ?

- 1) LH
- 2) Prolactin
- 3) Oxytocin
- 4) Progesterone

40. The 3rd, 6th and 11th cranial nerves are :

- 1) optic, facial and spinal nerves
- 2) oculomotor, trigeminal and spinal
- 3) trigeminal, abducens and vagus
- 4) oculomotor, abducens and spinal accessory

41. Green glands, present in some arthropods, help in

- 1) respiration
- 2) excretion
- 3) digestion

4) reproduction

42. In which segment in earthworm, the clitellum is present?

- 1) 16th segment
- 2) 17th to 19th segments
- 3) 14th to 16th segments
- 4) 5th to 6th segments

43. First organisms to evolve on the earth were :

- 1) saprotrophs
- 2) photoautotrophs
- 3) chemoautotrophs
- 4) chemoheterotrophs

44. Limbless amphibians belong to the order :

- 1) anura
- 2) urodela
- 3) gymnophiona
- 4) lissamphibia

45. The book *Philosophie Zoologique* was written by :

- 1) Wallace
- 2) Oparin
- 3) Lamarck
- 4) Darwin

46. Which of the following species of silkworm are found in India ?

- 1) *Bombyx mari*
- 2) *Anthera paphia*
- 3) *Anthera roylei*
- 4) *Anthera assama*

47. Which of the following hormones helps in the contraction of uterus during child birth ?

- 1) ADH
- 2) Androgen
- 3) Oxytocin
- 4) Glucocorticoid

48. Which one of the following is the correct statement about the circulatory system of cockroach ?

- 1) It is closed type of circulatory system
- 2) It is a complicated type of circulatory system

- 3) It takes place without the participation of tissue
- 4) It has 13- chambered heart and in each segment one pair of ostia are present

49. Which one of the following is a motor nerve ?

- 1) Auditory
- 2) Abducens
- 3) Optic nerve
- 4) Trigeminal nerve

50. Miller and Urey performed an experiment to prove the origin of life. They took gases NH_3 , and H_2 alongwith :

- 1) N_2 and H_2O
- 2) H_2O and CH_4
- 3) CH_4 and N_2
- 4) CO_2 and NH_3

Botany

51. The replication of DNA takes place during :

- 1) S-phase
- 2) prophase
- 3) metaphase
- 4) anaphase

52. In angiosperms, endosperm is formed by :

- 1) division of fused polar nuclei
- 2) free nuclear divisions of megaspore
- 3) division of fused synergids and male gamete
- 4) division of fused polar nuclei and male gamete

53. Pepo fruit is generally found in family :

- 1) Liliaceae
- 2) Cruciferae
- 3) Leguminosae
- 4) Cucurbitaceae

54. T. Schwann and M. Schleiden were :

- 1) Dutch biologists
- 2) English biologists
- 3) Austrian biologists
- 4) German biologists

55. The pyramid of energy is always :

- 1) upright
- 2) inverted
- 3) horizontal
- 4) opaque

56. Most of the hydrolytic enzymes of lysosomes function at :

- 1) acidic pH
- 2) basic pH
- 3) neutral pH
- 4) none of these

57. The most primitive type of stele is :

- 1) eustele
- 2) solentostele
- 3) protostele
- 4) siphonostele

58. The floral formula, $\text{EBr } \oplus \text{ } \ominus \text{ } K_{(5)} \text{ } C_{(5)} \text{ } A_0 \text{ } G_{(3)}$ belongs to family :

- 1) Solanaceae
- 2) Graminae
- 3) Cucurbitaceae
- 4) Liliaceae

59. Which of the following cell organelle is related to respiration ?

- 1) Nucleus
- 2) Vacuole
- 3) Chloroplast
- 4) Mitochondria

60. Tyloses thickenings are seen in :

- 1) phloem cells
- 2) ray parenchyma only
- 3) collenchyma
- 4) ray parenchyma and xylem cells

61. A test cross is performed :

- 1) by selfing of F_2 -generation plants
- 2) by selfing of F_1 -generation plants
- 3) to determine whether F_1 -plant is homozygous or heterozygous
- 4) between a homozygous dominant and homozygous recessive plant

62. Cleavage polyembryony is found in :

- 1) Cycas
- 2) Pinus
- 3) Mini Cycas
- 4) Ephedra

63. In *Cycas*, the vascular bundles are arranged in the shape of inverted omega in :

- 1) leaf
- 2) rachis
- 3) leaflet
- 4) stem

64. Nucleolus is the site for the synthesis of :

- 1) DNA
- 2) m-RNA
- 3) t-RNA
- 4) ribosomes

65. Alcoholic fermentation takes place in the presence of :

- 1) maltase
- 2) zymase
- 3) amylase
- 4) invertase

66. The outermost primary meristem gives rise to:

- 1) epidermis
- 2) procambium
- 3) ground meristem
- 4) all of the above

67. Lenticels and hydathodes are small pores with which of the following common attributes ?

- 1) They allow exchange of gases
- 2) Their opening and closing is not regulated
- 3) They always remain closed
- 4) They are found on the same organ of plants

68. Energy enters the ecosystem through :

- 1) herbivores
- 2) carnivores
- 3) producers
- 4) decomposers

69. Which of the following plant has important use in the production of fibre, oil and paper ?

- 1) Gossypium
- 2) Croton
- 3) Hibiscus
- 4) Abutilon

70. When a bacterial cell possesses flagellum on its anterior and posterior side, this condition is called ?

- 1) peritrichous
- 2) lophotrichous
- 3) amphitrichous
- 4) monotrichous

71. The book '*Genera Plantarum*' was written by :

- 1) Bessey
- 2) Hutchinson
- 3) Engler and Prantl
- 4) Bentham and Hooker

72. Ethylene gas is used for :

- 1) growth of plants
- 2) delaying fruits abscission
- 3) ripening of fruits
- 4) stopping the leaf abscission

73. Which phase of meiosis is the longest phase ?

- 1) Prophase-I
- 2) Metaphase-I
- 3) Anaphase
- 4) Telophase

74. The term 'frond' in a fern is used for :

- 1) rachis
- 2) whole plant
- 3) spore-bearing leaf
- 4) sexually reproducing structure

75. The transfer of genetic material from one bacterium of another by virus is called :

- 1) translation
- 2) transduction
- 3) conjugation

4) transformation

76. Richmond-Lang effect is shown by :

- 1) auxins
- 2) sugars
- 3) kinetin
- 4) gibberellins

77. Hybrid vigour is induced by :

- 1) clonal selection
- 2) crossing of plant
- 3) crossing two plants
- 4) species differentiation

78. *Laminaria* (kelp) and *Fucus* (rock weed) are the example of :

- 1) green algae
- 2) brown algae
- 3) red algae
- 4) golden brown algae

79. The symbiotic association of fungi and algae is called :

- 1) lichen
- 2) mycorrhiza
- 3) rhizome
- 4) endomycorrhiza

80. The law of limiting factor, in photosynthesis, was given by :

- 1) R. Hill
- 2) Calvin
- 3) Blackman
- 4) Arnon

81. The most accepted theory for ascent of sap is :

- 1) cohesion
- 2) pulsation
- 3) root pressure
- 4) transpiration pull

82. Which one of the following is a wheat fruit ?

- 1) Achene
- 2) Cypsella
- 3) Caryopsis

4) Endosperm

83. The enzyme involved in transcription is :

- 1) RNA polymerase
- 2) DNA polymerase - I
- 3) DNA polymerase - II
- 4) DNA polymerase - III

84. Which of the following statements is true regarding the archegonium of fern ?

- 1) There are four neck canal cells
- 2) There are three neck canal cells
- 3) There is one neck canal cell with one nucleus
- 4) There is one neck canal cell with two nuclei

85. The plant which bears clinging roots is :

- 1) Trapa
- 2) orchid
- 3) screw pine
- 4) Podostemon

86. Syconus fruit develops from :

- 1) catkin
- 2) cyathium
- 3) verticillaster
- 4) hypanthodium

87. The site of EMP pathway in cell is :

- 1) peroxisome
- 2) cytoplasm
- 3) matrix of mitochondria
- 4) inner membrane of mitochondria

88. The edible part of mushroom is :

- 1) basidiocarp
- 2) tertiary mycelium
- 3) primary mycelium
- 4) secondary mycelium

89. The first reaction in photorespiration is :

- 1) carboxylation
- 2) decarboxylation
- 3) oxygenation

4) phosphorylation

90. Which one of the following is the key intermediate compound linking glycolysis to the Krebs cycle ?

- 1) ATP
- 2) NADH
- 3) malic acid
- 4) acetyl Co-A

91. The shape of chromosome is determined by :

- 1) centrosome
- 2) centromere
- 3) chromomere
- 4) telomere

92. Insectivorous plants grow in soils which are deficient in :

- 1) nitrogen
- 2) calcium
- 3) magnesium
- 4) carbohydrate

93. An example of monocot fibre yielding plant is :

- 1) Cocos
- 2) Corchorus
- 3) Clematis
- 4) Crotolaria

94. In *Funaria*, stomata are present on the :

- 1) stem
- 2) leaves
- 3) capsule
- 4) archegonia

95. Coir is the commercial product of coconut's :

- 1) pericarp
- 2) mesocarp
- 3) endocarp
- 4) endosperm

96. The high amount of *E. coli* in water is an indicator of :

- 1) hardness of water
- 2) industrial

- 3) sewage pollution
- 4) presence of chlorine in water

97. Carbon dioxide acceptor in C₃ plants is :

- 1) PEP
- 2) RuDP
- 3) PGA
- 4) NADP

98. The rhizoids in *Funaria* are :

- 1) tuberculated
- 2) unicellular and simple
- 3) distinct, branched and coenocytic
- 4) multicellular and oblique septate

99. The two vegetations of ecosystem are separated by :

- 1) ecotone
- 2) ecoline
- 3) ecosytem
- 4) ecesis

100. Zygote of Spirogyra produces 4 haploid nuclei in which :

- 1) one is functional
- 2) two are functional
- 3) three are functional
- 4) all four are functional

Answer Key

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