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XII = STD - ALL LESSONS 2 & 3 MARKS
BIO-ZOOLOGY

2 & 3 marks :-

Unit - ①

CHAPTER = ① - Reproduction In Organisms.

P.PALANIVELU. M.Sc., M.Ed.,
 PGT in ZOOLOGY,

- 1) Reproduction (1)
- 2) Sexual Vs Asexual Reproduction (1)
- 3) Modes of Asexual Reproduction (1)
- 4) Define fission and its types (2)
- 5) Types of Binary fission - Simple, transverse, Longitudinal, Oblique, Repeated and Multiple (2)
- 6) Difference between Merozoites Vs Sporozoites (3)
- 7) Encystment (3)
- 8) Strobilation (3)
- 9) Plasmotomy (4)
- 10) Sporulation (4)
- 11) Budding and its types (5)
- 12) Regeneration (6)
- 13) Fragmentation (5)
- 14) Epimorphosis (6)
- 15) Apolysis
- 16) Reparative and Restorative,
- 17) Syngamy
- 18) Arrhenotoky, Thelytoky, Amphitoky
- 19) Gemmules formation (5)
- 20) Autogamy, Exogamy, hologamy, paedogamy, Merogamy, isogamy and Anisogamy (7)

- 21) Conjugation (7)
- 22) What are the different phases of Life cycle? (7)
- 23) Types of Breeding (7)
- 24) Define - Paedogenesis (8)
- 25) Oviparous, Viviparous, Oviviparous (8)

CHAPTER - 2 [Human Reproduction]

- 1) What are the Major functions & Reproductive Events in System (13)
- 2) Why the scrotum is placed outside of the body? (14)
- 3) Roles of Inhibin (14)
- 4) Leydig cells (13)
- 5) Cryptorchism (15)
- 6) Sperm
- 7) List the name of ducts and accessory glands associated with the Male Reproductive System (15)
- 8) What is Urethral mating? (15)
- 9) Prepuce - Define
- 10) Define - Tunical Albuginea.
- 11) Mesovarium (16)
- 12) Fimbriae (16)
- 13) Ampulla (17)
- 14) Layers of Uterus Wall? (17)

- 15) Bartholins gland (17)
- 16) Areola (17)
- 17) Gametogenesis (18)
- 18) Spermiation / Spermatogenesis (19)
- 19) Acrosome (19)
- 20) Mitochondrial Spiral @ Nebenkern (19)
- 21) Different phases of Menstrual cycle (21)
- 22) LH - Surge (21)
- 23) Corpus albicans (22)
- 24) PCOS (Poly cystic Ovary Syndrome) (21)
- 25) Menopause (23)
- 26) Importance of hyaluronic acid? (23)
- 27) Acrosomal Reaction? (23)
- 28) Blastomeres (23)
- 29) Morula (23)
- 30) Blastocyst (23)
- 31) Trophoblast (23)
- 32) Ectopic pregnancy (24)
- 33) Differentiate - Monozygotic Vs Dizygotic twins (24)
- 34) Siamese twins (24)
- 35) Gastrulation (25)
- 36) Chorionic / chorionic Villi (25)
- 37) Gestation period (25)
- 38) Name of the hormones produced by Placenta (25)

- 39) Boxter - Hick's Contraction (26)
- 40) Neurohormonal Reflex (26)
- 41) Colostum - Uses (26)
- 42) Layers of External Genitalia (or) Vulva (11)
- 43) AZOSpermia.
- 44) Importance of Relaxin hormone (26)

CHAPTER - 3 [Reproductive Health]

- 1) Amniocentesis (35)
- 2) Foeticide Vs Infanticide (35)
- 3) PCPNDT Act (35)
- 4) POCSO Act (35)
- 5) What are the birth Control Methods? (36)
- 6) periodic abstinence (36)
- 7) Continuous abstinence (36)
- 8) Lactational amenorrhoea (36)
- 9) Coitus interruptus (36)
- 10) Types of Barrier Methods (36-37)
- 11) IUDs - IntraUterine devices (37)
- 12) Tubectomy (37)
- 13) Vasectomy (37)
- 14) How to prevent the STDs? (38)
- 15) Define - ART (41)
- 16) Techniques Used in ART (41)
- 17) Embryo Transfer technique (41)

- 18) Infertility : Causes of Infertility? (40)
- 19) Diagnostic Methods are used to detect the Cervical Cancer (40)
- 20) Symptoms of Cervical Cancer (40)
- 21) Mayer-Rokitansky Syndrome (41)
- 22) What are the Copper releasing IUDs? (37)
- 23) Major tasks carried out of RCH? (34)
- 24) Prevention of Male Infertility (42)
- 25) Surrogacy (42)
- 26) Chorionic Villus Sampling (CVS) (43)
- 27) Foetoscope (43)
- 28) RCH Major tasks carried out under these programmes? (34)
- 29) Hormone releasing IUDs (37)
- 30) Diagnosis of Cervical Cancer (40)
- 31) Define - Cryopreservation (41)
- 32) Embryo transfer techniques (41)

UNIT - II

CHAPTER - IV [Principles of Inheritance And Variation]

- 1) Multiple allelism (47)
- 2) Rh factor (49)
- 3) Wiener Hypothesis (49)
- 4) What is erythroblastosis foetalis? (50)
- 5) ZO - ZZ type (51)
- 6) ZW - ZZ type (51)

- 7) Prevention of Erythroblastosis foetalis (50)
- 8) xx-xo type (50)
- 9) Barr body (52)
- 10) What is Haploidioidy? (53)
- 11) Kin selection (53)
- 12) Holandric genes (or) Y-linked genes (53)
- 13) Sex linked inheritance (53)
- 14) Karyotyping (54)
- 15) Applications / Uses of Karyotyping (55)
- 16) Karyotype (55)
- 17) What are the Mendelian disorders? 56
- 18) Cooley's anemia (56)
- 19) Aneuploidy (57)
- 20) Syndrome (57)
- 21) Heterogametic Sex determination (59)
- 22) Define fisher and Race Hypothesis (49)
- 23) Define - Haemophilia (53)
- 24) Define - family tree (55)
- 25) Genetic disorders (56)

CHAPTER - 5 (Molecular genetics)

- 1) Properties of Gene (64)
- 2) One gene and one polypeptide hypothesis (64)
- 3) Chromosome (64)
- 4) Transformation (65)
- 5) VNTR (87)
- 6) Expand RNA and DNA (67)
- 7) Nucleoside (67)

- 8) Nucleotide (67)
- 9) Properties of Genetic Material (67)
- 10) Genophore (70)
- 11) Histone Octamere (70)
- 12) DNA replication (70)
- 13) Replication fork (73)
- 14) Pribnow box and TATA box (73, 74)
- 15) Role DNA polymerase, DNA Ligase
- 16) Transcription
- 17) Reasons for Transcription
- 18) Template Strand Vs Coding Strand (74)
- 19) Differentiate - Monocistronic Vs polycistronic genes. (74)
- 20) Application and future Challenges of HGP (86)
- 21) Define - Exon, Intron, Splicing and tailing (75)
- 22) Stop codons, Triplet codon
- 23) Genetic code (76)
- 24) Why the t-RNA is called as adapter Molecule? (79)
- 25) Aminoacylation (79)
- 26) Structure of operon (84)
- 27) Micro-Satellites (85)
- 28) Shotgun Sequencing (85)
- 29) Applications of DNA finger printing (88)
- 30) Pharmacogenomics (86)
- 31) Define - Erwin Chargaff rule (68)
- 32) Define - Ribozyme (68)
- 33) Define - HGT (Horizontal Gene Transfer) (76)

- 34) Short note - Sickle cell anaemia in humans (78) 8
- 35) Define - Effect of point Mutation Example (79)
- 36) Define - Initiation Complex, Elongation, Termination (83)
- 37) What are the Main Goals of HGP. (85)
- 38) Important advantage of Molecular Medicine (86)

CHAPTER - 6 (Evolution)

- 1) Coacervates (94)
- 2) Big bang theory (94)
- 3) Special Creation theory (94)
- 4) Write the ERAs of Geological time Scale (95)
- 5) Paleontology (97)
- 6) Petrification (97)
- 7) Connecting links (99)
- 8) Atavistic Organs (99)
- 9) Convergent Evolution (98)
- 10) Analogous structure (98)
- 11) Homologous structure (98)
- 12) Vestigial Organs (99)
- 13) Ontogeny Vs Phylogeny (100)
- 14) Define - Lamarck's Use and disuse theory (100)
- 15) Main Objections of Lamarckism (100)
- 16) Neo-Lamarckism (100)
- 17) Theory of Natural selection (101)
- 18) Objections of Darwinism (101)
- 19) Salient features of Mutation theory (102)

- 20) Explain the natural selection through industrial melanism (102) 9
- 21) Adaptive radiation (103)
- 22) Darwin's finches (103)
- 23) Genetic drift (a) Sewall Wright effect (105)
- 24) Gene flow (105)
- 25) Differentiate - Convergent and divergent evolution (98)
- 26) How does Neanderthal Man differ from the Modern Man in appearance? (107)
- 27) Coprolites (98)
- 28) State Hardy - Weinberg law (106)
- 29) Few similarities of Neanderthal Man and Hominid (106)
- 30) Methods of determine the Age of fossils (106)
- 31) Liposomes (96)
- 32) Protobionts (96)
- 33) Molecular evidences for evolution (100)
- 34) Define - theory of biogenesis
- 35) Define - Chemical Evolution (94)
- 36) Difference - b/w Relative dating and Absolute dating (96)
- 37) Define - Connecting Link (99)
- 38) Define - Mutation (105)
- 39) Define - Mutation theory? (102)
- 40) Write the Equation reveal when photosynthesis takes place in Sea water and in the atmosphere? (96)

UNIT-III-CHAPTER-7 [Human health and diseases]

(10)

- 1) Pathogens (111)
- 2) Bacterial resistance (112)
- 3) Types of viral diseases (113)
- 4) Trophozoite (115)
- 5) Types of viral diseases (113)
- 6) List the name of different species of *Trypanosoma* causing Sleeping Sickness in Man? (115)
- 7) Draw the label parts - *Entamoeba*, *Trypanosoma*, *Ascaris*? (115)
- 8) Merozoites (116)
- 9) Types of Malaria (117)
- 10) Immunity and its types (Natural & Acquired) (120)
- 11) Haematopoiesis (122)
- 12) Lymphoid organs (123)
- 13) Bone marrow (124)
- 14) Peyer's patches (123)
- 15) Tonsils (124)
- 16) Types of Antigens (127)
- 17) Draw - Immunoglobulin (127)
- 18) Haptens - (127)
- 19) Adjuvants (127)
- 20) Epitope and Paratope (127)
- 21) Precipitin (128)
- 22) Agglutination (128)
- 23) Opsonization (128)

- 24) Neutralization (129)
- 25) Vaccines (129)
- 26) Vaccination (130)
- 27) Immunization (130)
- 28) Allergens (138)
- 29) Types of Vaccines (130)
- 30) Draw - HIV (131)
- 31) Metastasis (132)
- 32) Differentiate Normal Cell & Cancer Cell (133)
- 33) Euphoria (135)
- 34) Liver Cirrhosis (136)
- 35) Main Sources of Natural Cannabinoids (134)
- 36) Cannabinoids (134)
- 37) Signs and Symptoms of Mental depression (137)
- 38) Define - MALT, GALT, BALT (125)
- 39) What are the adenoids (124)
- 40) Bursa of Fabricius (123)
- 41) Morphine and its Uses (127)
- 42) Antigenicity (127)
- 43) Histocompatibility antigens (127)
- 44) Different phases of Plasmodium life cycle (116)
- 45) Schuffner's Granules (116)
- 46) Define health for WHO proposed (111)
- 47) Difference Infectious and Non-infectious (111)
- 48) Common diseases in human being (112)
- 49) Write note on Common Cold (113)
- 50) Four types of Viral disease basic symptoms is produced in the body (113)

- 51) Define - Nipah Virus (115)
- 52) Define - Swine flu (115)
- 53) Define - Kala-Azar (116)
- 54) Different types of Malarial Species. (116)
- 55) How - prevent plasmodium diseases (117)
- 56) Define - Malaria Vaccine (118)
- 57) What do you mean by the term personal hygiene (119)
- 58) Define - Immunology (119)
- 59) Define - Spleen (124)
- 60) Which basis, the Antibodies are classified? Name (121)
- 61) Define - Anaphylaxis? (131)
- 62) Tests for HIV Affected Person (132)
- 63) Preventive Measure for AIDS (132)
- 64) Differences of Allergy and Allergens (130)
- 65) Scope of Immunology (133)
- 66) What do you mean by drug abuse (134)
- 67) Smoking and Tobacco Chewing is injurious to health Comment on the statement (134)
- 68) Define Korsakoff Syndrome (136)
- 69) What are the benefits of Exercising our body (131)
- 70) Define - Withdrawal Syndrome (135)

CHAPTER - 8 [Microbes in Human Welfare]

- 1) Prebiotics Vs Probiotics - Difference (143)
- 2) Single cell protein (143)
- 3) Fermentors (143)

- 4) Antibiotics (143)
- 5) Write the name of Antibiotics derived from Microbes (144)
- 6) Hypersensitivity (144)
- 7) Zymology (145)
- 8) Oenology (145)
- 9) Bio-diesel (146)
- 10) Cyclosporin A (146)
- 11) Write the important Assignment taken up under NRCP (148)
- 12) What are the Plans taken to save the Major Rivers of the Country (148)
- 13) Define the Ganga and Yamuna action plan (148)
- 14) Methanogens (148)
- 15) Global gas (148)
- 16) Cytotoxin (149) or Crytoxin (149)
- 17) Delta - Endotoxin (149)
- 18) What are the specific activities against the insects in Delta Endotoxin (149)
- 19) Mycorrhiza (150)
- 20) Cyanobacteria (150)
- 21) Key features of Organic farming (150)
- 22) In situ Vs Ex-Situ bioremediation (150)
- 23) Activated Sludge (147)
- 24) Anaerobic Sludge digester (147)
- 25) Bio-remediation (151)
- 26) Microbial fuel cell (148)
- 27) Penicillin (144)
- 28) Write the equation of the fermentation of glucose (146)

- 29) Define LAB. Give Two Examples? (142)
- 30) Why penicillin is called Queen of drugs? (144)
- 31) Differentiate - Tetracycline Vs Streptomycin (144)
- 32) Write the Percent of water (Alcohol) in beer, wine and Distilled spirit
- 33) Define - Interferons (142)
- 34) Name the Enzymes Used as Classifier for bottled Juices? (146)
- 35) Define - Weedicides (149)
- 36) Define - bio-fertilizers (150)

UNIT-IV
CHAPTER-9 [Applications & biotechnology]

- 1) Dwarfism (158)
- 2) Types of recombinant Vaccines (158)
- 3) Subunit Vaccines (158)
- 4) Gene therapy? types (159)
- 5) Differentiate Somatic & Germline gene therapy (160)
- 6) Stem cells (161)
- 7) Types of Stem cells (161)
- 8) Gene augmentation therapy (159)
- 9) Cord blood banking (162)
- 10) What are the Molecular techniques used to diagnose the kinds of disorders? (162)
- 11) ELISA (163)
- 12) Denaturation (163)
- 13) Types of ELISA (163)
- 14) Applications of PCR (165)

- 15) Transgenesis (165)
- 16) Steps involved in the production of Transgenic Organisms (165)
- 17) GMO (as Transgenic Animals) (165)
- 18) Use of Transgenesis (165)
- 19) Totipotency (161)
- 20) Pluripotency (161)
- 21) Multipotency (161)
- 22) Unipotency (161)
- 23) Somatic cell nuclear transfer (157)
- 24) How the Haemophilia treated using δ -DNA Technology (158)
- 25) Define - bio-technology (155)
- 26) Explain the structure of Insulin (156)
- 27) How "Rosie" differ from Normal Cow? (157)
- 28) Define Edible Vaccines? (158)
- 29) How recombinant Hepatitis B Vaccine is produced in laboratory (159)
- 30) Suggest few Methods to treat SCID (160)
- 31) How gene therapy is done to treat ADA deficiency (160)
- 32) Suggest few Methods to treat SCID (160)
- 33) Write short note on Stem cell banks (162)
- 34) Elucidate the Methodology of ELISA Test (163)
- 35) PCR is applicable for RNA Molecule? Explain (164)
- 36) How PCR helps forensic persons (164)
- 37) Role of PCR in phylogenetics. Explain (164)

UNIT - V - CHAPTER - 10 [Organisms And population]

16

- 1) Habitat (172)
- 2) Niche & Ecological Niche (172)
- 3) Van't Hoff's rule (173)
- 4) Bergman's rule (173)
- 5) Allen's Rule (173)
- 6) Jordan's Rule (173)
- 7) Stenotherms (174)
- 8) Eurytherms (174)
- 9) Phototaxis (174)
- 10) Phototropism (174)
- 11) Photokinesis (174)
- 12) Major functions of Soil (175)
- 13) population density (185)
- 14) porosity (176)
- 15) Crude density (185)
- 16) Ecological density (185)
- 17) Relative Abundance (185)
- 18) Habitat Vs Niche - Difference (172)
- 19) Acclimatization (176)
- 20) Characters of BIOME (177)
- 21) What are the aquatic biomes of Earth (177)
- 22) What are the major biomes of the earth (178)
- 23) Characteristic features of Tundra (179)
- 24) Coriolis effect (176)
- 25) Regulators (182)

- 26) Based on the Seasonal distribution of Rainfall, how can you classify the tropical forest? (180) 17
- 27) What are the types of temperature forest based on the seasonal distribution of Rainfall? (181)
- 28) Difference between hot desert and Cold desert (181, 182)
- 29) Conformers (183)
- 30) Migration (186)
- 31) Camouflage (183)
- 32) Difference between hibernation Vs aestivation (183)
- 33) Diapause (183)
- 34) Adaptation (183)
- 35) Ethology (183)
- 36) Adaptations of Aquatic Animals (184)
- 37) Adaptations of Terrestrial Animals (184)
- 38) Natality (185)
- 39) Mortality (185)
- 40) Population dispersion (186)
- 41) Immigration (186)
- 42) Emigration (186)
- 43) Difference - r-Selected and K selected Species (187)
- 44) Anadromous and Catadromous Migration (186)
- 45) Biotic potential (187)
- 46) Carrying Capacity (187)
- 47) Environmental resistance (187)

- 48) Difference - Intraspecific Vs interspecific interaction - (188)
- 49) Types of Interaction found in Organism (188)
- 50) Tundra Vs Taiga (178, 179)
- 51) Paedogenesis (175)
- 52) Paedosphere (175)
- 53) Properties of Soil (175)
- 54) Properties of water (175)
- 55) Define - Ecology (171)
- 56) Table for Amensalism, Mutualism, Commensalism, Competition, Parasitism, predation (188)
- 57) Define the terms, guilds and Ecological equivalents (172)
- 58) Define - Temperature (173)
- 59) Light is essential for life? why (174)
- 60) Define - alpine zone (180)
- 61) Name the Major forest biomes (180)

CHAPTER - II [Bio-diversity and its Conservation]

- 1) Concept of bio-diversity (194)
- 2) Levels of bio-diversity (194)
- 3) Species richness (194)
- 4) Three indices of Species diversity - Alpha, Beta, gamma (195)
- 5) Community/Ecosystem diversity (195)
- 6) Write the name of Indian realms and biomes (195)
- 7) Habit loss (200)

- 8) What are the factors determine biodiversity distribution patterns (196)
- 9) What are the reasons for bio-diversity richness in the tropics? (196)
- 10) List the name of bio-geographical regions of India (198)
- 11) Habitat Fragmentation (201)
- 12) What are the Causes of biodiversity loss (200)
- 13) List the name of bio-geographical regions of India (198)
- 14) Which is called ^{ee} Lungs of the planet? (201)
- 15) What is Exotic Species? Example (201)
- 16) Shifting or Jhum Cultivation/slash and burn agriculture (202)
- 17) Co-extinction - Define & Example (202)
- 18) Write the name of Indian bio-diversity hotspots (204)
- 19) Hotspot (204)
- 20) Endangered species (204)
- 21) What are the purpose of Preparation of red list (205)
- 22) General strategies in Conservation (206)
- 23) Explain the types of Conservation (In-Situ/Ex-Situ) (208)
- 24) National parks Located in TN (207)
- 25) Wildlife Sanctuaries Located in TN (207)
- 26) Bio-sphere reserve (207)

- 27) Bio-Sphere reserve found in TN (208)
- 28) Gene banks (208)
- 29) Natural threats for bio-diversity.
- 30) Draw chart on links between bio-diversity climate change and human well (202)
- 31) What are the types of Extinctions (204)
- 32) Mention Categories of species Mentioned in Red Data book (205)
- 33) Extinction of Dodo bird led to the change Clavaria tree - Justify (203)
- 34) What is the goal of "Project Tiger" (206)
- 35) Point out biosphere reserves in ~~Tamil~~ TN (207)
- 36) Name few endangered species protected in Arignar Anna zoological park (209)
- 37) Madhav Crocodile bank Trust (208)
- 38) State the principle of Stockholm Declaration 1972 (205)

CHAPTER-12 [Environmental Issues]

- 1) Pollution (213)
- 2) Pollutants (213)
- 3) Types of pollutants (214)
- 4) Air pollution (214)
- 5) Sources of Nitrogen Oxide (215)

- 6) Major Causes of Acid rain (215)
- 7) Main Sources of Air pollution (215)
- 8) What is Smog? how it is created (216)
- 9) Effect of peroxy acetyl nitrate (216)
- 10) Global warming (216)
- 11) Ozone depletion (216)
- 12) Acid rain (216)
- 13) AQI (217) Air Quality Index (217)
- 14) Sources of water pollution (217)
- 15) Prevention of water pollution (219)
- 16) Sources of Noise pollution (220)
- 17) Effects of Noise pollution (220)
- 18) How to control noise pollution (220)
- 19) Agro-chemicals (220)
- 20) Bio-Magnification (221)
- 21) E-waste (221)
- 22) 4 R's (221)
- 23) What are the chemicals used in Mosquito repellents? Write their effect (221)
- 24) Colony Collapse Syndrome (221)
- 25) Eutrophication (222)
- 26) Cultural (or) accelerated Eutrophication (222)
- 27) List out physical, chemical, biological Methods of wastewater Management (222)

- 28) Major Sources of Solid wastes (224)
- 29) What are the Methods Used to dispose Medical Waste (226)
- 30) Name the hazardous Substance found in a Personal Computer (226)
- 31) What is ODS? (228)
- 32) How can we control the depletion of Ozone layer (228)
- 33) Ecosan toilets (229)
- 34) Deforestation (228)
- 35) Chipko movement (228)
- 36) Who is the forest Man of India? why (228)
- 37) Classify degradable pollutants (214)
- 38) "Namami Ganga" - programme (219)
- 39) Rules followed by TN govt for Control noise Pollution (220)
- 40) Bio-Magnification of DDT (221)
- 41) Write Expand - RZWT, DEWATS (223)
- 42) Expansion - USEPA, MOEFCC, AQI, PAN, CFC (223)
- 43) Major-International Environmental Conventions (227)
- 44) Rules followed by the TN govt and Central govt for Control Air pollution (216)

~~~~~ All the best ~~~~~



## XII - STD      ALL LESSONS [5 marks] - BIO - ZOOLOGY      ①

### CHAPTER - ① → Reproduction in Organisms

- 1) Explain the different Modes of Asexual reproduction. (1)
- 2) Explain the fission and its types (2)
- 3) Briefly discuss on Parthenogenesis (7)
- 4) Describe the Modes of Sexual reproduction (7)
- 5) How the animals are classified based on site of development of Embryo? (8)
- 6) Germule formation Mechanism (8)

### CHAPTER - ② - Human Reproduction

- ① Major Reproductive events in human beings (13)
- 2) Explain about the human Reproductive System. (14)
- 3) Briefly Explain the processes Spermatogenesis and Oogenesis with diagram (18)
- 4) Describe the structures of Human Sperm and Ovum (19)
- 5) Explain Various Phases of Menstrual cycle (21)
- 6) Discuss the different stages of Embryonic development (24)
- 7) Write Note on embryonic (development) Membranes (25)
- 8) Explain the structure and functions of Mammary gland (17)
- 9) Diagram - Spermatogenesis & Oogenesis

### CHAPTER - ③ - Reproductive health

- 1) Briefly Explain the birth Control Methods (36)
- 2) What is STD? Discuss that diseases with it Causes agents and Symptoms.

- 3) Explain all the assisted reproductive technologies with the procedure (41)
- 4) Describe the different Methods Used to detect the foetal disorders.
- 5) Write in detail about Cervical Cancer (40)
- 6) List out the Causes of Fertility in human (40)

## UNIT-II

### CHAPTER - ④ - Principles of inheritance and Variation

- 1) Explain the Chromosomal basis of Sex determination (50)
- 2) What will happen while a Colour blind man Marries normal visioned Women? (54)
- 3) What will happen while a normal visioned man marries Colour blind Women? (54)
- 4) Explain the Mendelian disorders (56)
- 5) Discuss the different types of chromosomal abnormalities (57)
- 6) Explain Pedigree analysis Symbol (55)

### CHAPTER - ⑤ - Molecular genetics.

- 1) What are the properties of genes? (64)
- 2) Explain the Hershey and Chase experiment (66)
- 3) What are nucleic acids and discuss about their Chemistry (67)
- 4) Properties of Genetic Material
- 5) Give an Experimental proof of DNA replication.
- 6) Explain the Mechanism and Enzymes involved in the replication (72)



- 7) Briefly Explain the Process of transcription (74) (3)
- 8) Write the salient features of genetic codes (77)
- 9) Describe the structure of tRNA (79)
- 10) Discuss the goals, features, applications and future challenges of HGP (85)
- 11) Describe the DNA fingerprinting technique (86)
- 12) Give a detailed account of a RNA World (68)
- 13) How the DNA is packed in a Eukaryotic Cell? (69)
- 14) Explain the Mechanism of Lac-Operon of the E. coli (84)
- 15) Explain the applications and future challenges of HGP? (86)
- 16) Draw flow chart depicting step of DNA fingerprinting techniques. (87)

### CHAPTER - (6) - Evolution

- 1) Describe Urey - Miller's Experimental approach to the Origin of Life (96)
- 2) What are the paleontological evidence for Evolution? (97)
- 3) Submit the evidences for Evolution from embryology and comparative anatomy (98, 99)
- 4) Explain the theories of biological Evolution (Lamarck & Darwin's theories) (100, 101)
- 5) Explain the Hardy - Weinberg Principle (106)
- 6) Write an Essay on Origin and Evolution of Man (107)
- 7) Modern Synthetic theory (102)
- 8) Explain Evolution by anthropogenic Sources? (102)

## UNIT-III

④

### CHAPTER-⑦ - Human Health and diseases:

- 1) Briefly discuss about Some of the bacterial and Viral disease for human beings (113, 114)
- 2) Explain the Lifecycle process of Plasmodium (116)
- 3) Differentiate Passive & Active immunity (122)
- 4) Describe the structure of Antibody (127)
- 5) Explain about the different types of Vaccines (129)
- 6) Explain different types of Antigen and Antibody reactions (128)
- 7) Describe the structure & transmission of HIV (131)
- 8) Write the effects of drugs and alcohol and how to control and prevent alcoholism (131)
- 9) Primary Vs Secondary immune responses (112)
- 10) Explain Protozoan diseases (115)
- 11) Explain Helminthic diseases (118)
- 12) Tabulate the Various types of Immunity Innate and their action Mechanism (120)
- 13) point out the differentiate active & Passive immunity (122)
- 14) How Primary immune responses differ from Secondary immune response? (122)
- 15) Explain the structure and role of Thymus in primary Lymphoid organs (123)
- 16) Describe the structure of Lymph node with labelled diagram (124)
- 17) Explain the types of cells involved in Immune System (126)



## CHAPTER - ⑧ - Microbes in Human Welfare. ⑤

- 1) Write on Microbes in household products (142)
- 2) Explain the industrial application of Microbes (143)
- 3) What are the fermented beverages? (145)
- 4) How the Microbes Used in Sewage treatment and Energy generation (146)
- 5) Explain the process of bio-remediation using Micro-Organism (151)
- 6) Write an Essay on Microbes as bio control agents and bio fertiliser (149)
- 7) How Microbes are Used on Gobar gas production? (148)

### UNIT - IV

## CHAPTER - ⑨ - Applications of Biotechnology.

- 1) Explain the production Mechanism of Recombinant human Insulin (156)
- 2) Explain the production Mechanism of human growth hormone (157)
- 3) Describe the recombinant Vaccines. (158)
- 4) Briefly Explain the processes involved in PCR (163)
- 5) Describe the Mechanism of Animal Cloning (166)
- 6) Advantages and disadvantages of cloning (167)
- 7) Production of Transgenic Animal (166)
- 8) Explain the process of Gene therapy (159)
- 9) What are transgenic animals? What are various steps involved production and its uses (165)



UNIT - V

6

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- 1) Describe the Major abiotic Components (173)
- 2) You should know about all the biomes (173)
- 3) Explain the types of Animal interactions (188)
- 4) Briefly explain the Kinds of Adaptations Seen in Animals (183)
- 5) Explain tropical rain forest (180)
- 6) List the adaptations Seen in Aquatic Animals (184)

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- 1) Explain the Level of bio-diversity. (194)
- 2) Importance of bio-diversity (197)
- 3) Briefly Explain All the bio-geographical regions (198)
- 4) Describe the Major Causes of bio-diversity loss (200)
- 5) Explain the Methods of bio-diversity Conservation (206)
- 6) What is Significance of Slope of regression in a Species area relationship (196)
- 7) Point out the functional attributes of biodiversity (197)
- 8) Explain in detail about Various types of Extinctions (304)

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- 1) Kinds of pollution, Causes, Prevention, and Control Measures (221)
- 2) Integrated Wastewater Management (222)
- 3) Discuss radioactive waste and its Management (225)
- 4) Explain E-waste (226)
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