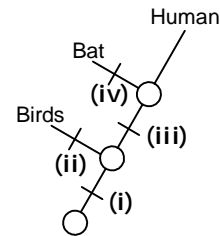


## SPECIAL PAPER IN ZOOLOGY - 04

- Which state in India has the least population according to 2001 census  
(1) Goa (2) Mizoram  
(3) Sikkim (4) Manipur
- Which one of the following pairs is an example of vestigial structures?  
(1) Internal ear of snake and pinna of humans  
(2) Vermiform appendix and facial hair in human female  
(3) Coccyx and external ear muscles in humans  
(4) Nictitating membrane and premolars in humans
- Acid secretion in the stomach is stimulated by  
(1) Vagal discharge (2) Histamine  
(3) Gastrin (4) All of these
- Some of the statements are given below. Read them carefully and then answer the correct alternate  
I No absorption of food takes place in mouth and oesophagus.  
II Absorption of H<sub>2</sub>O, alcohol, simple salts, glucose and chloride takes place in the stomach to a slight extent.  
III Whole protein particles can be absorbed by pinocytosis.  
(1) I and II are correct, III rarely correct  
(2) All correct  
(3) I and III are correct, II incorrect  
(4) I and II are correct, III incorrect
- Vitamin essential for nerve impulse transmission is  
(1) B<sub>1</sub> (2) B<sub>2</sub>  
(3) B<sub>6</sub> (4) B<sub>12</sub>
- From ontogeny point of view, liver is  
(1) Mesodermal (2) Ectodermal  
(3) Endodermal (4) Both (2) and (3)
- Spleen is an active haemopoietic organ. It produces red blood corpuscles in embryonic stage, but in adults, it produces  
(1) Monocytes (2) Neutrophils  
(3) Lymphocytes (4) Basophils
- Which of the following are true for *Peripatus*  
I. It is a connecting link between annelida and arthropoda  
II. It is a connecting link between arthropoda and mollusca  
III. It is a living fossil  
IV. It is endemic to South America  
(1) I, II and III (2) III and I  
(3) II and III (4) II and IV
- Vitamin K is required for  
(1) Conversion of prothrombin to thrombin  
(2) Synthesis of prothrombin  
(3) Change of fibrinogen to fibrin  
(4) Formation of thromboplastin
- The correct statement regarding *Ascaris*?  
(1) A larval stage of *Ascaris* is swallowed by cattle which in turn infects human beings  
(2) Once inside host's intestine, *Ascaris* larva develops directly into an adult without entering other organs of the host  
(3) Snail act as a secondary host of *Ascaris*  
(4) Eggs of *Ascaris* containing second stage juvenile larvae when swallowed by man becomes infective

11. Course of water current in the body of *Leucosolenia* is
- (1) Dermal ostium – spongocoel – gastral ostium – osculum
  - (2) Pinacocyte – ostium – spongocoel – osculum
  - (3) Dermal ostium – gastral ostium – spongocoel – osculum
  - (4) Osculum – spongocoel – gastral ostium – dermal ostium
12. Which of the following is correct
- I. Memory cells can produce, more effector cells
  - II. DPT is a triple antigen used against diphtheria, polio and tetanus
  - III. Elephantiasis is a disease caused by a filarial worm in the elephants.
  - IV. Rheumatoid arthritis involves inflammation of synovial membrane
- (1) All are correct
  - (2) All are correct except II and III
  - (3) All are correct except III
  - (4) Only II, III and IV are incorrect
13. The ciliated, free-swimming larval stage of the cnidarian jelly fish is known as
- (1) Polyp
  - (2) Blastula
  - (3) Medusa
  - (4) Planula
14. Oil of chenopodium, is used in the treatment of
- (1) Malaria
  - (2) Typhoid
  - (3) Tuberculosis
  - (4) Ascariasis
15. A segment of *Hydra* regenerates into a complete *Hydra*, if it contains a part of
- (1) Epidermis
  - (2) Epidermis and gastrodermis
  - (3) Basal disc
  - (4) Epidermis, gastrodermis and tentacles
16. Mark the correct answer
- I. The luteal phase of menstrual cycle is characterized by gradual increase in progesterone secretion.
  - II. Tapetum of Graffian follicle produces both enzymes and hormones
  - III. A testicular hormone inhibin secreted by sertoli cells inhibits FSH secretion
- (1) All are correct
  - (2) II and I is correct
  - (3) II and I are incorrect
  - (4) All are incorrect
17. The correct pair of infective agent and the disease caused is
- (1) *Wucheria bancrofti* – Filariasis
  - (2) *Trichinella spiralis* – Guinea worm disease
  - (3) *Leishmania donovani* – Sleeping
  - (4) *Glossina palpalis* – Kala azar

18. Fluid mosaic model of cell membrane proposed that
- (1) A lipid bilayer is sandwiched layer of proteins on each face
  - (2) A lipid bilayer is coated by a layer of proteins on the outer surface only
  - (3) A lipid bilayer has proteins embedded in itself
  - (4) A lipid bilayer has intrinsic and extrinsic proteins
19. The term 'zone of exclusion' is associated with
- (1) Microtubules
  - (2) Centrioles
  - (3) Golgi bodies
  - (4) All of the above
20. Consider the cladogram below



Mark the correct option

- (1) (i) Feathers (ii) Amnion membrane (iii) Hair (iv) Wing structure
  - (2) (i) Amnion membrane (ii) Feathers (iii) Hair (iv) Wing structure
  - (3) (i) Limbs (ii) Amnion membrane (iii) Mammary glands (iv) Wing
  - (4) (i) Wings & feathers (ii) Limbs (iii) Mammary glands (iv) Limbs with feathers
21. Miller in his dielectric spark discharge experiments performed at 75000 V, used  $\text{CH}_4$ ,  $\text{NH}_3$  and  $\text{H}_2$  in the ratio of
- (1) 2 : 2 : 1
  - (2) 2 : 1 : 2
  - (3) 5 : 5 : 1
  - (4) 2 : 2 : 2
22. Prothrombinase enzyme is constituted by
- (1) Thromboplastin
  - (2) Platelet factor-3
  - (3) Calcium ions
  - (4) All of the above
23. Which of the following leucocytes is amoeboid in shape ?
- (1) Monocytes
  - (2) Neutrophils
  - (3) Eosinophils
  - (4) Lymphocytes
24. While doing some experiments with *Amoeba proteus* in a culture medium, it was found that the contractile vacuole of the protozoan disappeared although the other organelles showed normal activity. This must have happened most probably due to
- (1) Change in the temperature of the medium
  - (2) Change in the pH of the medium
  - (3) Change in the oxygen concentration of the medium
  - (4) Change in the carbon-di-oxide concentration of the medium

25. Packed cell volume is  
 (1) About 45% of blood volume  
 (2) Less than 45% of blood volume  
 (3) More than 45% of blood volume  
 (4) Equal to the number of WBC
26. Why the adult stem cells are not preferred over embryonic stem cells though they are as flexible as cells from human embryo?  
 (1) Stem cells from adults have not been found for all tissues of the body.  
 (2) They are present in minute quantity and difficult to isolate and purify.  
 (3) They have less capacity to proliferate.  
 (4) All of the above
27. Semicircular canals in mammals get attached with  
 (1) Utriculus (2) Sacculus  
 (3) Cochlea (4) Endolymph
28. Following are given some trends  
 I. Gradual increase in size  
 II. Gradual shift from marine to fresh water habitat  
 III. Gradual differentiation from cell to tissues to organs  
 IV. Gradual increase in chromosomal number  
 Trends observed among Kingdom Animals are  
 (1) I, II, III (2) I, III  
 (3) I, III, IV (4) All the above
29. A person is suffering from long standing constipation. It is likely that  
 (1) His intestinal bacteria will get killed by poisonous gases produced by accumulated faeces  
 (2) He will suffer from piles  
 (3) He will feel severe pain in the stomach due to accumulated faeces  
 (4) He will suffer from vitamin B deficiency due to its malabsorption
30. Night-blindness can be treated by  
 (1) Using corrective glasses with proper lenses  
 (2) Including lot of green leafy vegetables and yellow fruits in the diet  
 (3) Using eye drops containing  $\beta$ -carotene  
 (4) Avoiding darkness
31. When an aeroplane takes off, some occupants, often feel pain in the region of ears. This is because of  
 (1) Rapid movement of fluid in semicircular canals  
 (2) Blockage of eustachian tubes  
 (3) Rapid movements of otoliths in macula region of utricle and saccule  
 (4) Increased amplitude of the vibrating tympanum due to very loud sound produced by the jet engines
32. The skeletal muscles are striated *i.e.* provided with the bands/lines. According to the darkness, which one is the correct representation from darkest to the lightest band  
 (1) M-band > H-band > O-band > I-band  
 (2) O-band > H-band > M-band > I-band  
 (3) O-band > M-band > H-band > I-band  
 (4) H-band > O-band > I-band > M-band
33. Which one of the following animals has a diaphragm and enucleated red blood cells ?  
 (1) Whale (2) Crocodile  
 (3) Sea horse (4) Shark
34. Which one of the following is a matching pair of the kind of excretory organ and an animal ?  
 (1) Urinary tubules – Scorpion  
 (2) Nephridia – Frog  
 (3) Malpighian tubules – House lizard  
 (4) Green glands – Prawn
35. How can one keep a tadpole of frog unchanged in the same stage for a pretty long time ?  
 (1) Maintain them on very little food  
 (2) Provide them with a diet rich in proteins  
 (3) Add lot of thyroxin to the aqueous medium in which they are kept  
 (4) Provide them an antithyroid substance like thiourea
36. Which of the following statement is incorrect  
 (1) Lens and cornea helps in the formation of image by reflecting the light rays and focusing on the retina.  
 (2) Retina is the innermost, thinnest, photosensitive, transparent acellular layer of eyeball.  
 (3) Eyeball are slightly elliptical shaped, present in the orbits and whose all structures are ectodermic in origin.  
 (4) All of these
37. Crustaceans have  
 (1) Cephalothorax, one pair of antennae and chitinous exoskeleton  
 (2) Cephalothorax and abdomen, two pairs of antennae and biramous appendages  
 (3) Chitinous exoskeleton, biramous appendages and well developed lungs.  
 (4) Head and abdomen, one pair of antennae and nauplius larva
38. The general body plan and the body symmetry are similar in  
 (1) Frog and locust  
 (2) Sea horse and starfish  
 (3) Annelids and sponges  
 (4) Pigeon and liver fluke

39. The reabsorption of calcium and magnesium ions in the kidney tubules is stimulated by a hormone secreted from
- (1) Anterior pituitary
  - (2) Posterior pituitary
  - (3) Thyroid
  - (4) Parathyroid
40. Large subunit of eukaryotic chromosomes consist of
- (1) 23S rRNA + 5.8S rRNA + 33 protein
  - (2) 28S rRNA + 18S rRNA + 41 protein
  - (3) 28S rRNA + 5.8S rRNA + 5S rRNA + 40 protein
  - (4) 28S rRNA + 5S rRNA + 4.5S rRNA + 33 proteins
41. In the event of prolonged fasting or starvation, the blood sugar level is maintained essentially by the process of
- (1) Glycogenesis
  - (2) Gluconeogenesis
  - (3) Glycolysis
  - (4) Glycogenolysis
42. Breathing movements are under the control of
- (1) Cerebral hemispheres
  - (2) Crura cerebri
  - (3) Cerebellum
  - (4) Medulla oblongata
43. Which of the following is a false statement ?
- (1) Myoglobin resembles haemoglobin in that it binds oxygen reversibly
  - (2) Myoglobin is present in skeletal and cardiac muscle fibres
  - (3) Myoglobin is an intracellular carrier of O<sub>2</sub> in red muscle fibers
  - (4) Myoglobin is a copper containing protein
44. Of the following biological fluids, the correct order with increasing pH values is
- |                    |                       |
|--------------------|-----------------------|
| I. Stomach         | II. Intestinal fluids |
| III. Blood         | IV. Urine             |
| (1) I, IV, III, II | (2) III, I, IV, II    |
| (3) II, III, IV, I | (4) I, II, III, IV    |
45. The respiratory disease intimately related to cigarette smoking is
- (1) Pneumonia
  - (2) Pulmonary oedema
  - (3) Emphysema
  - (4) Pneumoconiosis
46. Which one of the following is a tributary of hepatic portal vein?
- (1) Subcalavian
  - (2) Posterior mesentric
  - (3) Abdominal
  - (4) Renal vein
47. Four pairs of spermathecae in *Pheretima posthuma* are present in
- (1) 4, 5, 6 & 7 segments
  - (2) 5, 6, 7 & 8 segments
  - (3) 6, 7, 8 & 9 segments
  - (4) 7, 8, 9 & 10 segments
48. Which of the following statement is incorrect
- (1) Cyanide inhibits mitotic prophase
  - (2) Colchicine arrests spindle formation during metaphase
  - (3) Azides inhibits mitotic anaphase
  - (4) Mustard gas results in the agglutination of the chromosomes
49. Innermost layer of spermatophore of *Periplaneta americana* is secreted by
- (1) Colletrial gland
  - (2) Utricular gland
  - (3) Conglobate gland
  - (4) Ejaculatory duct
50. Which of the following represents the correct sequence of the events for defense by leucocytes
- (1) Inflammation, diapedesis, chemotaxis, phagocytosis, digestion
  - (2) Chemotaxis, inflammation, phagocytosis, digestion, diapedesis
  - (3) Diapedesis, digestion, inflammation, phagocytosis, chemotaxis
  - (4) Inflammation, chemotaxis, diapedesis, digestion, phagocytosis

# ANSWERS FOR ZOOLOGY SPECIAL PAPER – 04

- |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1.  | (3) | 2.  | (3) | 3.  | (4) | 4.  | (4) | 5.  | (3) |
| 6.  | (2) | 7.  | (2) | 8.  | (2) | 9.  | (2) | 10. | (4) |
| 11. | (3) | 12. | (2) | 13. | (2) | 14. | (4) | 15. | (2) |
| 16. | (4) | 17. | (1) | 18. | (4) | 19. | (3) | 20. | (2) |
| 21. | (2) | 22. | (4) | 23. | (1) | 24. | (2) | 25. | (1) |
| 26. | (4) | 27. | (1) | 28. | (2) | 29. | (2) | 30. | (2) |
| 31. | (2) | 32. | (3) | 33. | (1) | 34. | (4) | 35. | (4) |
| 36. | (4) | 37. | (1) | 38. | (1) | 39. | (4) | 40. | (3) |
| 41. | (2) | 42. | (4) | 43. | (4) | 44. | (1) | 45. | (3) |
| 46. | (2) | 47. | (3) | 48. | (3) | 49. | (2) | 50. | (1) |

