

BIOLOGY SYLLABUS CHANGES M.S.-XII JANUARY 2008

Revised details

Name of topic and subtopic	Revised details
Natural resources and conservation	
1. Percentage of fresh water	2.50%
2. Percentage of ocean water	97.50%
3. Percentage of forest cover	19 to 23%
4. Percentage of grass land cover	77 to 81%
Biotechnology	
1. No. of genes in Human genome	33,000 (33K)
Bio-fertilizers and medicinal plants	
1. Affinity of <i>Rhizobium</i> for	Lectin
Photosynthesis	
1. No. of chloroplasts per cell	20 - 100
2. No. of thylakoids	20 - 250
3. No. of electrons and NADP molecules	2 and 1
Respiration	
1. Calorific value of glucose	686 Kcal
2. Cytochromes in ETS	b,c ₁ ,c,a,a ₃
Human population	
1. Types of psychological disorders	2 types: Psychosis and neurosis
Circulation in animals(cockroach)	
1. No. of heart chambers	13 chambers
2. No. of alary muscles	12 pairs
3. No of haemocytes	7 types
4. Circulation time	3 – 6 minutes
5. Nature of heart	Myogenic

Circulation in animals(humans)	
1. R.B.C. count in males (units: millions per cubic millimeter millions/mm ³)	5.1 to 5.8
2. R.B.C. count in females (units: millions per cubic millimeter millions/mm ³)	4.3 to 5.2
3. W.B.C. count (units: thousands per cubic millimeter millions/mm ³)	5 to 11
4. Percentage of eosinophils	1 to 3 %
5. Blood platelet count (units: lac per cubic millimeter millions/mm ³)	1.5 to 4.5
6. Lifespan of platelets (in days)	5 to 9
7. pH of blood	7.35 to 7.45
8. Haemoglobin concentration in males (units: grams per 100 ml.)	14 to 17
9. Haemoglobin concentration in females (units: grams per 100 ml.)	13 to 15
Osmoregulation and excretion	
1. Presence of valve in ureter	No valve
2. No. of renal pyramids	8 to 18
Nervous co-ordination	
1. Nature of human cranial nerve VI - Abducens	Motor
2. Position of abdominal ganglia in nervous system in cockroach	Total ganglia =6 5 th is present between 5 th and 6 th abdominal segments
Hormonal co-ordination	
1. Another name for parafollicular cells in thyroid gland	C cells
Reproduction and human development	
1. Nature of secretion of prostatic gland	Acidic

Contents not given in text-books but expected to be studied

Topics	Contents
Biotechnology	Replication of DNA
Respiration	Steps involved in anaerobic respiration
Reproduction in angiosperms	Significance of vegetative reproduction
Human population	1. Impact of population explosion on i) Housing and ii) Health 2. Common problems of adolescence - Hypochondria
Types of diseases	1. Diseases causing agents – Biological agents 2. Modes of transmission – i) Typhoid and ii) AIDS
Bioinformatics	Types of database – Primary and secondary
Circulation in animals	Factors affecting blood pressure

Contents given in textbooks, (out of scope hence) not expected

Natural resources and conversation
1. Energy resources and their conservation
2. Mineral resources and their conservation
3. Wetland resources and their conservation
Biotechnology
1. The number of genes present on one set of chromosomes(genome) in organisms other than man, mouse, lily, and <i>E.coli</i> .
2. Steps involved in genetic engineering
3. Construction of gene library
4. Method of preparations of bioweapons
5. Reproductive cloning and therapeutic cloning
6. Milestones in tissue culture
7. Meristem culture and embryo culture
8. Relevance of human genome with <i>Saccharomyces</i> and <i>Drosophila</i>
9. Health aspects, human cloning, cloning of extinct and endangered species
10. Proteomics
Biofertilizers and medicinal plants
1. Stages in formation of root nodules
2. Names of scientists related with biofertilizers

3. Procedure of manufacture of biofertilizers by farmers

Plant water relations

1. Theories of water absorption

2. Historical account

3. Characters of water

Photosynthesis

1. Action and absorption spectrum of light

2. Concept of energy transduction

3. Structure of ATP

Respiration

1. Lactic acid fermentation and alcoholic fermentation

Reproduction in angiosperms

1. Agamospermy and its types

2. Contrivances for pollination

Plant growth

Vitamins as growth hormones

Human population

1. Population survey and graphs

2. Age pyramids

3. Population growth curves

4. Impact of population explosion on: unemployment, education, pollution, price rise, energy crisis, space and ecodegradation, essential goods, deforestation, poverty and violence.

5. Measures to control over-population

6. Global warming sustainable development

7. Problems of adolescence: Depression and suicide, aggressiveness, eating disorders, violence, pre-marital pregnancy, STD, social behaviour changes, addiction, awkwardness, extra-consciousness, physiological disorders

8. Mental disorders - BPD

Health and diseases

1. Fighting against diseases – Parasitology, epidemiology, etc.
2. Disease causing agents- Physical, mechanical, nutrient(dietary) and metabolic agents

Types of diseases

1. Figures of development of cancers
2. Cancer types - Lypoma
3. Diagram of a cancerous cell
4. Diagram of tumours
5. Details about diagnosis of cancer
6. History and epidemics of AIDS

Immunity system

1. Ways of antibody – fighting with antigens
2. Detailed structure and production of antibody
3. Types of immunity – Lines of defence
4. Types of immunity – AMIS and CMIS
5. Figures showing details about cells of immune systems and their formation
6. Physical and chemical barriers in innate immunity
7. Figure for primary and secondary response to initial and later dose of antigen.
8. Details of types of antibody
9. ABO – incompatibility during blood transfusion

Biomedical technologies

1. Details of angiography and endoscopy

Bioinformatics

1. Presentation of biological sequences
2. Detailed characteristics of computer
3. Operating systems, algorithm, flow chart, RAM, ROM and ALU
4. Databse models(Hierarchical, Network and relational models)
5. Databases other than primary and secondary
6. Websites

Vermiculture and fishery

1. Types of earthworms

2. Species of earthworm other than *Eisenia foetida*

3. Nutrient value of vermicast

4. Details of fish capturing methods (crafts and gears)

5. Vermicomposting on large scale

6. Details of economically important fishes

7. Different vermiculture systems

Circulation in animals

1. Description of sphygmomanometer

2. Description of portal system

3. Description of E.C.G.

Osmoregulation and excretion in animals

1. Osmosis, osmolarity, osmo-conformers and osmo-regulators

2. Water-salt balance in fresh-water, marine and terrestrial animals

3. Composition of urine

4. Counter-current mechanism

5. Roles of hormones in excretion

Nervous co-ordination in animals

1. Types of neurons

2. Transmission/conduction of nerve impulse

3. Description and diagrams of visceral/sympathetic/somagastric nervous system of cockroach

4. Giant fibres in ventral nerve cord of cockroach

5. Human autonomous nervous systems

6. Parkinsons's disease, RAS, limbic system

7. Types of reflex actions

8. Types of reflex arc

9. Structure of ear and eye

10. Disgram of receptors

Hormonal co-ordination in humans

1. Details about chemical control of hypothalamus on adeno-hypophysis

2. Classification of hormones based on chemical structure and functions

<http://www.BiologyForMhtcet.com> – Rohan Shenoy

3. Hormonal receptors on target cells
Reproduction and human development
1. Belfour's law
2. Details about binary fission and budding
3. Extra-embryonic membranes-amnion, chorion and allantois
4. Artificial insemination

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