

ZOOLOGY

Unit-I:

Classification Binomial Nomenclature – Invertebata and Chordata – Structure and life history of pathogenic Protozon Entamoeba histoytica Plasmodium viva P.Ovale P.Malariae P.falciparum, Trypanosoma gambiansi; and Leishmania donovoni, Structure and life history of Helminth parasites; Taenia solium, Fasciola hepattca Schistosoma Ascaris lumbricoides. Structure and life history of Amphioxus Balanoglospus Ascidian and their evolutionary significance, vertebrate comparative anatomy; Integument, Brain; Heart and Urinogenital organe. Economically important vertebrates and vertebrate pests. Fishery resources of India.

1.	Gambusia is a a) Larvivorous fish b)Medicinal fish c)Ornamental fish d)Food fish.
2.	In Binomial Nomenclature scientific names should be derived from? a)French b)Latin c)English d)German.
3.	Plasmodium is a _____ parasite. a)Digenic b)Monogonic c)Tetragenic d)Trigenic.
4.	Trypanosoma body is covered by _____ membrane. a)Cuticle b)Plasmalemma c)Pellicle d)Peritoneum.
5.	The fully grown and mature Entamoeba is called: a)Trophozoite b)Sporozoite c)Cryptoschizont d)Schizogamy.
6.	Taenia solium is a/an _____ animal. a)Pseudocoelomate b)Enterocoelomate c)Coelomate d)Acoelomate.
7.	Which animal larva is Miracidium? a)Liver fluke b)Tapeworm c)Plasmodium d)Leishmania .
8.	4 th moulting stages of larva of Ascaris occur in _____ of man. a)Liver b)RBC C)Intestine d)Alveolus of the lung.
9.	Wheel organ is present in ? a)Shark b)Balanoglossus c)Ascidian d)Amphioxus.
10.	Balanoglossus belongs to the subphylum? a)Cephalochordata b)Hemichordata c)Urochordata d)Chordata.
11.	Retrogressive metamorphosis occurs in: a)Amphioxus b)Balanoglossus c)Ascidian d)Pisces.
12.	Gas bladder is the respiratory organ in: a)Silver fish b)Scorpin c)Fishes d)Butterfly

Unit-II:

Biological Chemistry – Structure of atom valencies molecular and structural formula of biochemical compounds. Isomerism Oxidation and reduction. Redox potential (Eh): RH Determination of EH and PH. Buffers Biologically important properties of water. Energy metabolism of carbohydrates. Lipids proteins and Nucleic Acids. Oxidative Phosphorylation. Role of major (Na, K, Ca and P) and minor (trace) elements in metabolism enzymes, their nature, classification of enzymes Coenzymes and cofactors, Mechanism of action of enzymes Inhibitions of enzyme actions.

1.	“Lock and Key” hypothesis is explained by A) Chittenden b) Berzelius c) Wurtz d) Emil Fischer.
2.	Optimum pH value of egg albumin containing pepsin is: a) 1.5 b) 2.0 c) 2.5 d) 3.0.
3.	Disaccharides converted into monosaccharide with presence of _____ enzyme. a) Protease b) Invertase c) Maltase d) Lactase.
4.	End product inhibition is also known as: a) uncompetitive inhibition b) non-competitive inhibition c) competitive inhibition d) all of these.
5.	Essential substance for formation of RBC is: A) iron b) iodine c) sodium d) calcium.
6.	A normal person should have _____ gm of calcium per day in his diet. a) 1.5 b) 1.0 c) 2.5 d) 2.0.
7.	Which is a constituent of Vitamin B ₁₂ ? a) Zinc b) Sulphur c) Copper d) Cobalt
8.	Glycolysis utilizes _____ molecules of ATP. a) 2 b) 3 c) 4 d) 5
9.	The metabolism of a glucose molecule releases _____ molecules of ATP. a) 40 b) 38 c) 42 d) 32.
10.	pH of pure water is: a) 4.0 b) 5.0 c) 6.0 d) 7.0
11.	The coenzymes generally act as acceptor or donors of _____ atoms. a) Helium b) Thorium c) Plutonium d) Hydrogen.

Unit-IV:

Cell and Molecular Biology – Prokaryotic and Eukaryotic cells. Ultra structure, Organisation and functions of cell membrane, Endoplasmic reticulum, golgibody, Lysosome, Mitochondrion; Ribosome structure of DNA, A,B,C and Z forms of D.N.A. Transcription – mRNA tRNA and rRNA and their functions.

Synthesis of eukaryotic RNAs Structure and functions of nucleolus, D.N.A. replication D.N.A. repair, Microtubules cilia and flagella carcinogenic agents, Genetic basis of malignant transformation.

1.	Lysozyme was first discovered by? a)Fleming b)Metehnikoff c)Fischer d)de Duve.
2.	Phagolysosome is also known as: a)microphage b) Macrophage c)primary Iysosome d)Secondary Iysosome
3.	c DNA is known as: a)t RNA b)mRNA c)rRNA d)RNA.
4.	Ribosomal proteins are synthesizes inside the : a)Cytoplasm b)Nucleus c)Nucleoplasm d)Nucleolus.
5.	Golgi complex is also known as: a)Trophospongium b)Dictyosomes c)Lipochondrion d)all of these.
6.	Lysosomal digestion of intracellular food materials is called a) Autophagy b) Exocytosis c) Heterophagy d) Autolysis
7.	In Z-DNA each turn has _____ base pairs. a)12 residues b)11 residues c)10 redsidues d)8 residues.
8.	Purines are a) two ring N₂ compounds b) three ring N ₂ compounds c) four ring N ₂ compiunds d) single ring N ₂ compounds
9.	Cell theory is a concept proposed by: a)Robert Hooke b)Schwann and schleiden c)Svedberg d)none of then.
10.	Nucleoid is present in the: a) Prokaryotic cell b) Eukaryotic cell c) Animal cell d) Somatic cell.
11.	Match List I correctly with List II ; List I a) Ribosomes b) Mitochondria c) Lysosomes d) Centrosomes List II 1. Beneden 2. Christian de Duve 3. Benda 4. Palade. Choose the correct answer from the following codes : a b c d A) 2 4 1 3 B) 3 1 4 2 C) 4 3 2 1 D) 1 2 4 3.
12.	Fluid mosaic model was proposed by: a) Robertson b) Danielli Davson c) Wolpers d) Singer and Nicolson.
13.	Exocytosis is otherwise called: a)Cell vomiting b)Reverse endocytosis c)emeiocytosis d)all of these.
14.	Function of SER is: a)Respiration b)Digestion c)Lipid synthesis d)protein synthesis.
15.	80 S ribosome is found in : a) Prokaryotic cell b) eukaryotic cell c) bacterial cell d) plant cell.
16.	The break-down of glycogen into glucose is called: a)Glycogenolysis b)Glycogenesis c)Glycolysis d)Kreb's cycle.

Unit-V:

Genetics-Gene Interactions, Multiple alleles, Recombination and its molecular mechanism.

Linkage, crossing over, chromosome, mapping. Cytoplasmic genes and their expression. Mitochondrial DNA its transcription code and translation, Population genetics Genetic organisation of a Mendelian population. Hardy-Weiberg Law. Derivation of Hardy – Weinberg equilibrium.

Animal breeding and human genetics – Inbreeding outbreeding Heteriosis. Expression of Eukaryotic genes in bacterial cells. Transfer of genes into Eukaryotic cells. Genetic Engineering and its applications in Agriculture Animal Husbandary and Medicine. Inborn errors of metabolism.

1.	Patau's syndrome is also known as: a)18 monosomy b)18 trisomy c)13 trisomy d)21 monosomy.
2.	During the process of crossing over fusion of chromosomal segment action of an enzyme is called? a)Endonuclease b)Exonuclease c)SI nuclease d)Ligase.
3.	Agrobacterium tumifaciens contain? a) T₁ plasmid b) P ^{Br 322} plasmid c) r plasmid d) R _i plasmid
4.	Artificial seed is also known as a>true seed b) Capsulated seed c)Encapsulated seed d) none of these.
5.	Sometimes a gene masks the expression of another gene at a different locus.It is known as: a)Epistasis b)Modifying gene c)Complementary gene d)Duplicate gene
6.	Universal donor and universal receiptier are in blood groups a) I ^B I ^O , I ^A I ^B b) I ^A I ^O , I ^A I ^B c) I^O I^O, I^A I^B d) I ^A I ^B , I ^O I ^O
7.	The blood group antigens are controlled by a/an a) Autosomal gene b) Allosomal gene c) Complementary gene d) Duplicate gene.
8.	Chiasma Type theory was proposed by: a)Muller b)R.W Sharp c)F.A.Jansens d)None of them
9.	Example of pseudoallelism is: a)Wing size in drosophila b)Skin colour in mice c)Coat colour in rabbit d)Eye colour in drosophila.
10.	Hardy-Weinberg law explains: a)gene pool b)gene frequency c)genetic drift d)genetic counselling.
11.	Induced Mutation was first demonstrated by: a)H.J.Muller b)de vries c)Futuman d)Huxley.
12.	Nullisomics refers to: a)2n-1 b)2n+1 c)2n-2 d)2n+0.

Unit-VI:

Physiology – Nutrition – Essential aminoacids, vitamins, minerals and Trace elements required by men. Digestion, Digestive enzymes, digestion, absorption and assimilation of carbohydrates, proteins and lipids. Intermediary metabolism, Respiration – Transport of respiratory gases by blood. Circulation: Types of heart.

Movement – Types of muscle cells, Ultra structure of muscle cells. Muscle contraction and types of contraction. Osmo-iono regulation: Maintenance of water and electrolyte Balance in equatic and terrestrial vertebrates.

Excretion: Vertebrate kidney and formation of urine. Excretion of nitrogeneous products. Renal regulation of acid-base balance. Thermoregulation: Temperature and rates of bio-logical activities.

1.	The term 'Vitamin' was introduced by? a)Funk b)Takaki c)Eijkmann d)Lind
2.	Antirachitic vitamin is otherwise called? a)VitaminA b)VitaminB c)VitaminC d)VitaminD.
3.	Largest salivary gland is: a)Sublingual b)Submaxillaery c)Parotid d)Infraorbital.
4.	Brunner's glands are commonly known as: A)Duodenal gland b)Intestinal gland c)Salivary gland d)all of these.
5.	Trypsinogen is converted into active trypsin in presence of _____ enzyme. a)chymotrypsin b)enterokinase c)carboxypeptidase d)pancropeptidase.
6.	Haemocyanin is found in: a)Crustaceans b)echinoderms c)annelid d)arthropoda.
7.	Excretory organ of the annelidia is: a) Chloragogen cells b) Malpighian tubules c) Amoebocytes d) Nephron.
8.	Tubular hearts are found in: a)Arthropoda b)Amphioxus c)Crustaceans d)Insects.
9.	The activity of the heart is controlled by: a) Noradrenaline b) Somatotropin c) Prolactin d) thyrotropin.
10.	The process of uric acid excretion is called: a)Uricotelism b)Ureotelism c)Ammonotelism d)all of these.

Unit-VII:

Sensory physiology: Chemo-reception. Mechano-reception, Thermo-reception, Photoreception.

Nervous coordinations: Transmission of impulses in nerve cells. Central Nervous system. Autonomic Nervous System. Memory and learning, Chemical coordination: Endocrine glands and hormones.

Endocrine Interrelations. Neure endocrine reflexes. Growth and reproduction: Growth moulting and metamorphosis in crustaceans, Insects and vertebrates. Pheromones in reproduction. Physiology of human reproduction.

Developmental Biology and Immunology-Gametogenesis – Organisation of egg cytoplasm.

Fertilisation Biochemical and Electron-Microscopic studies, Parthenogenesis-Cleavage and Metaphase genetic movements

– Fate maps – presumptive. Organ forming areas – Formation of Primary organ rudiments – Gradients in the determination of organ rudiments – involvement of genes in developmental process – General Metabolism during gastrulation – Integration of gastrulation.

Organizer: Organogenesis with reference to heart, eye, brain and kidney.

Cell differentiation – The chemical basis of cell differentiation Selective action of genes in differentiation – Control of differentiation by the intraorganic environment.

Extra embryonic membranes. Placenta-Sex differentiation and gonadal hormones, congenital abnormalities in humans Growth, aging and senescence.

1.	Biradial cleavage is seen only in: a)ascidian b)polyclads c)sea cucumber d)ctenophore.
2.	Development of heart is _____ in origin? a)Ectoderm b)Endoderm c)Mesoderm d)all of these.
3.	Yolk sac placenta is also known as: a)Chorio-Vitelline placenta b)Chorio-Allantoic placenta c)Discoidal placenta d)Intermediate placenta.
4.	Statocyst is a: a)Mechanoreceptor b)Chemoreceptor c)Photoreceptor d)Thermoreceptor.
5.	Antidiuretic hormones are otherwise called? a)Thyrotropin b)Gonadotropin c)Vasopressin d)Oxytocin.
6.	Pheromones are secreted by? a)Endocrine gland b)Exocrine gland c)Mesocrine gland d)Holocrine gland.
7.	A human oocyte is about _____ mm in diameter. a)0.5 b)0.1 c)0.2 d)1.5.
8.	The development of an egg without fertilization is called: a)Parthenogenesis b)Gametogenesis c)Oogenesis d)Spermiogenesis.
9.	Fertilizin is a/an: a)Nucleoprotein b)Glycoprotein c)Acid protein d)Phosphoprotein.
10.	Thelytoky is referred to: a)Natural parthenogenesis b)Artificial parthenogenesis c)Haploid parthenogenesis d)Diploid parthenogenesis .
11.	Example of coeloblastula is: a)Bird b)Reptile c)Amphioxus d)Fishes.

Unit-VIII:

ANTIGENS AND ANTIBODIES – Specific and non-specific immune mechanism – Immunity (innate and acquired) – Antigens – Heptens – Antigenic determinants – Adjuvants. Immunoglobulin molecules as antigens – allotypes Immune system and lymphoid organs. Macrophages – T-Cell and B Cell Antibodies production Immune response: Humoral and cell mediated immunity – regulation of immune response – Tolerance – Antigen and antibody reaction – Physical and Biological – Vaccination – Allergy – AIDS – Congenital immunodeficiencies.

Environmental Biology – Biotic and abiotic factors of the environment Biogeochemical Cycles – Eco System – Concepts. Resource Management – Ecological energetics; energy transformation, productivity - food chain – Food webs, Pyramids.

1.	Immunoglobulin is made up of: a) 2 polypeptide chain b) 4 polypeptide chain c) 6 polypeptide chain d) 8 polypeptide chain .
2.	Which is used in Tuberculosis immunization? a) Anthrax vaccine b) Bacille Calmette-Guérin c) Sabin vaccine d) Measles vaccine.
3.	Primary Lymphoid organ is: a) Spleen b) Lymph node c) Thymus d) all of these.
4.	Autotrophic Bacteria derive their energy from the oxidation of _____ Compounds. a) carbon b) oxygen c) hydrogen d) nitrogen.
5.	Animal which can tolerate narrow range of salt concentration is called: a) Eurythermal b) Stenothermal c) Euryhaline d) Stenohaline.
6.	Hibernation is the: a) Winter sleep b) Summer sleep c) Autumn sleep d) all of these.
7.	Thermoregulators are: A) Homeothermic b) Poikilothermic c) Heterothermic d) Thermoconformers.
8.	Van't Hoff's rule is a) $Q_{10} = \frac{k_2}{k_1} \times \frac{10}{(t_2 - t_1)}$ b) $Q_{10} = \frac{k_1}{k_2} \times \frac{10}{(t_2 - t_1)}$ c) $Q_{10} = \frac{k_2}{k_1} \times \frac{(t_2 - t_1)}{10}$ d) $Q_{10} = \frac{k_1}{k_2} \times \frac{(t_2 - t_1)}{10}$
9.	Tertiary consumers are always: A) Herbivores b) Producers c) Carnivores d) Omnivores.
10.	CO ₂ content of air is a) 0.01% b) 0.02% c) 0.04% d) 0.03%
11.	Chemically the antigen is: a) Glycoprotein b) Acid protein c) Glycopolysaccharide d) Glycolipids.

Unit-IX:

Zoogeography of Indian wild mammals. Indian primates – Natural Resources – Conservation of natural resources and wild life (Protection) Act. Wild life - Sancturies of Tamil Nadu. Environmental degradation - factors affecting environment. Patterns of Behaviour – Instinctive and learning behaviour – social behaviour – social organisation – Social behaviour in mammals – Aggression and courtship. EVOLUTION: Origin of life – Theories of evolution evidences for evolution – Natural selection – Micro evolution – Hardy - Weinberg Equilibrium – genetic draft. Speciation – Mechanism of speciation – Phyletic and sudden speciation modes of gradual speciation – Incomplete species – Species problems – Allopatric and sympatric speciation.

1.	Non_renewable resource is: a)Iron b)Copper c) Coal d)Fish.
2.	Waterborne disease is: a)Jaundice b)Cholera c)Typhoid d) All of these
3.	DDT is: a) Dichloro Diphenyl Trichloroethane b) Dichloro Diphenyl Trichloromethane c) Dichloro Diphenyl Trichlorhexane d)Trichloro Diphenyl Trichloromethane.
4.	Minamata disease is caused by: a) Mercury b)Cadmium c)Lead d)Zinc.
5.	The theory of germplasm was explained by: a)Darwin b)Hugo de vries c) August Weismann d)Lamarck.
6.	Link between annelid and mollusca is: a)Peripatus b) Neopilina c)Balanoglossus d)Lungfish.
7.	Biogenetic law was postulated by: a) Ernst haeckel b)Von Bear c)August Weismann d)None of them.
8.	The difference in character between individuals is known as: a) Variation b)Mutation c)Recombination d)Genetic drift.
9.	HMS Beagle was a: a) British ship B)American ship c)Russian ship d)None of these.
10.	Finches are referred to: a)a group of small fishes b)a group of small islands c) a group of small birds d)a group of small insects.

Unit-X:

Macro evolution: Geological records – Fossils and fossilization – evolutionary trends – Parallel evolution – Progressive and retrogressive trends – Rates of evolution.

Course of evolution: Chemical evolution – evolution of prokaryotic cells. Speculative origin of Eukaryotic cells – Origin of Metazoa. Primate and Human Evolution – Human racial diversity – Theories of human racial origins – Future evolution of man.

MAN AND BIOSPHERE - Man's role in conservation of natural resources. Biosphere. Human activities that modify the biosphere. Human resource management. Tribals and biosphere. Future of man and biosphere.

1.	_____ Are the documents of evolution. a)Rocks b)Fossils c)Bones d)Skull.
2.	Golden age of reptiles is: a)Coenozoic era b)Mesozoic era c)Palaeozoic era d)Pre-Vambarian period
3.	Man is closely related to: a)Gibbon b)Chimpanzee c)Rhesus monkey d)all of these.
4.	Living fossil of reptile is: a)Sphenodon b)Scoliodon c)Labeo d)Latimeria.
5.	The place of orgin of human evolution is: a)India b)Egypt c)Kenya d)East Africa.
6.	Modern man is also known as: a)Homo erectus b)Ramapithecus c)Homo sapiens d)propliothecus.

Education

1.	The UNESCO had supported the proposal of: a)Women education b)adult education c)education for all d)none of these.
2.	Which district has the lowest density of population in Tamil Nadu? a)Nilgiris b)Perambalur c)Sivagangai d)Dharmapuri.
3.	Which country started experiments in Distance Education in the year 1873? a)UK b)USA c)USSR d)Japan.
4.	Child Labour Eradication Day is held on: a)June12 b)July12 c)August12 d)November12.
5.	Which is called formal agency of Education? a)School b)Home c)Society d)None of these.
6.	Rousseau's Educational Philosophy is: a)Negative education b)Basic education c)Vocational education d)Secondary education.
7.	Self-education is related to: a)Russel b)Aurobindo c)Tagore d)Rousseau.
8.	Mahila Samakhya is a plan for the development of a)Backward people b)SC/ST people c)Women D)Rural students.
9.	Viswabharati is located at : a)West Bengal b)Maharashtra c)Bihar d)Delhi.
10.	Who is related to freedom in learning situation? a)Krishnamoorthy b)Aurobindo c)Radhakrishnan d)Tagore.
11.	Pace setting school is renamed as: a)Primary school b)Pre-primary school c)Nursery school d)Navodaya school.
12.	How many open schools are in Tamil Nadu? a)25 b)26 c)27 d)28
13.	Functional Literacy Programmer had been started for: a)Workers b)farmers c)Tribal people d)all of them.
14.	National policy on Education was adopted in the year: a)1981 b)1983 c)1986 d)1989.
15.	In which level,Mahila Mandals are organized for adult education? a)Block level b)Village level c)District leve d)State level.
16.	Which media is suitable for distance education? a)Postal b)Radio c)Television D)Newspaper.
17.	The book "Education of Man" is written by: a)Jhon Dewey b)Montessori c)Froebel d)Gandhi.
18.	Open university was started in England on: a)1979 b)1969 c)1981 d)1982.
19.	Mobile school was first recommended by: a)Medonald b)Ivan c)Neil d)Parker.
20.	Who said"Education is related to Life"? a)Gandhi b)Nehru c)Tagore d)Russel.

Psychology

1.	Span of vision is measured by: a) Memory drum b) Tachistoscope c) Mason's disk d) Metronome.
2.	Which theory of intelligence was supported by Alfred Binet? a)Single factor b)Two factor c) Group factor d)Multifactor.
3.	Psychoanalytic approach of personality was first introduced by: a)Adler b)Jung c)Freud d)none of them.
4.	In Gagne's hierarchy learning has been divided into: a)8 types b) 9 types c)7 types d)10 types
5.	A superior child is advanced to a normal child by atleast: a) 1 year b) 1½ years c) 2 years d) 2½ years
6.	How many chromosomes are there in human body? a)26 b)36 c)46 d)39.
7.	When learnt material is reproduced without any manipulation, it is called: a)whole memory b)rote memory c)perfect memory d)immediate memory.
8.	Non-verbal test of intelligence is suitable for: a)Deaf & Dumb b)illiterates c)Younger children d)all of them
9.	The book "Theory of Motivation" is written by; a)Madson b)Maslow c)Murray d)Hull.
10.	Wechsler development an intelligence test for children in the year: a)1939 b)1949 c)1955 d)1956.

General Knowledge

1.	The common refrigerant in domestic refrigerator is: a)Neon b)Oxygen c)Nitrogen d)Freon-12.
2.	The present Secretary General of the United Nations Organisation is: a)Ban ki-moon b)Shashi Tharoor C)kofi Annan d)Ashraf Ghani.
3.	India won world Cup Hockey in the year: a)1971 b)1973 c) 1978 d)1975.
4.	The full form of NABARD is: a)National Banks for Agriculture and rural Development b)National Books and Research Department c)National Bharat Radar Defence. d)Nuclear and Bharat Radar defence
5.	The Constitution of India came into force on: a)26 th November,1949 b)26th January c)26 th January,1949 d)15 th Augest,1949.
6.	The President of india can nominate how many members toi Rajya Sabha? a)2 b)4 c)6 d)12
7.	The name by which Ashoka is generally referred to in his inscriptions is: a)Chakravarthi b)Dharmadeva c)Priyadarshi d)Dharmakirti.
8.	Which of the following provided the revenue for the Delhi Sultanate? a)Kharaj b)Khams c)Jiziya d)Zakat.
9.	The seaport of pandiyas was: a)Thondi b)Musiri c)Korkai d)Poompukar.
10.	Who wrote the book "Gora"? a)Dr.S.Radhakrishnan b)Rabindranath Tagore c)Mulik Raj Anand d)L.K.Advani.