

**ZOOLOGY**

**CODE :- 19**

Time Allowed: Two Hours

Marks: 100

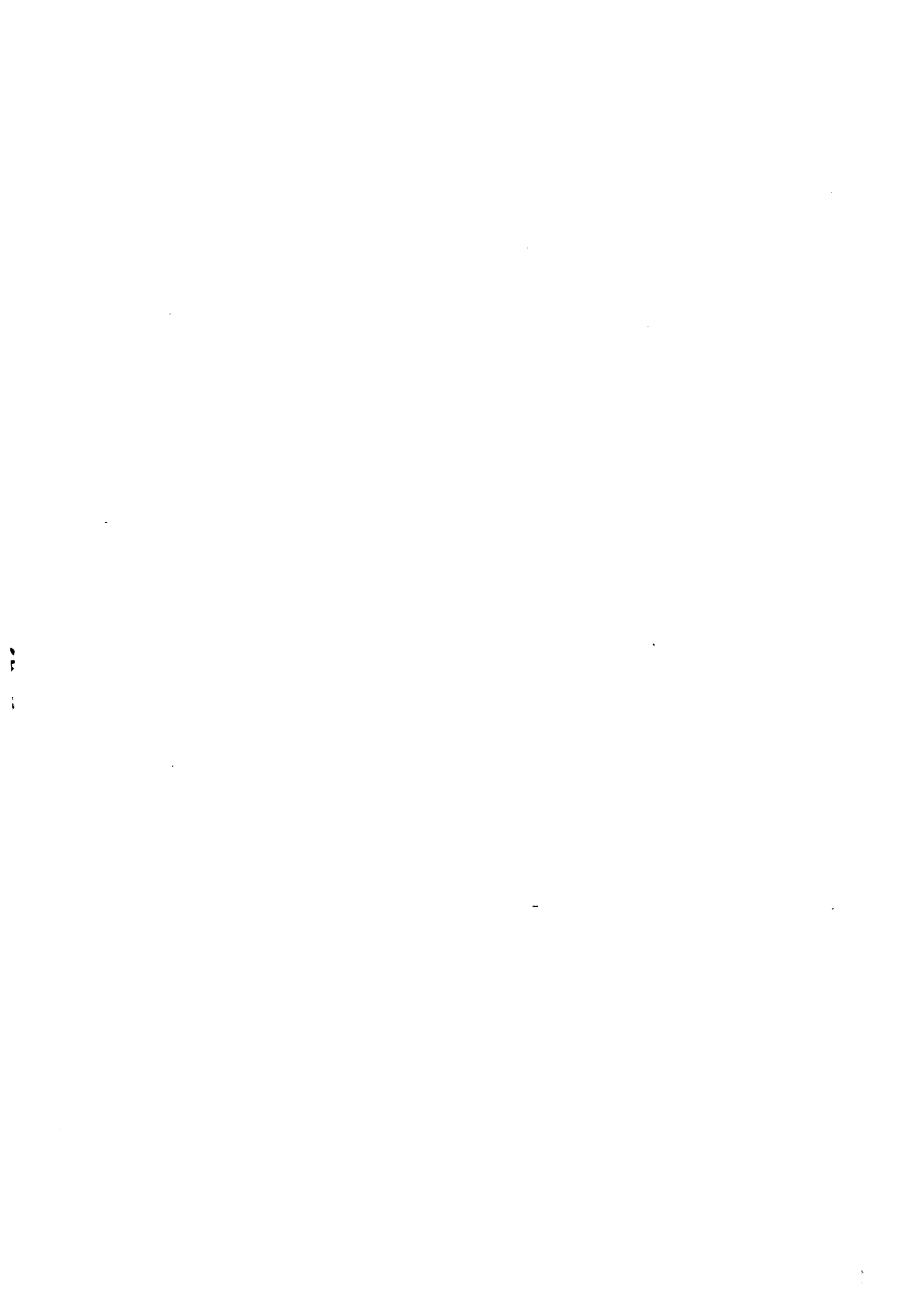
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*Read instructions given below before opening this booklet:*

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO**

1. Use only **BLUE Ball Point Pen**.
2. In case of any defect – Misprint, Missing Question/s Get the booklet changed. No complaint shall be entertained after the examination.
3. Before you mark the answer, read the instruction on the OMR Sheet (Answer Sheet) also before attempting the questions and fill the particulars in the ANSWER SHEET carefully and correctly.
4. There are **FOUR** options to each question. Darken only one to which you think is the right answer. There will be no Negative Marking.
5. Answer Sheets will be collected after the completion of examination and no candidate shall be allowed to leave the examination hall earlier.
6. The candidates are to ensure that the Answer Sheet is handed over to the room invigilator only.
7. Rough work, if any, can be done on space provided at the end of the Question Booklet itself. No extra sheet will be provided in any circumstances.
8. Write the **BOOKLET SERIES** in the space provided in the answer sheet, by darkening the corresponding circles.
9. Regarding incorrect questions or answers etc. Candidates kindly see **NOTE** at the last page of the Booklet.

**SEAL**



- 1 Experiments with sea urchin demonstrated species specific sperm-egg recognition through the protein  
 (A) Bindin (B) Avidin  
 (C) Activin (D) Hyalin
- 2 The primary function of the diaphragm is to  
 (A) Control blood pressure (B) Regulate respiration  
 (C) Support the heart (D) Keep the rib cage dilated
- 3 In mammals, the main integrating centre for control of temperature is  
 (A) Anterior pituitary (B) Adrenal cortex  
 (C) Posterior pituitary (D) Hypothalamus
- 4 During inspiration, the air that we breathe moves through different regions of the associated organs in the sequence of  
 (A) larynx- nasopharynx- trachea-glottis  
 (B) nasopharynx – glottis – larynx-trachea  
 (C) glottis – nasopharynx- larynx- trachea  
 (D) larynx- glottis – nasopharynx - trachea
- 5 Which of the following bird species is endangered?  
 (A) Hill myna (B) Great Indian Bustard  
 (C) Crow pheasant (D) Grey Hornbill
- 6 When removal of a species from an ecosystem affects persistence of many other species and the impact of that species removal is disproportionate to its abundance, the species is known as  
 (A) Indicator species (B) Keystone species  
 (C) Flagship species (D) Umbrella species
- 7 Which of the following methods is the most appropriate for estimating the population density of burrowing animals?  
 (A) Quadrant sampling  
 (B) Line transect sampling  
 (C) Tag-recapture method  
 (D) Nearest neighbour distance method
- 8 Fat formation from glucose takes place in order to  
 (A) Relieve liver from excess of glycogen  
 (B) Remove excess of fatty acids from circulation  
 (C) Keep blood sugar level constant  
 (D) All of these
- 9 End product of protein catabolism is  
 (A) Urea (B) Uric Acid  
 (C) Glutamine (D) Ammonia

- 10 The post ovulatory regression of the corpus luteum is caused by  
 (A) a decrease in LH secretion  
 (B) a decrease in FSH secretion  
 (C) reduction in the steroidogenic activity of the corpus luteum  
 (D) an increase in HCG secretion
- 11 When parathyroid gland is surgically removed from a mammal, the blood level of  
 (A) calcium and phosphorus increase  
 (B) calcium and phosphorus decrease  
 (C) calcium increases while that of phosphorus decreases  
 (D) calcium decreases while that of phosphorus increases
- 12 The hydrologic cycle involves  
 (A) Movement of water from atmosphere to the oceans  
 (B) human activities affected by water  
 (C) Movement of water from oceans by evaporation to the atmosphere  
 (D) Energy obtained from water
- 13 Active transport is mediated by  
 (A) Channel protein  
 (B) Carrier protein  
 (C) Both depending on the concentration of the ion  
 (D) Both depending on the size of the ion
- 14 Which one of the following is the smallest protein known?  
 (A) Insulin (B) Haemoglobin  
 (C) Immunoglobulin (D) Albumin
- 15 The order of correct sedimentation is  
 (A) Nucleus – Mitochondria – Lysosomes – Ribosomes  
 (B) Lysosomes – Ribosomes – Mitochondria - Nucleus  
 (C) Nucleus – Golgi – Lysosomes - Mitochondria  
 (D) Lysosomes – Mitochondria – Nucleus – Ribosomes
- 16 Golgi complex forms an extensive inter-communicating membrane system. This system is called  
 (A) Exomembrane system (B) Communicating system  
 (C) Endomembrane system (D) Dictyosome
- 17 Which of the following process involves the reversal of specialized cells back to embryonic activity?  
 (A) Embryogenesis (B) Differentiation  
 (C) De-differentiation (D) Trans differentiation
- 18 A cell membrane is selectively permeable. This means  
 (A) Is highly folded  
 (B) Allows all materials to pass through  
 (C) Allows only biologic molecules to pass through  
 (D) Allows only certain materials to pass through

- 19 Apoptosis is  
 (A) Necrotic death of a cell  
 (B) Programmed death of a cell  
 (C) Shrinking of apoplast and aging process  
 (D) A process of shedding leaves
- 20 In mitochondria, cristae act as sites of  
 (A) Breakdown of macromolecules  
 (B) Phosphorylation of flavoproteins  
 (C) Protein synthesis  
 (D) Oxidation-reduction reactions
- 21 Which one of the following correctly explains the term 'chimaera'?  
 (A) Spontaneously induced deletions  
 (B) Development of genetically diverse tissues in the same organism  
 (C) Breaking of a part of chromosome segment during mutation  
 (D) During mutation at segregation, chromosomes become equally distributed.
- 22 During cell division, DNA duplication occurs in  
 (A) Prophase (B) G1 of prophase  
 (C) S-phase of interphase (D) Early prophase
- 23 Danielli and Davson proposed a model for arrangement of  
 (A) DNA and histones in chromatin  
 (B) RNA and proteins in ribosomes  
 (C) Lipids and proteins in cell membrane  
 (D) Enzymes and coenzymes in mitochondria
- 24 The smallest measuring unit in cytology is  
 (A) Milimeter (B) Millimicron  
 (C) Angstrom (D) Electron
- 25 Cellular respiration in man occurs in  
 (A) Cells lining the lung cavities  
 (B) Cells contained in blood  
 (C) Cells lining the gut  
 (D) All living cells of the body
- 26 The thoracic cavity and abdominal cavity are formed by a partition termed as  
 (A) Diaphragm (B) Ribs  
 (C) Abdominal wall (D) All the above
- 27 Arterial blood is present in  
 (A) Pulmonary arteries (B) Pulmonary veins  
 (C) Capillaries of renal system (D) All the veins

- 28 Lack of breathing is known as  
 (A) Apnea (B) Asphyxia  
 (C) Dyspnea (D) Eupnea
- 29 Anadromous fishes migrate from  
 (A) River to sea (B) Sea to river  
 (C) River to stream  
 (D) Upstream to origin of river
- 30 In a population, the Hardy- Weinberg equilibrium would not prevail in the  
 (A) Absence of selection  
 (B) Presence of random mating  
 (C) Absence of immigration or emigration  
 (D) Presence of mutation
- 31 DNA is amplified by  
 (A) PCR technique (B) Southern Blotting  
 (C) Northern Blotting (D) Nucleic acid hybridization technique
- 32 A man and a woman, each carries a mutant allele for phenylketonuria, an inborn error of metabolism. However, neither of them has this disease. The probability that their second child will suffer from phenylketonuria is  
 (A) 0.25 (B) 0.50 (C) .075 (D) 1.00
- 33 Both the zebra and the African lion live in the tropical grasslands but occupy different  
 (A) Biospheres (B) Environments  
 (C) Ecological niches (D) Habitats
- 34 Which of the following pairs is not correctly matched?  
 (A) Kaziranga National park – Assam  
 (B) Kanha National Park – Madhya Pradesh  
 (C) Dachigam Sanctuary – West Bengal  
 (D) Bandipur Sanctuary – Karnataka
- 35 'Kala azar' is caused by  
 (A) *Trypanosoma* (B) *Giardia*  
 (C) *Leishmania* (D) *Monocystis*
- 36 What does an ecological footprint mean?  
 (A) Natural resources used by each person in an area  
 (B) Products bought and used by each person in a given area  
 (C) The amount of people that can live in a given area  
 (D) The number of planet's worth of resources we have.
- 37 The Environment Protection Act was passed in  
 (A) 1992 (B) 1986 (C) 1984 (D) 1976

- 38 The term benthos refers to communities which grow  
 (A) Attached on the bark of trees  
 (B) Attached on submerged plants  
 (C) Attached at the bottom of a water body  
 (D) Attached on submerged woody roots
- 39 Which of the following is the best example of a keystone species?  
 (A) Sea otter (B) Sea urchin  
 (C) Spotted owl (D) Snail darter
- 40 An area which is actively defended by an animal from an intruder of the same species is its  
 (A) Niche (B) Home range  
 (C) Territory (D) Habitat
- 41 *El Nino*, a periodic warming of ocean currents, occurs in which of the following regions?  
 (A) Tropical East Pacific (B) Gulf of Mexico  
 (C) Arctic North Pacific (D) Temperate West Atlantic
- 42 The plasma membrane of sperm head contains an acid protein called  
 (A) Antifertilizin (B) Fertilizin  
 (C) Acrosin (D) Actin
- 43 Cell transformation which involves a change in the genome itself is called  
 (A) Cytoplasia (B) Chromoplasia  
 (C) Heteroplasia (D) Neoplasia
- 44 During morphogenesis the tissue transmitting a stimulus to the other tissue is called  
 (A) Impressor (B) Dominant  
 (C) Repressor (D) Organizer
- 45 Deciduate placenta is present in  
 (A) Horse (B) Pig  
 (C) Man (D) Mammals
- 46 Fangs in poisonous snakes are modified  
 (A) Canines (B) Mandibulary teeth  
 (C) Maxillary teeth (D) palatine teeth
- 47 The basic biological function of cell-mediated immune system is to  
 (A) Cause delayed hypersensitivity  
 (B) Destroy abnormal cells  
 (C) Combat virus infection  
 (D) Combat intracellular bacteria

- 48 Rearing of silkworms to produce silk is called  
 (A) Agriculture (B) Apiculture  
 (C) Sericulture (D) Aquaculture
- 49 A nerve impulse is transmitted across the synapse by means of  
 (A) Nucleotide (B) Hormones  
 (C) Nucleolus (D) Neurotransmitter
- 50 Which of the following is true for mitosis?  
 (A) No chiasma formation  
 (B) No crossing over  
 (C) Prophase has no sub-stage  
 (D) All of the above
- 51 Heart in crocodile is  
 (A) Two chambered (B) Three chambered  
 (C) Four chambered (D) Incompletely four chambered
- 52 The fever caused by *Plasmodium falciparum*  
 (A) Benign tertian (B) Malignant tertian  
 (C) Ovale tertian (D) Quartan
- 53 An oil immersion objective lens usually has a magnification of  
 (A) 10x (B) 40x (C) 100x (D) Both (B) & (C)
- 54 In a honey bee colony, the workers are  
 (A) Sterile females (B) Fertile females  
 (C) Fertile males (D) Sterile males
- 55 Which of the following is not an organ of respiration in invertebrates?  
 (A) Green glands (B) Ctenidia  
 (C) Trachea (D) Spiracles
- 56 Strobilization or pseudometamerism is seen in  
 (A) Tapeworms (B) Annelids  
 (C) Anthropods (D) Echinoderms
- 57 Gonopore, Mehli's glands and Laurer's canal of liver fluke are all involved in  
 its  
 (A) Feeding (B) Respiration  
 (C) Reproduction (D) Locomotion
- 58 Which of the following is not a nematode parasite?  
 (A) *Schistosoma* (B) *Trichinella*  
 (C) *Ascaris* (D) *Dracunculus*
- 59 Eggs of human louse are called  
 (A) Cocoon (B) Tumbelers  
 (C) Nits (D) Maggots



- 60 Smog is a  
 (A) Air pollutant (B) Water pollutant  
 (C) Soil pollutant (D) Noise pollutant
- 61 External gills are present in  
 (A) Anura (B) Urodela  
 (C) Apoda (D) Stegocephalia
- 62 Which neurotransmitter is not secreted by nerve fibres?  
 (A) Adrenalin (B) Noradrenalin  
 (C) Acetylcholine (D) Kinin
- 63 Retrogressive metamorphosis occurs in  
 (A) Hemichordata (B) Urochordata  
 (C) Cephalochordata (D) Cyclostomata
- 64 Which hormone maintains normal blood pressure by regulating excretion of water?  
 (A) Renin (B) Angiotensinogen  
 (C) Angiotensin (D) Aldosterone
- 65 Which one cannot be included in mating system?  
 (A) Polyandry (B) Promiscuity  
 (C) Courtship (D) Ethogram
- 66 Bats are included in the same taxonomic group as  
 (A) Butterflies (B) Whales  
 (C) Flying lizards (D) Birds
- 67 Sweat glands in mammals are primarily concerned with  
 (A) Removal of excessive salts  
 (B) Removal of excessive water  
 (C) Regulation of toxic material  
 (D) Regulation of body temperature
- 68 Birds originated from \_\_\_\_\_ reptiles.  
 (A) Mesozoic (B) Jurassic  
 (C) Coenozoic (D) Modified
- 69 Biological clocks of living organisms are  
 (A) Inbuilt sensory systems receptive to environmental stimuli  
 (B) Regulated by movement of moon  
 (C) Independent of changes in environment  
 (D) Specific only to mammals
- 70 Which of the following is found in a marine habitat?  
 (A) *Tubifex*  
 (B) *Pheretima*  
 (C) *Teribella*  
 (D) *Hirudo*

- 71 Which of the following body structures of an insect is an adaptation entirely meant for water conservation?  
 (A) Trachea (B) Intestinal lining  
 (C) Invaginated spiracles (D) Malpighian tubules
- 72 Compensation level in an aquatic ecosystem is the one where oxygen  
 (A) And carbon dioxide are in equal proportion  
 (B) Level is just sufficient to maintain producers  
 (C) Level is just sufficient to maintain decomposers  
 (D) Release in photosynthesis balances loss by respiration.
- 73 *Peripatus* is a connecting link between  
 (A) Annelids and arthropods (B) Arthropods and mollusks  
 (C) Molluscs and echinoderms (D) Annelids and molluscs
- 74 Fossil remains of *Archaeopteryx* were recovered from the rock beds of the  
 (A) Cretaceous (B) Jurassic  
 (C) Triassic (D) Permian
- 75 Which one of the following ancestors is most distantly related to the modern man?  
 (A) Australopithecus (B) Dryopithecus  
 (C) Ramapithecus (D) Pithecanthropus
- 76 Allopatric speciation occurs when population show  
 (A) Reproductive isolation (B) Ecological isolation  
 (C) Seasonal isolation (D) Geographic isolation
- 77 Biogenetic Law was postulated by  
 (A) T.H. Morgan  
 (B) Charles Darwin  
 (C) Ernst Haeckel  
 (D) Wallace
- 78 The total collection of genes, at any one time, in a unit of evolution is called the  
 (A) Genotype  
 (B) Demotype  
 (C) Multiple allele group  
 (D) Gene pool

- 79 Which of the following yields double calories as per gram of carbohydrate?  
 (A) Fat (B) Mineral  
 (C) Protein (D) Vitamin
- 80 What is the end product of glycolysis?  
 (A) Pyruvic acid (B) Acetyl CoA  
 (C) Lactic acid (D) Citric acid
- 81 Ciliated cells are found in  
 (A) Bronchus (B) Pancreas  
 (C) Liver (D) Uterus
- 82 A heritable change in DNA is  
 (A) Natural selection (B) Genetic drift  
 (C) Gene flow (D) Mutation
- 83 Common bath sponge is  
 (A) *Euplectella* (B) *Spongilla*  
 (C) *Sycon* (D) *Euspongia*
- 84 Role of typhlosole in the intestine of earthworm is  
 (A) to increase absorptive surface  
 (B) to control blood flow  
 (C) to secrete digestive enzymes  
 (D) to kill bacteria
- 85 The first body segment of earthworm is  
 (A) Peristome (B) Peristomium  
 (C) Protostomium (D) Protostome
- 86 Aristotle's lantern is a characteristic feature of  
 (A) Star fish (B) Sea Urchin  
 (C) Brittle stars (D) Holothurians
- 87 Larva in development of sea urchins is  
 (A) Auricularia (B) Echinopluteus  
 (C) Bipinnaria (D) Pluteus
- 88 The echinoderms are related to the chordates by their similarity in the development of  
 (A) Nervous system (B) Gut  
 (C) Heart (D) Coelom
- 89 Book lungs are the respiratory organs of  
 (A) Insects (B) Crustaceans  
 (C) Arachnids (D) *Peripatus*

- 90 The mouth parts of house fly are of  
 (A) Piercing and sucking type  
 (B) Biting and chewing type  
 (C) Sponging and sucking type  
 (D) Biting, sucking and lapping type
- 91 *Fasciola hepatica* is an endoparasite present in the  
 (A) Liver of sheep  
 (B) Stomach of sheep  
 (C) Spleen of sheep  
 (D) Intestine of sheep
- 92 Rhabdites are present in the cells of epidermis of  
 (A) Cestoda  
 (B) Trematoda  
 (C) Turbellaria  
 (D) All of the above
- 93 Which of the following is a vertebrate organism?  
 (A) Cuttle fish  
 (B) Devil fish  
 (C) Globe fish  
 (D) Cray fish
- 94 Hepatic portal system is present in  
 (A) Amniotes only  
 (B) Anamniotes only  
 (C) Amphibians and mammals only  
 (D) All of the above
- 95 Cornea transplant in humans is almost never rejected. This is because  
 (A) It is composed of enucleated cells  
 (B) It lacks blood supply  
 (C) It is a non living layer  
 (D) It's cells are least penetrable by bacteria.
- 96 Which one of the following pairs is incorrectly matched?  
 (A) Glucagon – beta cells  
 (B) Insulin – diabetes mellitus  
 (C) Somatostatin – delta cells  
 (D) Corpus luteum – relaxin
- 97 The functional unit of contractile system in striated muscle is  
 (A) Sarcomere  
 (B) Z band  
 (C) Myofibril  
 (D) Cross bridges
- 98 Largest gland in the human body is  
 (A) Brain  
 (B) Liver  
 (C) Stomach  
 (D) Pancreas
- 99 HCl of the gastric juice  
 (A) Activates both pepsin and ptyalin  
 (B) Inactivates both pepsin and ptyalin  
 (C) Activates pepsin and inactivates ptyalin  
 (D) Inactivates pepsin and activates ptyalin
- 100 Brunner's glands are present in  
 (A) Stomach  
 (B) Ileum  
 (C) Duodenum  
 (D) Oesphagus