



Padalsalai's Telegram Groups!

(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

- Padalsalai's NEWS - Group
https://t.me/joinchat/NIfCqVRBNj9hhV4wu6_NqA
- Padalsalai's Channel - Group
<https://t.me/padasalaichannel>
- Lesson Plan - Group
<https://t.me/joinchat/NIfCqVWwo5iL-21gpzrXLw>
- 12th Standard - Group
https://t.me/Padalsalai_12th
- 11th Standard - Group
https://t.me/Padalsalai_11th
- 10th Standard - Group
https://t.me/Padalsalai_10th
- 9th Standard - Group
https://t.me/Padalsalai_9th
- 6th to 8th Standard - Group
https://t.me/Padalsalai_6to8
- 1st to 5th Standard - Group
https://t.me/Padalsalai_1to5
- TET - Group
https://t.me/Padalsalai_TET
- PGTRB - Group
https://t.me/Padalsalai_PGTRB
- TNPSC - Group
https://t.me/Padalsalai_TNPSC

“ May He give the Desire of Your heart and make all your plans succeed” - Psalm20:4

BIO-BOTANY

VOLUME-I

1.LIVING WORLD[Biological classification](4-6bits)

2Marks: Biosphere[1]; Attributes of living world[2]; Homeostasis[3]; Metabolism[3]; Cyclosis[4]; Biological puzzle[4]; Virology[4]; Landing and pinning[7]; Transfection[7]; Prophage[8]; Virion[8]; Virioid[8]; Virusoids[8]; Mycophages and Cyanophages[9]; Virus as Bioinsecticides[10]; Enaima&Anaima[10]; 3 domains of life [11]; Chromista[12]; Red tide[12]; Bacteriology & animalcules[14]; Nucleoid[14];Shapes & Flagellation of bacteria[15]; Ultrastructure of Bacterial cell[15]; H.pylori&Bt toxin[16]; Glycocalyx/capsule[16]; Porins[16]; Plasma membrane of Bacteria[16]; Cytoplasm of bacteria[16]; Nucleoid/Genophore[16]; Histones[16]; Plasmid based on function[16]; Mesosomes [17]; Polysomes[17]; Sex pili [17]; Magnetosomes[19]; Retting of fibres[24]; Curing of Tea[24]; Biofilms[25]; Probiotics[25]; Archaeobacteria[25]; Stromalites[26]; Prutein[26]; Various Archaeobacteria[26]; Cyanophyceae[26]; Endophytic& Symbiotic association of cyanobacteria[26]; Chromoplast/Plasm[26]; Heterocyst[27]; Myxophyceae[27]; Serendipity[29]; Mycology[28]; E.J Butler[29]; Hyphae[29]; Fungal cellulose[29]; Coenocytic mycelium[29]; Plectenchyma[29]; Holomorph[29]; 4 Classes of Fungi[31]; Examples of Zygomycetes[32]; Oomycetes[32]; Examples of Ascomycetes[32]; 4 types of Ascomycetes[33,34]; Sac fungi & Ascomycetes[33]; Ascogonium fungi[33]; Powdery mildew[33]; Ascospore formation[33]; Clamp connection [34]; Doliopore septum[34]; Club fungi[34]; Basidiomycetes example[34]; Fungi Imperfecti[34]; Fungi as Food[35]; Fungi in bakery& Brewery[35]; Fungi in Enzyme production[36]; Aflatoxin[36]; Toad stool[36]; Dermatophytes[37]; Late blight of potato[37]; Lichens[38].

3Marks: Intrinsic and Extrinsic growth[2]; Prokaryotes & Eukaryotes[2]; Sexual and asexual reproduction[2]; consciousness and Irritability[3]; Anabolism & catabolism [3]; Level of organization[4]; Symmetry of virus[5]; Living and nonliving nature of virus[5]; DNA and RNA virus [6]; Prions[9]; Needs of classification[10]; Systems of classification[11]; Merits and demerits of 5 kingdom classification[11]; Robert Koch[14]; Milestone in bacteriology[14]; General characteristic features of Bacteria[14]; Plasmid[16]; Flagella [17]; Steps involved in Gram staining [17]; Binary fission in Bacteria[20]; Endospores[20];Bacteria in Soil fertility[23]; Bacteria in Antibiotics [23]; Industrial application of Bacteria[23]; Bacterial disease in Plants[24]; Bacterial diseases in Animal[24];Bacterial disease in Human[25]; Photosynthetic pigments[26]; Vegetative reproduction in Bacteria[27]; Bacteria in SCP,Bloom&Biofertilizer[27]; Pleuropneumonia Like Organism{PPLO}[27]; Ray fungi[28]; Symbiotic actinobacterium[28]; Antibiotics of Actinomycetes[28]; Milestone in mycology[28];3Steps in sexual reproduction in fungi[29]; 8Subdivisions and 11 classes of Fungi[31];Zygomycetes[32]; Asexual Spores & Spore structure[34]; Fungi in Medicine[35]; Fungi in Industry [35]; Fungi in Agriculture[36];classify Lichens based on Habitat[38]; Lichens classification based on morphology[38]; Lichens classification based on distribution & its partner[38]; Economic importance of Lichens[38]

5Marks: Milestones in virology 4,5; Different classes of virus[6]; TMV and its structure[6]; Bacteriophage & its structure[7]; Lytic and lysogenic cycle of Bacteriophage[7]; List of Viral diseases[9]; Comparison of 5 kingdom classification[13]; Differentiate Gram positive & Gram negative bacteria[18]; Respiration in Bacteria[19]; Nutrition in Bacteria [19,20]; Sexual reproduction in bacteria[22-22]; Asexual reproduction in fungi[30]; Sexual reproduction in Fungi[30]; Diseases caused by Fungi[36]; Mycorrhizae, its importance & its types[37].

2.PLANT KINGDOM(4-4bits)

2Marks: Distribution of Plant groups in India & World[42]; Contribution of M.O Parthasarathy[44]; Red Snow[45]; Epiphytic algae[45]; Halophytic algae[45]; Endozoic algae[45]; Aquatic & fresh water Algae [45]; Algology & Eminent algologist[45]; Cell wall components of algae[45]; Pyrenoids[47]; Reproduction in Algae[47]; 11 classes of Algae by Fritsch[48]; Parts of Thallus[48]; Carpgonium 49; Celps [48]; Sea cultivation of algae[49] Fuc xanthin[49]; Amphibians of plant kingdom/Non-vascular cryptogams[50]; Contributions of Shiv ram Kashyap[50]; Classification of Bryophytes[52]; Peat[52]; Vascular cryptogams[53]; Sporangium[53]; Strobilus[53]; Prothallus[53]; Reproduction in Pteridophytes[53]; Reimer's classification of Pteridophytes[54]; Stele [55]; Eustele&Atactostele [55]; Amber [56]; Naked seeds in gymnosperm and its origin[56]; Secondary growth in Gymnosperm[56]; Sporne's classification of Gymnosperm [57]; Haploid & Triploid endosperm[57,59]; Contribution of Birbal Sahni[59].

3Marks: Classification of Plant kingdom[42]; Types of algae based on Thallus[44]; Vegetative& Asexual reproduction in algae[47,48]; Sexual reproduction in Algae [48]; Economic importance of Bryophytes[50,51,52]; Economic importance of Pteridophytes[52,53]; Difference between Gymnosperm & Angiosperm[56]; Economic importance of Gymnosperm[55]; Fossil plant groups of Plantae[59].

5Marks: Alteration of generation in Plants[44]; Chlorophyceae[48]; Pheophyceae[48,49]; Rhodophyceae[49]; Economic importance of Algae[50]; General characteristics of Bryophytes[51,52]; General characteristics of Pteridophytes[53]; Protostele and its types[55]; Siphonostele and Its types[55]; General characteristics of Gymnosperm [57]; Salient features of Angiosperm [59]; Differentiate Dicotyledons and Monocotyledons[60].

3.VEGETATIVE MORPHOLOGY(2-5bits)

2Marks: Plant Morphology[62]; 2 categories of Plant morphology [62]; Vegetative morphology[62]; Breathing root[68]; Prop roots[67]; Stilt root[68]; Clasping root[69]; Buttress root [68]; Epiphytic root[68]; Foliar root [68]; Hauserol root[69]; Photosynthetic roots [69]; Apical & Axillary bud[70]; Extra axillary & Accessory bud [70]; Radical bud[70]; Cauline bud [70]; Foliar bud[70]; Caudex stem[71]; Culm stem[71]; Excurrent stem[71]; Decurrent stem[71]; Creepers[71]; Root climbers[71]; Thorn climbers[72]; Lianas [72]; Corm[74]; Rhizome[74]; Underground Tuberous stem[75]; Monopodial stem[75]; Sympodial stem [75]; Pulvinus [75]; Stipules[76]; Storage leaf[82]; Phyllode [82]; Pitcher[82]; Bladder[82]; Plicate[83]; Dorsiventral leaf [83]; Isobilateral leaf [83].

3Marks: Herbs[63]; Shurbs[63]; Climber[63]; Lianas [63]; Trees [63]; Plant habitant [63]; Parts of Magnoliophytes[63]; Characteristics of Roots[65]; Regions of Root[65]; Taproot [66]; Adventitious root[66]; Functions of roots[66]; Root modification chart[66]; Storage tap roots[67]; Characteristic features of Stem[69]; Primary functions of stem[69]; Secondary function of Root[70]; Specialized buds/ Bulbils[70]; Trailers[71]; Stem climbers[71]; Hook climbers[72]; Tendril climbers[72]; Phylloclade[72]; Cladode [73]; Thorns[73]; Bulb[74]; Characteristics of leaf[75]; Functions of Leaf[75]; Modification of leaf chart[81]; Leaf tendrils[81]; Leaf hooks[81].

5Marks: classify Plant based on Life span[63]; Storage adventitious root [66]; Sub aerial modifications of Stem[73]; Structure of leaf[76,77]; Venation[77,78]; Phyllotaxy[77,78]; Ptyxis[83,84]; Leaf duration[84]; Leaf symmetry[84].

4.REPRODUCTIVE MORPHOLOGY

2Marks: Cauliflorous inflorescence[88]; Terminal & Axillary inflorescence[88]; Spike and Spikelet[89]; Catkin[90]; Spadix[90]; Panicle[91]; Corymb[91]; Umbel [91]; Pappus[100]; Petaloid calyx[100]; Bell, urn & Tube shaped calyx[100]; Corolla based on fusion[100]; Lodicule[103]; Ikebena[103]; Parts of stamen[103,104]; Microsporogonia[104]; Connation [104]; Introrse&Extrorse[107]; Pistil[107]; Apocarpous&Syncarpous[107]; Simple & Bifid style[108]; Gynobasic & Lateral style[108]; Pistillode[108]; Hypanthium[109]; Pomology[114]; Fruit wall[114]; Berry [114]; Drupe[114]; Pepo[115]; Hesperidium[114]; Pome[115]; Balusta[115]; Dicot & Monocot seed[121]; Endospermous& Non endospermous seed [121].

3Marks: Racemose&Cymose inflorescence[89]; Racemose chart[89]; Involute[92]; Part of flowers with its functions[95]; Flower sex[95,96]; Arrangement of whorls[97]; Calyx based on fusion [99]; Apopetalous actinomorphic[100]; Papilionaceous corolla[100]; Adelpy[104]; Adnation[104,105]; Classify stamens based on length[105]; Classify stamens based on insertion[105]; Classify anthers based on attachment[106]; Classify anther based on dehiscence[106]; Carpels based on the number[107]; Carpels based on number of locules[108]; Stigma and its types[108]; classify ovary based upon position[110]; Floral formula symbols[113]; Man sized inflorescence[113]; Classify fruits based on the formation[114]; Aggregate fruits[117]; Functions of fruit[118]; Dormant seeds[118]; Significance of seeds[121].

5Marks: Main axis elongated racemose inflorescence[89,90]; Main axis shortened racemose inflorescence [91];Main axis flattened racemose inflorescence [91,92]; Cymose inflorescence[92,93]; Mixed inflorescence[93,94]; Special type of inflorescence [94]; Plant sex[96]; Flower symmetry[96,97]; Cycle of flowers[97,98]; Merosity [98]; Calyx based on Duration[99]; Sympetalous actinomorphic corolla[101]; Sympetalous zygomorphic corolla[102]; Aestivation and its types[102]; Anther types [105,106]; Extension of the condensed internode of the receptacle [109]; Placentation inside the ovary[111]; Follicles and its types[115,116]; Dry indehiscent fruits[116,117]; Schizocarpic fruits[117]; Multiple fruit[118]; Classify types of fruits[119].

5.TAXONOMY AND SYSTEMATIC BOTANY

2Marks: Taxonomy[125]; Systematics[125]; ICBN[127]; Botanical names[128]; Binomial name [129]; Author citation [129]; Steps in Preparation of Herbarium[133]; International Botanic garden[126]; Contribution of Janaki Ammal[136]; APG IV[142]; Cladistics[147]; Needs of cladistics[147,148]; Systematic position of Fabaceae[148]; Floral formula & Diagram of Clitortateae[150]; Medicinal and food plants of fabaceae[152]; Green manuring[153]; Galega officinalis[153]; Systematic position of solanaceae[154]; Floral diagram & Formula of Datura metal [156];Food plant of Solanaceae[157]; Medicinal plant of solanaceae[157]; Floral diagram & Formula of Solanaceae[158];Systematic position of Liliaceae[159]; Floral diagram & Formula of Allium cepa [161];Food plant of Liliaceae[162]; Medicinal plant of Liliaceae[162]; State flower of Tamilnadu& its characters[164].

3Marks: Difference between Taxonomy & Systematics[125]; Nomenclature & Eminent Taxonomist[127]; Any 5 roles of Botanical garden[133]; National and International Herbaria[135]; Uses of Herbarium[135]; Kew Herbarium[136]; Sexual system of classification[137]; Natural system of classification[138]; Bicarpellate&Heteromerae[139]; Adolf Engler and Karl Prantl system of classification [140]; Early angiosperm & its characteristics[142]; Monocots & its characteristics[142]; Eudicots& its characteristics[143]; various disciplines of modern taxonomy[143]; Karyotaxonomy[144];RFLP [145]; AFLP[145]; RAPD[145]; Significance of Molecular taxonomy[146]; Significance of DNA Barcoding[146]; Difference between classical & modern taxonomy [146]; 3 Groups of Cladistics [147]; Pollination in Yucca plant[163].

5Marks: Taxonomy hierarchy [125,126]; Types of species based on process and product of evolution[127]; ICN principles [127,128]; Codes of Nomenclature[128]; Type concept[129,130]; Taxonomical aids[130,131]; Preparation of Herbarium sheets[134]; Bentham and Hooker system of classification[139]; Chemotaxonomy, Characteristics & its Aims[144]; Biosystematics & its Aims[144]; Serotaxonomy& its importance[144]; Molecular taxonomy & its Uses[145].

6.CELL: THE UNIT OF LIFE (4-5 bits)

2Marks: Resolution[168]; Numerical aperture[168]; Magnification[168]; Primary & Secondary magnification[169]; Patch stop carrier[169]; Phase plate[169]; Microscopy & its types[171]; Exception to the cell theory[174]; Protoplasm theory[174]; Colloidal nature of Protoplasm[174]; Endosymbiotic theory [177]; Ultrastructure of plant cell [179]; Structure of Plant cell wall [181]; Components of Cell wall[181];

3Marks: Scientist & their contributions[167,168]; Scanning electron microscope[174]; Cell theory[174]; Cell doctrine[174]; Comparison of cell organization[177]; A model of endosymbiotic theory [178]; Primary wall [181]; Secondary wall [181]; Middle lamellae[181]; Plasmodesmata and pits[181];

5Marks: Comparison of Microscope[173]; Important 5 points on Physical property of protoplasm[175]; Differentiate Plant & Animal cell [180];

7.CELL CYCLE(1-3Bits)

2Marks: Contribution of Beneden[201]; Role of Nucleus[202]; Chromatin[202]; Centromere[202]; Chromatids[203]; Homologous pairs[203]; Duration of cell cycle[203]; C-value[203]; Restriction point[204]; Why cells are arrested in G1 stage[204]; Dolly in connection to G0 phase[204]; G0 phase[204,205]; S phase[205]; MPF[205]; Amitosis[205]; Karyokinesis[205]; cytokinesis[205]; Examples of Amitosis and its drawbacks[206]; Aster[207]; Metaphase plate[207]; APC/C[207]; Draw the mitosis[208]; Cell plate[209]; Synapsis[210]; Bivalent[210]; Crossing over[210]; Chiasmata[210]; Lamp brush chromosome[210]; Terminalisation[210]; Mitosis in Plants and animals[211]; Mitogen[213]; Anastral&Amphiatral[213]; Independent assortment[210]; Events in Anaphase [211]; Events in telophase [211].

3Marks: Interphase[203]; Closed and open mitosis[206]; Cytokinesis in animal cells[209]; Significance of meiosis[212]; Endomitosis[213].

5Marks: Significance of Mitosis[209]; Difference between Mitosis and meiosis[213]; Cell cycle diagram[214].

8.BIOMOLECULES (1-4bits)

2Marks: Components of cellular mass[218]; Micro & Macro nutrients[218]; Water content & in properties[219]; Lattice formation of H₂O[219]; Morphine[220]; Polymers & macromolecules[220]; Test for starch[223]; Mutualism[225]; Lipids[225]; Saturated & Unsaturated fatty acids[225,226];Lecithin[226]; Polypeptides [228]; Amphiprotic molecule[228]; Zwitterion & isoelectric point[228]; Formation of dipeptide[228]; Biuret test[232]; Telomerase[238]; Chargaff's rule[241].

3Marks: Primary and secondary metabolites[220]; Monosaccharides&Eg.[221]; Glycosidic bond[222]; Polysaccharide[222]; Storage polysaccharide in plant[222]; Animal Starch[223]; Cellulose [223]; Fungal cellulose[224]; Benedict's test[224]; Membrane lipids[226]; Steroids[226]; Protein denaturation[230]; Properties of enzymes[232]; Metabolism by enzymes[232]; Activation energy[233]; Lock and key mechanism[233];Km Value & its significance[234]; Competitive inhibition of

enzymes[235]; Non-competitive inhibition of enzymes[235]; Allosteric enzymes[235]; Uses of enzymes[238]; Nucleotide & Nucleoside[240]; Three forms of DNA[242]; Compare DNA & RNA [240,242]; mRNA[243]; tRNA[243]; rRNA[243].

5Marks: Classify carbohydrates[221]; Various other polysaccharides, Structure & its functions[225]; Classification of aminoacids[229]; Structure of protein[230]; Protein bonding[231]; Factors affecting enzymatic reaction[234]; Enzyme cofactors[236]; Classification of enzymes[237,238]; Features of DNA[241].

VOLUME-II

9.TISSUE AND TISSUE SYSTEM (2-4bits)

2Marks: Contributions of Katherine Esau [1]; Plant anatomy[1]; Tissue[2]; Annular collenchyma[7]; Filliform sclereids[8]; Draw the types of sclereids[8]; Bast fibres[9]; Surface fibres[9]; Mesocarp & Leaf fibres[9]; Leptome[10]; Perforation plate[10]; Vessel gymnosperm & vesselless angiosperm[11]; Fibretracheids[11]; Axial parenchyma[11]; Callose[12]; Syncyte[13]; Collenchyma & Sclerenchyma [15]; Fibre & Sclereids[15]; Tracheids & Fibres[15]; Three Tissue system by Sachs[16]; Histology[16]; Piliferous layer[17]; Cuticle[17]; Stomata[18]; Bulliform cells[18]; Silica cells[18]; Subsidiary cells[18]; Sunken stomata[18]; Trichomes[19]; Trichoblast[19]; Prickles[20]; Passage cells[21]; Albimous cells[21]; Diagram of Vascular bundles[22]; Protoxylem & Metaxylem[23]; Protophloem & Metaphloem[23]; Primary & Secondary xylem[23]; Primary & Secondary phloem[23]; Casparian strips[24]; Ground plan & T.S of Dicot root[25]; Ground plan & T.S of monocot root[25]; Starch sheath[27]; Eustele[27]; Bundle cap[28]; Cambium[28]; Ground plan & T.S of Dicot Stem[28]; Protoxylem lacuna[29]; Ground plan & T.S of Monocot stem[29]; Respiratory cavity[31]; Border parenchyma[32]; T.S. of Dicot leaf [32]; T.S of Monocot leaf[33]; Kranz sheath[33]; Guttation[33].

3Marks: Characteristics of Meristematic tissues[2]; Shoot Apical cell theory[3]; Shoot Histogen theory[4]; Shoot Tunica corpus theory[4]; Root apical cell theory[4]; Histogen theory[4]; Korperkappe theory[5]; Quiescent centre concept[5]; Parenchyma characteristics[5]; Parenchyma types [6]; Collenchyma- characteristics[6]; Types of collenchyma[6]; Fibres in our daily life[9]; Meristematic tissue & Permanent tissue [14]; Sieve cells & Sieve tubes[15]; Types & characteristics of Tissue systems[17]; Functions of Epidermal tissue system[20]; Zones of Fundamental tissue system[20]; Inter & Extra stellar ground tissue[20]; Differentiate Dicot & Monocot roots[26]; Anatomical difference between Dicot stem & Monocot stem[30]; Anatomical difference between Root and Stem[30]; Isobilateral & Dorsiventral leaf[30,31]; Stomata & Hydathodes[34]; Halophiles[34].

5Marks: Classification of meristem[3]; Types of sclereids [7]; Five types of fibres[8,9]; Different types of tissues[14]; Types of vascular bundles[23]; Mesophyll of leaves[31].

10.SECONDARY GROWTH

2Marks: Longitudinal & Latitudinal growth[38]; Intrafascicular & Interfascicular cambium[39]; Storied cambium[40]; Non storied cambium[40]; Porous wood & Non porous wood[41]; Annual rings of Tropical, temperate, desert and seashore regions[44]; Structure of a wood [45]; Tyloses[46]; Tylosoids[46]; C.S of Wood showing annual rings[47]; Haematoxylin[47]; Canada balsam[47]; Periderm[48]; Cork[48]; Phellom & Phelloids[48,49]; C.S of Periderm[49]; Rhytidome[49]; Polyderm[49]; Structure of Lenticel[51]; Quinine & Terpentene[51].

3Marks: Fusiform initials & Ray initials [39, 40]; Growth rings[44]; Pseudo growth rings[44]; Importance of studying Growth rings[44]; Dendrochronology[44]; Spring wood & Autumn wood[45]; Diffuse & Ring porous wood[45, 46]; Sapwood & Heart wood[47]; Phellogen[49]; Differentiate Phellom & Phelloid[49]; Vascular cambium & Cork cambium[50]; Lenticels[50]; Secondary growth in dicot stem & dicot root[57].

11.TRANSPORT IN PLANTS (1-2bits)

2Marks: Long distance & Short distance transport[58]; Passive & Active transport[58,59]; Cell to cell transport Char[59]; Diffusion[59]; Semipermeable & Selective permeable[60]; Facilitated diffusion[60]; Aquaporin[61]; Compare & Contrast Co-transport & Counter transport[61,62]; Prove the Power of imbibition[63]; Turgor pressure[65]; Wall pressure[65]; Osmosis[65]; Cavitation/Embolism[73]; Transpiration pull[73]; Rate of transpiration in some plants[75]; Guard cells[76]; Theories of Stomatal movement[76]; Epithem[80].

3Marks: Characteristics & Significance of Diffusion[59,60]; On basis of handling of molecule & direction of transport [61,62]; Imbibition, example and Significance[63]; Suction pressure[65]; Hypertonic, Hypotonic & Isotonic[65]; Thistle funnel experiment[66]; Types of osmosis[66]; Potato osmoscope[67]; Reverse osmosis & its uses[67]; Movement of Water in osmotic system[70]; Difference between active & passive absorption[71]; Ascent of sap[71]; Theory of photosynthesis in guard cells[76]; Anti-transpirants & its uses[79,80]; Significance of Transpiration[81]; Ringing experiment[81]; Direction of translocation[82]; Source and Sink[82]; Phloem loading[82]; Why plants transport sucrose not as starch[82]; Phloem unloading[83]; Activated diffusion theory[83]; Electro osmotic theory[83]; Cytochrome pump theory[86]; Protein- Lecithin theory[87]; Donnan equilibrium[87].

5Marks: Channel protein[61]; Carrier Protein[61,62]; Water potential and correlating factors[64]; Osmotic pressure & Osmotic potential[64]; Plasmolysis & deplasmolysis[66,67]; Path of water across root cells[68]; Mechanism of water absorption[69,70]; Vital force theories & Objections[72]; Root pressure theory[72,73]; Transpiration & Types[75]; Starch-sugar interconversion theory & its objection[76,77]; Theory of K⁺ transport[77,78]; Factors affecting transpiration[78,79]; Ganong's potometer & Cobalt chloride paper method[80]; Munch mass flow hypothesis [83,84]; Explain any two passive & Active mineral absorption[85,86].

12.MINERAL NUTRITION (1-2bits)

2Marks: Role of silicon[92]; Actively mobile elements[92]; Relatively immobile minerals[92]; NPK fertilizer[94]; Siderophores[94]; Critical concentration[95,96]; Manganese toxicity[96]; Aluminium toxicity[96]; Iron & Manganese toxicity[97]; Plants & prokaryotes in Nitrogen fixation[99]; Non symbiotic nitrogen fixation[99]; Leghaemoglobin[99].

3Marks: Floating treatment wetland[90]; Arnon & Stout criteria for Essential elements[91]; Mineral types[92]; Role of nitrogen & its deficiency[93]; Role of phosphorus & its deficiency symptoms[93]; Role of K⁺ and its deficiency symptoms[93]; Role of Ca²⁺ & its deficiency symptoms[93]; Role of Mg²⁺ & deficiency symptoms[93]; Role of S and deficiency symptoms[93]; EDTA[94]; Role of Fe & its deficiency[94]; Role of Mn²⁺ & its deficiency[94]; Role of Cu²⁺ & its deficiency[94]; Role of Zn²⁺ & its deficiency[95]; Role of B & its deficiency symptoms[95]; Role of Mo & its deficiency[95]; Role of Ni & its deficiency[95]; Stages of root nodules formation[98]; Saprophytic mode of nutrition[102]; Total parasitic plant[102]; Partial parasitic plant[102]; Symbiotic mode of nutrition[103].

5Marks: Classification of mineral based on their functions[92,93]; Mineral Deficiency diseases & its symptoms[96]; Hydroponics & Aeroponics[97]; Nitrogen fixation & its types[98]; Nitrogen Cycle[99,100]; Nitrogen metabolism[100-102]; Insectivorous mode of nutrition[103].

13.PHOTOSYNTHESIS (1-3bits)

2Marks: Define photosynthesis[109]; Why Photosynthesis is redox reaction[109,110]; Carotenes[113,114]; xanthophylls[114]; Phycobilins[114]; Paper chromatography[113]; Quantasomes[115]; Dark reaction[125]; RUBISCO[127]; C4 cycle[127]; Significance of C4 cycle[130]; Why C4 is more efficient than C3[130]; Significance of CAM cycle[131]; Significance of Photorespiration[132]; Compensation point[132]; Law of Limiting factor[133]; Factors affecting photosynthesis[133]; PAR[133]; Warburg effect[134]; Bacterial photosynthetic pigments[136]; Photosynthetic bacteria[136].

3Marks: Significance of photosynthesis[110]; Various photosynthetic pigments[111]; Structure of Chlorophyll molecule [111,112]; Biosynthesis of Chlorophyll molecule[112]; Comparison of chlorophyll a with other pigments[112,113]; Shield pigments[113]; Properties of light[115]; Flashing light experiment[115]; Absorption spectrum[115,116]; Action spectrum[116]; Emerson's first effect[116]; Emerson's enhancement effect[117]; Conclusion of Hill's reaction[117]; Photophosphorylation[118]; Fluorescence[118]; Phosphorescence[119]; PSI and PSII[120]; OEC[120]; Water oxidizing clock[120]; Oxidative phosphorylation & Photophosphorylation [121,122]; Cyclic photophosphorylation chart[122]; Non cyclic photophosphorylation chart[123]; Bioenergetics of Light reaction[123]; Difference between Cyclic & non cyclic photophosphorylation[124]; Hatch & Slack pathway chart[127,128]; Kranz anatomy[129]; CAM cycle[130]; Photorespiration chart[131]; Wilcott's bubbler experiment[135]; Test tube funnel experiment[135]; Photosynthesis in plant and Bacteria[136].

5Marks: Site of photosynthesis[110,111]; Modern concept of light and dark reaction[117,118]; Photosystem and reaction centre[119,120]; ETC in each PS complexes[121]; Chemiosmotic theory[124]; Dark reaction chart[126]; C3 and C4 Difference[129]; Photorespiration & Dark respiration[132]; Effect of light and temperature on photosynthesis[133,134]; Internal factors affecting photosynthesis[134,135].

14.RESPIRATION (1-2bits)

2Marks: Respiration[140]; Blackman's Respiration types[140]; ATP structure[141]; Stages of respiration[142]; Energy budget of glycolysis[145]; Two phases of glycolysis[145]; Structure of mitochondrion[146]; Substrate level phosphorylation[146]; Overall reaction of link reaction & Krebs's cycle[148]; Gluconeogenesis[149]; Oxidative phosphorylation[150]; Difference in ETC when compare to Photosynthetic ETC[150]; Recent review on ATP production in ETC[151]; ETC inhibitors[151]; Climacteric fruits[151]; Cyanide resistant respiration[152]; Define RQ[152]; Net gain of ATP from 1 glucose molecule[152]; Significance of RQ[153]; RQ of some substance[153]; Anthocyanin in Climacteric fruits[153]; Mixed acid fermentation[156]; Characteristics of Anaerobic fermentation[156]; Difference between Glycolysis & fermentation[156]; ATP production in Glycolysis & Anaerobic respiration[156].

3Marks: Compensation point[140,141]; Energy currency of cell[141]; Redox reaction[141]; Types of respiration[142]; Difference between aerobic respiration & Anaerobic respiration[143]; Overall stages of respiration[143]; Link reaction[146]; Alternative substrate for respiration[148]; Significance of Krebs's Cycle[149]; Amphibolic pathway[149]; Ganong's respiroscope[153,154]; Fermentation & its types[154]; Difference between Alcoholic and Lactic acid fermentation[155]; Kuhne's fermentation experiment[155].

5Marks: Glycolysis chart[144]; Krebs's cycle[147]; Chemiosmotic theory in ETC[149,150]; RQ and 5 substrate equation with values[152,153]; Factors affecting Respiration[157]; Pentose phosphate pathway and its significance[158-160].

15.PLANT GROWTH AND DEVELOPMENT (2-4bits)

2Marks: Open and closed form of growth [163,164]; Peculiarity of growth in saguaro & Banboos[163]; Indication of growth[164]; Absolute and relative growth rate[167]; Differentiation[170]; Redifferentiation[170]; Redifferentiation[170]; Plasticity[170]; Phytohormones[170]; Classify plant growth regulators[171]; Types of Auxin[172]; Anti-Auxins[172]; Agent Orange[173]; Apical dominance[173]; Bolting[174]; Richmond Lang effect[175]; Photorespiration[179]; Critical day length[179]; FLorigin[180]; Importance of Photoperiodism[180]; Vernalization[182]; Vernalin[182]; Practical application of Vernalization[183]; Seed Dormancy[184]; Senescence[185]; Phytochronology[185].

3Marks: Characteristics of growth[163,164]; Growth of Embryo[167]; Internal Factor controls growth[168]; Arc auxanometer[169]; Characteristics of Phytohormones[171]; Synergistic and Antagonist effect of Phytohormones[171]; Avena curvature test[172,173]; Physiological effects of Auxin[173]; Agricultural applications of Auxin[174]; Agricultural application of Gaseous phytohormones[176]; Climacteric and Non Climacteric fruits[178]; Agricultural role of ABA[179]; Long day and Short day plant[179]; Short day and Long short day plant[179]; Intermediate and Day neutral plant[180]; Photoperiodic induction[180]; Phytochrome[180,182]; Epigeal and Hypogeal germination[183]; Physiology of Senescence[185,186]; Factors affecting senescence[186]; PCD[186]; Abscission[186]; Abscission zone[187]; Significance of Abscission[187].

5Marks: Phases of growth[164]; Kinetics of growth[165]; Arithmetic growth rate[165,166]; Geometric growth rate[166,167]; External factor controls the Growth[168]; Discovery, Occurrence, Chemical structure, Transportation, Precursor, Bioassay and Physiological effects of Auxin[171-173]; Discovery, Occurrence, Chemical structure, Transportation Precursor, Bioassay and Physiological effects of Gibberellin[174-175]; Discovery, Occurrence, Chemical structure, Transportation Precursor, Bioassay and Physiological effects of Cytokinin[175-176]; Discovery, Occurrence, Chemical structure, Transportation Precursor, Bioassay and Physiological effects of Ethylene[176]; Discovery, Occurrence, Chemical structure, Transportation Precursor, Bioassay and Physiological effects of ABA[178]; Photoperiodism in plants[181]; Vernalization[182,183]; Seed germination[183,184]; Methods of Breaking dormancy[184]; Types of Senescence[185].

"Scan and Skim your Textbook which is the only Bible of the year! Incinerate all guides and materials!"

Mithun

Mithun Kumar M

MSC., M.A., M.Sc., MBA., B.Ed

PG Asst in Board

(NEET cum Bio Faculty)

Connect and contact via:

Insta: Mithun_bio

You tube: Mithun Bio

Whats app: 8124349888

Mithun Kumar M M.Sc., MBA., B.Ed., M.A., M.Sc., B.P.Ed., NEET TRAINER @ CE ACADEMY, 8124349888 (Call if any queries)

"Commit to the lord whatever you do , and he will establish your plans"-Pro16:3

BIO-ZOOLOGY

VOLUME-I

1.THE LIVING WORLD(1-2bits)

2marks: Biodiversity[2]; Taxonomy [2]; Basic needs for classification [2]; Systematic [3]; Cladistics/cladogram [4]; Taq Polymerase [5]; Extremophile [5]; Curd as Probiotics [6]; Cavalier-Smith classification[6]; Taxonomic hierarchy [7]; Species[7]; Interspecific cross [8]; monotypic genus[8]; Polytypic genus [8]; Taxonomical keys[12]; Museum [12]; Zoological Marine parks [12].

3Marks: Three domains [14]; Five kingdom classification[6]; Systematics of Human [8]; Family [8]; Order[8]; Phylum[9]; family [8]; Binomial nomenclature [10]; Trinomial Nomenclature [10].

5Marks: Rules of nomenclature [11]; Molecular taxonomical tools[12]; Automated species identification tools [12]

2.KINGDOM ANIMALIA(3-4bits)

2marks: Cellular level organization [17]; Tissue level organization[17]; Organ level organization [17]; Open & closed type circulation [17]; Incomplete and complete digestive system[17]; Metamerism [31]; Notochord[31]; Parazoa and Eumetazoa [31]; Canal system/Ostia/Spongocoel [24]; Chaonocytes/ Collar cells[22]; Larva and Eg. of Porifers [22]; Cnidoblast [23]; Coelentron [23]; Metagenesis [23]; Larva and eg. of Cnidaria [23]; Comb jellies [24]; Lasso cells / Colloblast [24]; Larva and Eg. of Ctenophora[24]; Flame cells/Solenocytes[24]; Larval stages of Platyhelminthes [25]; Rennet glands [25]; Examples of Aschelminthes [25]; Hydrostatic skeleton [25]; Larva and examples of Annelida[26]; Ecdysis/Moulting [26]; Haemocoel [26]; Sensory & Excretion of Arthropoda [27]; Examples of Arthropoda[27]; Ctenidia [27];Marbled cone snail[28];Osphradium and Radula [27]; Larva and Examples of Mollusca [27]; Ambulacral system [28]; Examples of Echinodermata [28]; Acorn worms [29];Larva and examples of H'michordata [29]; Cleidoic eggs and its membrane [33]; Tortoise Vs Turtles [33]; Pneumatic bones and flight muscles [34]; Homocetrachotoxin [34].

3Marks:Diploblastic and triploblastic animals [18]; Pseudocoelom [19]; Eucoelom[19]; Schizocoelomates&Enteocoelomates [20]; Grades of Eumetazoa [21]; Divisions of Bilateria [21]; Polyp and medusa [23] Compare the excretion all phylum; Chordates and non-chordates [29]; Classify Phylum chordata [29]; Characteristic features of Chordata[30]; Characteristic features of Cephalochordata[30]; Differentiate Agnatha and gnathostomata [31]; Features of Chondrichthyes [31]; Features of Osteichthyes [32].

5Marks: Patterns of symmetry[18]; Three fundamental and distinct features of Chordata [29]; Important characters of Class: Amphibia [32]; Characteristic features of Reptilia [33]; Important features of Class: Mammalia [34].

3.TISSUES LEVEL OF ORGANIZATION(1-2bits)

2Marks: Tissues [42]; Histology [43]; Classify animal tissues [43]; 4 Basic tissue types [43]; Epithelial tissues & its function [43]; Squamous epithelium [44]; Cuboidal epithelium [44]; Microvilli and Goblet cells [44]; Classify Glandular epithelium [44]; Epithelial tissue disorder [44]; Classify Connective tissues[47]; Tissue fluid [47]; Fat cell [47]; Compare white and brown fat [48]; Palmaris muscles [50];

3Marks: Functions of compound Epithelium [45]; Location of Stratified (Squamous, Cuboidal and Columnar) epithelium [44]; Types of junctions [46]; Connective tissues and Its functions [47]; Components of connective tissues [48]; Reticular connective tissues [48]; Locations of Elastic connective tissues [48]; Compare the Bones and cartilage [49]; Fluid connective tissue [49]; Diseases of Nervous system [52];

5Marks: Dense regular and Dense irregular Connective tissues [48]; Heritable type & Autoimmune disorders of connective tissue[50]; Compare the 3 types of Muscles [49]

4.ORGAN AND ORGAN SYSTEMS IN ANIMALS

2Marks: Why Earthworm is friends of farmers?[56]; Taxonomy of earthworm[56]; Metamerism [56]; Clitellum [56]; Prostomium, peristomium and Pygidium [56]; Body setae [57]; Intestinal caeca [58]; Worm castings or Vermicasts[58]; Lateral heart/Commissural vessels [59]; Nephrostome& its segments[71]; Chlorogogen cells [71]; Protandry [72]; Journey of Spermatozoa in earthworm [61] Regeneration in Earthworm [62]; Spermathecae&Spermatophores [61]; Vermitech[62]; Vermiculture [62]; Vermiwash&Vermicompost [62]; Wormery/Wrombin [62]; Taxonomy of Cockroach[63]; Podomeres/Tarsomeres [64]; Mouth of Cockroach [64];Gonopophysis[64]; Crop and gizzard [65]; Hepatic/enteric caecae [65]; Malpighian tubules [65]; Ostia [66]; Alary muscles [66]; Pulsatile vesicle [66]; Organs of Nervous system in cockroach [67]; Ommatidia[67]; Spermatophore travel in Cockroach [68]; Utricular gland[69]; Phallomeres [69]; Ootheca [69]; Taxonomy of Frog [70]; Order: Anura [71]; Nictitating membrane [72]; Nuptial pad [72]; Teeth of frog [73]; Elytra[64]; Cocoon[77].

3Marks:Epigeic,Anecic and Endogeic [56]; Coelum and Hydrostatic skeleton [58]; Three types of Nephridia [61]; Life cycle of Lampitomaureitii [63]; Phase I and Phase II development of Earthworm[63]; Sclerites [63]; Spiracles [66]; Sensory receptors in cockroach [67]; Parametabolous&Ecdysis [67]; Oviparous cockroach [67]; Compare Frog and toad [71]; Compare Anus and Cloaca [73]; Digestive pathway of Frog [73]; Classify the Nervous system of Frog [75]; Metamorphosis of Frog cycle [77]; Economic importance of frog [77].

5Marks: Compare the Lampitomaureitii&Metaphireposthuma [57]; Sexual dimorphism in Cockroach [68]; Respiration in Frog [73]

5.DIGESTIVE SYSTEM(1-2bits)

2Marks:Thecodont[84]; Diphyodont [84]; Heterodont [84]; Tartar [84]; Gingivitis[84]; GERD[85]; Gastric rugae [85]; Peyer's patches [86]; Brunner's gland & Crypts of Leiberkuhn [86]; Vermiform appendix [86]; Haustra [87]; Haemorrhoids [87]; Glisson's capsule[89]; Sphincter of oddi [89]; Deglutition[90]; Chyme [90]; Role of bicarbonates [91];Enterokinase[92]; Lactose intolerance [93]; Caloric value of Carbohydrates,Proteins and Fats [96]; Egestion [110]; Marasmas and Kwashiorkor [96]; Sphincter of Boydon[refer]; Ampulla of Vater&falciform ligament[refer]

3Marks: Salivary glands [88]; Gastric glands [88]; Pancreas [90]; Succusentericus [92]; Digestion of Carbohydrate[93]; Digestion of Protein [93]; Digestion of fat [93]; Indigestion and constipation [96]; Jaundice[97]; Liver cirrhosis [97]; Gall stones [97]; Appendicitis [97]; Peptic ulcer[97].

5Marks: Histology of gut [97];Hiatus hernia[97]; Diarrhoea[97]; Obesity [98]; Test forStarch,Glucose and Protein [98]; Accessory digestive glands [84]; Alimentary canal-Functions and Secretion [84].

6.BREATHING& EXCHANGE OF GASES (RESPIRATION)[2-3bits]

2Marks: Respiratory zone [106]; Diffusion membrane of Alveoli [107]; Surfactant [109]; Pleura [109]; Dead space [refer]; Nitrogen Necrosis [116]; Acute mountain sickness [116]; Asthma [117]; Emphysema [117];Bronchitis [117] Pneumonia [117]; Tuberculosis [117]; Pulmonary Embolism and Edema [118]; Atelectasis [118]

3Marks: Respiratory functions [106]; Characteristic features of respiration [109]; Steps involved in Respiration [109]; Why do some people snore?[110]; Exchange of Gases in lungs [111]; Haemoglobin [113]; Methaemoglobin [113]; Occupational respiratory disorders [117] CO₂D [119].

5Marks: Mechanism of breathing [109]; Respiratory volumes [111]; Respiratory capacities [111]; Transport of oxygen [114]; Transport of carbon dioxide [114]; Compare inspiration and Expiration [115]; Regulation of respiration[116]; Evil effects of smoking [117].

7.BODY FLUIDS AND CIRCULATION(2-3bits)

2Marks:Extracellular fluids [128]; Formed elements [129]; Haematocrit [130]; Monocytes [131]; Antigen & Antibodies of RBC [132]; Rhocur[132]; Serum[133]; Hepirin [133]; Lymph [133]; Why abdominal cramp happens after doing exercise after meal?[137]; Law of Laplace[137]; Heart wall [138]; Location and weight of heart [138]; valves of heart [138]; Tubercle accornea& Chordae tendinae [138]; Systole and diastole[140]; Lub and Dub sound [140]; Isovolumetric contraction [140]; Tachycardia and Bradycardia(Arrhythmia)[140]; CO[141]; SV[141]; Frank-Starling law and its role [141]; Sphygmomanometre[142]; Baroreceptor reflex[142]; Osmostatic reflex[142]; Hypertension [146]; CHD[146]; Stroke[146]; Angina pectoris [146]; Varicose veins [147]; Embolism [147]; Aneurysm [147]; RHD [148]; Cardiomyopathy [148]; Pericarditis [148]; Bundle of His;Papillarymuscles;Purkinjiefibres[138].

3Marks: Composition of fluid [129]; Four Plasma proteins [129]; Blood supply to Liver [129]; ErythroblastosisFoetalis [132]; Layers of Blood vessels [135]; Anastomoses [135]; Differentiate artery and vein [135]; capillaries [135]; Coronary artery [137]; Open and closed circulatory system [137]; Single and double pumping circulation [137]; Myogenic and Pacemaker[138]; EDV and ESV [141]; Regulation of cardiac activity[146]; Myocardial infarction [146]; CPR[147].

5Marks: Erythrocytes [129]; WBC [130]; ABO blood groupings[131]; Coagulation of blood [132] Composition of lymph and its functions [133]; Origin and conduction of heart beat[138]; Cardiac cycle [140]; ECG[142]; Double circulation [143].

VOLUME-II

8.EXCRETORY PRODUCTS AND THEIR ELIMINATION(EXCRETION)[2-3bits]

2Marks: Excretion[2]; Osmotic regulation[2]; Osmotic homeostasis[2]; Osmoconformers[2]; Osmoregulators[2]; Euryhaline and Stenohaline[2];Nitrogenous waste products[2]; Excretory products in different group of animals[3]; Bertini[4]; Hilum[4]; Calyces[4]; Pelvis [5]; Renal corpuscle[5]; Filtration slits[5]; Cortical and juxtamedullary nephron[7]; Vasa recta[9]; Aquaporins [12]; Osmolarity [12]; Podocytes[23];

3Marks:Ammonoteles [2]; Ureoteles [3]; Excretory structures in various organism [3]; Hyperosmotic and Hypoosmotic urine[3]; Detrusor muscle[3]; Peritubular capillaries[7]; Ornithine cycle[9]; Renal clearance [10];

Counter current multiplier [12,13]; Counter current exchanger[14]; ANF[16]; Kidney failure [17,18]; Uremia [18]; Renal calculi [18]; Glomerulonephritis [18]; Haemodialysis [18]; Kidney transplantation [19]; First Kidney transplantation [19].

5Marks: Structure of Kidney[4]; Structure of Nephron[5]; Glomerular filtration [9,10]; Tubular reabsorption[11]; Counter current mechanism[13,14]; ADH and Diabetes insipidus[14,15]; RAAS pathway[16]; Micturition[16,17]; Role of other organs in excretion [17]; Urinary tract infection [17].

9.LOCOMOTION AND MOVEMENT(2-3bits)

2Marks: Locomotion[27]; Tendon,Fascicle and Myofibrils[28]; Sarcoplasm [28]; Myoglobin [28]; Glycosomes [28]; Sarcomere[29]; Thick and thin filaments[29]; T-tubules [29]; Hydrostatic skeleton [36]; Exoskeleton[36]; Endoskeleton[36]; Human skeletal system[36,37]; Sternum[38]; Collar bone[39]; Acromion[40]; Glenoid cavity[40]; Olecranon process[40]; Carpal tunnel[40]; Pubic symphysis[41]; Patella[41]; Acetabulum[41]; Medullary cavity[41]; Metaphysis[42]; Periosteum[42]; Osteoblast & Osteoclast[42]; Endosteum [42]; Epiphyseal plate[42]; Synarthroses[42]; Amphiarthroses[42]; Diarthroses[45]; Types of Synovial joint[45,46]; Tetany[46]; Atrophy[46]; Muscle pull[46]; Muscular dystrophy[46]; Myasthenia gravis[46]; Osteoporosis[47].

3Marks:Types of movement [28]; Types of Muscle[28]; Coverings of in muscle[28]; A and I band[28]; Hzone and Z disc [29]; SMGA[34]; Schematic presentation of muscle contraction[34]; Isotonic and Isometric contraction[35]; Red and White muscle fibres[35]; Oxidative and glycolytic fibres[35]; Functions of skeletal system[37]; Rib cage[38,39]; Arthritis[46,47]; Benefits of regular exercise[47].

5Marks: Contractile proteins[30,31]; Cross bridge cycle muscle contraction[32]; Sliding filament hypothesis [33]; Axial skeletal (name,numbers& location)[37-38]; Appendicular skeleton(name,numbers& location)[39-41]; Structure of typical long bone[41,42]; Types of joints[42,45]; Bones of skeletal system[43].

10.NEURAL CONTROL AND COORDINATION(2-3bits)

2Marks: Neuron[54]; Neuroglia[54]; Glial cells [54]; Neurilemma [54]; Nissle's granules [55]; Axon hillock[55]; Schwann cells [55]; Myelin sheath [55]; 'Neuron, the longest cell of human body' justify [55]; Nodes of Ranvier[56]; Synaptic knob[55]; Graph of action potential [58]; Action membrane potential[59]; Threshold potential [59]; All or none phenomenon[59]; Spike potential[59]; Lazy gates[59]; Saltatory conduct on[59]; Synapse[59]; Synaptic cleft [60]; Exocytosis [60]; Neurotransmitters[60]; Basal nuclei [61]; Cerebral corte[61]; Sulci and Gyri[61]; Blood brain barrier [62]; Corpus callosum[62]; Association area[63]; Choroid plexus[63]; Pincal body [63]; Functions of brain lobes [63]; Depression [64]; Infundibulum [64]; Mammary; ary body; [64]; Brain stem[64]; Corpora quadrigemina [65]; Cerebral p.duncies [65]; Septum pellucidum[65]; Aequeduct of Sylvius[65]; CS of spinal cord [66]; Grey matter of Spinal cord[66]; Two tracts at white matter of spinal cord [65]; Two enlargements of Spinal cord [66,67]; Reflex Arc [67]; Extrinsic muscles at eye[71]; Aqueous humor [72]; Eye lens[72]; Layers of Eye[72]; Canal of schlemm[72]; Conjunctivitis & Str[72]; Accommodation[73]; Macula lutea[74] Blind spot[74]; 'Graft rejection not seen in cornea'-Reason[74]; Path of sound waves[76]; Cerebrinous gland[76]; Stereocilia[77]; Eustachian tube[77]; Tectorial membrane[77]; Round & Oval window[77]; Basilar & Reissner's membrane[77]; Conductive deafness[78]; Sensory neural deafness[78]; Decibel[78]; Vestibular system[78]; Maculae[79]; Otoliths[79]; Ampulla[79] Fig Organ of equilibrium [78]; Structure of macula[79]; Papillae[80] Gustatory hairs [81]; Pacinian corpuscles[82]; Meissner's corpuscles[82]; Virgilo[82].

3Marks: Basic function of neuron[54]; Functional classes of neurons[54]; Classify neuron based upon the number of axon and dendrites [56]; ICF and ECF[56]; Ionic channels in the axolemma[57]; Resting potential[57]; Sodium and potassium pump[58]; Reversal of polarity [59]; Falling phase[59]; Hyperpolarisation [59]; Cranial meninges [61]; Vital functions of medulla oblongata[62]; Functions of limbic system[62]; Areas of cerebral cortex[62]; ; Epithalamus[63]; Hypothalamus[64]; Limbic system [64]; Cerebellum [65]; Pons varoli [65]; Medulla oblongata [65]; CSF[65]; Cauda equine [66]; Functional components of Reflex are [67]; Somatic nervous system[69]; Sympathetic & Parasympathetic nervous system[70]; Types of receptors[71]; Glands at eyes[71]; Cornea[72]; Mechanism of vision[74]; Visual pigments[74]; Rods and cones[75]; Outer ear[76]; Middle ear[76,77]; Inner ear[77]; Organ of corti [77]; Olfactory receptors [80]; Gustatory receptors[80]; Receptors in skin[82].

5Marks: Two kinds of reflexes [67,68]; Cranial nerves and its function[68]; Peripheral nervous system[68,69]; ANS and its components[69]; Receptor based on their locations[71]; Choroid [72,73]; Retina[73,74]; Refractive errors of eye[74]; Mechanism of hearing[77,78]; Organ of equilibrium[78,79].

11.CHEMICAL COORDINATION AND INTEGRATION(2-3bits)

2Marks: Hormones [90]; Homeostasis [91]; Chemical nature of hormones[92]; Sellaturicica[94]; Rathke's pouch[94]; MSH[94]; Diabetes insipidus[95]; Oxytocin [95]; Melatonin in Circadian rhythm[96]; Isthmus [96]; Acini[96]; Sporadic goiter[97]; Iodine requirement for Thyroxine[97]; Functions of TCT[97]; Functions of T4[97]; Cells of parathyroid gland[97]; Old age people are sick often, why?[98]; Oral intake of insulin not possible, Why?[101]; ANF[103]; Renin[103]; Erythropoietin[103]; Calcitriol[103]; CCK[103]; Gastrin and Secretin[103]; Dwarfism[103]; Gigantism[104]; Acromegaly[104]; Cretinism[105]; Gull's Disease[105]; Thyrotoxicosis[105]; Simple goiter[105]; Tetany[105]; Hyper parathyroidism[106]; Addison's disease[106];

Cushing's syndrome[106]; Hypoglycemia[106]; Normal glucose level[106]; 'Alcohol consumption leads to infertility in male'-Why?[108]; BMR[110]; Why Steroid intake should curtailed?[110]; Acidosis[113].

3Marks:Exclusive & Partial endocrine glands[92]; Hypothalamic hypophyseal portal blood vessels and axis[92]; Hypothalamic hormones & its functions[93]; GH[94]; TSH[94]; ACTH[94]; FSH[95]; LH[95]; LTH[95]; ADH[95]; Amino acid sequence of ADH & oxytocin[95]; Pineal gland [96]; Follicular and C cells of Thyroid gland[97]; Hypercalcemic hormone[98]; Thymus gland[98]; Zones of Adrenal glands[98]; Catecholamines[98]; Glucocorticoids & Mineralocorticoids[99]; 3F hormone[100]; Composite gland[100]; Insulin & its T_{1/2} life [101]; Glucagon[101]; GI tract hormones[103]; Diabetes mellitus & insipidus[108,109].

5Marks: Testis & its hormone[101]; Ovarian hormone[101,103]; Mechanism of hormone action[108,109].

12.TRENDS IN ECONOMIC ZOOLOGY(1-2bits)

2Marks: Classify animals based on economic importance[107]; Biological indicator of soil fertility[107]; Vermiculture[107]; Vermitech[107]; Drilospheres[120]; Vermiwash[120]; Silk road[121]; Fig.Life cycle of Bombyxmori[123]; IMRE[125]; BmNPV[125]; Apiculture[126]; Stypes of Honey bee[126]; Nuptial fight[126]; Brood cells[127]; Propolis[129]; Life cycle of Lac insects[130]; Lac culture[130]; Swarming[130]; 3Host plants of lac insect [130]; Hyperparasitism [131]; Aquaponics[131]; Deep water culture[131]; Media based method[131]; Nutrient film technique[131]; Aqua vertica[131,132]; Aquaculture[133]; Aquaculture on basis of source[133]; Pisciculture[133]; Mariculture[133]; Breeding pond[135]; Fish seed[135]; Exotic fishes[137]; Disease management of fish farming[137]; Omega 3 fatty acids in fish[137]; Fish oil[137]; Fish meal[137]; Isinglass[137]; Species of Prawn[138]; Composition of pearl[141]; Quality of pearl[141]; Animal husbandry [141]; Objectives of animal breeding[142]; Out crossing [142]; Cross breeding[142]; Interspecific hybridization[142]; Artificial insemination[142]; Thawing[142]; Advantages of artificial insemination[143]; Dairying & breeds [143]; Vechur breed[143]; Good milkers of cattle[143]; Prominent indigenous cow breeds[144]; Beef meat[144]; Leghorn [145]; Chittagong[145]; White Plymouth rock[145]; Brahma[145]; Aseel [145]; Silkie[145]; Poultry Products & byproducts[147]; Poultry diseases[147].

3Marks: Endemic and exotic Earthworm sps.[19]; Earthworm pests and diseases[129]; Sericulture & its 3 components[121]; Different types of silkworm[122]; 2 Races of silkworm[123]; 4 types of silk India[123]; Moriculture[124]; Uses of Silk[125]; Diseases & Pest of Silkworm[125]; Social organization of Honey bee[126]; Queen bee[126]; Workers bee[126]; Role of Invertase [126]; Drone[127]; Structure of a bee hive[127]; Lesson of cooperation from honey bee[127]; Honey[129]; Bee wax[129]; Economic importance of Lac [131]; Aquaponic - midtrap[132]; Brackish water fishes[133]; Marine fisheries[133]; Characteristics of cultivable fishes[134]; Types of cultivable fishes[134]; External factors affecting fish culture [134]; Management of fish farm[135]; Composite fish farming[137]; Types of Prawn fishery[137,138]; Collection of oysters[140]; Rearing of oyster[140]; MOET[143]; 3 groups of cattle based on serving purpose to man[143]; Common disease of cattle[143,144]; Milk products[144]; Poultry farming [145]; Types of chicken breeds[145]; Benefits of Poultry farming[147].

5Marks:Vermicomposting [119]; Advantages of using vermi-compost[120]; Life cycle of Bombyxmori[121,122]; Rearing of silkworms[124] Post cocoon processing[124,125]; Langstroth bee hive method[128]; Accessory equipments in Bee hive[128,129]; Lac cultivation[131]; Advantages of Aquaponic gardening[132,133]; Types of breeding based on mode[135-136]; Culture of Freshwater prawn[138]; Culture of Marine prawn[138,139]; Pearl culture[139]; Steps in Insertion of nucleus in mantle of oyster[140]; Methods of animal breeding [142]; Stages involved in poultry farming and types of poultry farming[146]; Duck farming[147].

" Your text book is the only way forward to excellence; No guides or materials substitute/replace it"-Mithun

Mithun Kumar M
MSc.,M.A.,M.Sc.,MBA.,B.Ed
PG Asst in Biology
(NEET cum Board Faculty)
Connect and contact via:
Insta: Mithun_bio
You tube: Mithun Bio
Whats app: 8124349888