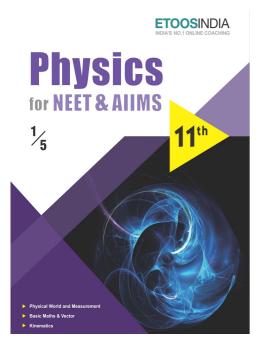
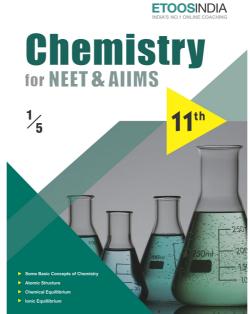
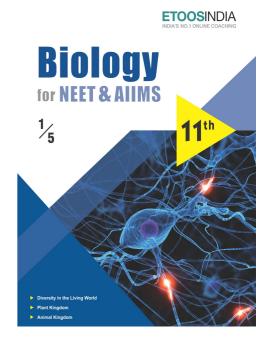
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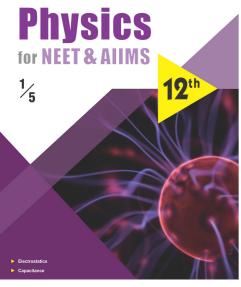
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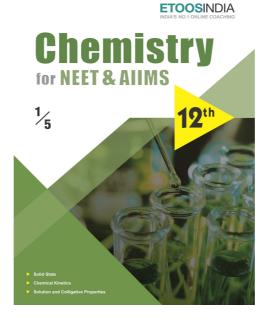


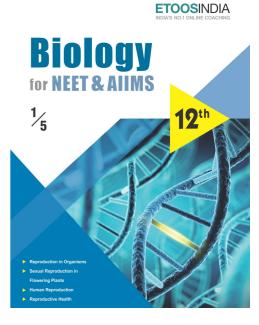












ETOOS Comprehensive Study Material For NEET & AIIMS

CHAPTER () 8

HUMAN HEALTH AND DISEASES

"If conservation of natural resources goes wrong, nothing else will go right.".

"M.S. SWAMINATHAN (1925)"

INTRODUCTION

he early Greek like Hippocrates (father of medicine) and Indian Ayurveda system asserted that Health, for a long time was considered as a state of body and mind where there was a balance of certain 'humors'. It was thought that persons, who are with 'Blackbile' belonged to hot personality and can have or might have fevers.

This idea was arrived at by pure reflective thought.

The discovery of blood circulation using experimental method and the demonstration of normal body temperature in persons with blackbile using thermometer disaproved the 'good humor' hypothesis of earth was given by **William Harvey**.

Then in later years, biology stated the mind influences, thorugh neural system and endocrine system, our immune system and then our immune system maintains our health. Hence, mind and mental state can affect our health.

Human Health & Disease

The term health is very frequently used by everybody. Health does not simply mean 'absence of disease' or 'physical' fitness. It could be defined as state of complete physical. mental and social well-being. When people are healthy, they are more efficient at work. This increases productivity and brings economic prosperity. Health also increases longevity of people and reduces infant and maternal mortality.

Balanced diet, personal hygiene and regular exercise are very important to maintain good health. Yoga has been practised since time immemorial to achieve physical and mental health. Awareness about diseases and their effect on different bodily functions, vaccination (immunisation) against infectious diseases, proper dis posal of wastes, control of vectors and maintenance of hygienic food and water resources are necessary for achieving good health.

When the functioning of one or more organs or systems of the body is adversely affected, characterised by various signs and symptoms, we say that we are not healthy, i.e., we have a disease. Diseases can be broadly grouped into infectious and non-infectious. Diseases which are easily transmitted from one person to another, are called infectious diseases. Infectious diseases are very common and every one of us suffers from these at sometime or other. Some of the infectious diseases like AIDS are fatal. Among non-infectious diseases, cancer is the major cause of death. Drug and alcohal abuse also affect our health adversely.

- Disease Any change from the normal state that causes discomfort or disability or impairs the health is called as
 disease.
- (2) Health Health is a state of complete physical, mental and social well being, and not merely an absence of disease or infirmity (W.H.O 1948)
- (3) Prophylaxis or preventive measures Preventive measure for a disease is called prophylaxis.
- (4) Epidemiology The study of causes and spread of disease is called Epidemiology. (epi = among, demos = Human, logy = study)
- (5) Etiology Study of the cause of disease is called Etiology.
- (6) Incubation period Time interval between the entry of pathogen and appearance of symptoms is called incubation period.
- (7) Chemotherapy: Treatment with chemicals (Medicine)
 - (A) Antibiotics: Substances which are secreted by microorganism that inhibit the growth or destroy the other microorganism are called antibiotics. This term was given by Walksman (Streptomycin–first bacterial antibiotic obtained from bacteria *Streptomycin griseus*).

Example - Bacteriostatic-Tetracycllin, Chloramphenicol,

Bacteriolytic or Bacteriocidal-Streptomycin, Ciprofloxacin, Ampicillin.

- (B) Analgesics: Substance that relieves pain.
 - Example Opioid analgesics Morphine, Codeine, Diclofenac sodium, Nemuslide
- (C) Antipyretics (Antifebrile): (Pyrexia Fever) Substance that reduces temperature or fever of body. Example Aspirin (Acetyl salicylic acid)- (It produces gastric ulcer so not extensively recommanded as a analgesic), Ibuprofen, Paracetamol, Nemuslide.
- (D) Antihistaminic drug: These drugs give relief from allergies by neutralizing histamines that is released from the ruptured mast cell. e.g. cetrizine
- (E) Tranquillisers and Hypnotics and Sedative drug:
 - (i) Tranquilliser drug: A drug that act to reduce mental tension and anxiety without interfering with normal mental activity.
 - (ii) Sedative drug: A drug that calms the subject without inducing sleep but if used in high dose can cause sleep.
 - (iii) Hypnotic drug: A drug that induces sleep.
- (F) Antiseptic and Disinfectant: Agent that inhibit or kill microbes on contact. Conventionally agents used on

Etoos Tips & Formulas

→ Allergy

- (1) Exaggregated response of immune response to certain antigens present in the environment. lgE antibodies are formed against allergens like mites in dust, pollens, animal dander etc. Symptoms = Sneezing, Watery eyes, running nose, difficulty in breathing etc.
- (2) Allergy is due to Histamine + Serotonin secreted by mast cells. Antibodies produce during the allergy is lgE type. So antihistamine, adrenaline, steroids drugs are used for symptomatic relief.
- (3) Metro cities life style has lowering immunity and more sensitivity to allergens.
- → Autoimmmunity

When antibodies attack self cells or proteins due to genetic and other unknown reason, then it is called eg. Rheumatoid arthritis.

→ AIDS (Acquired Immuno Deficiency Syndrome)

Not a congenital disease, because deficiency of immune system, acquired during the life-time of an individual. Caused by HIV which is retrovirus.

HIV transmits:

- (a) by sexual contact with infected persons.
- (b) by transfusion of contaminated blood
- (c) by sharing needles (infected)
- (d) from infected mother to her child.
- → HIV AIDS is not spread = by mere touch or physical contact
- → HIV spread "only through body fluid"
- → Incubation period usually 5-10 years.
- → Diagnostic test is ELISA (Enzyme Linked Immuno Sorbent Assay)
- → Treatment by anti-retroviral drugs.
- → AIDS has no cure so prevention is best.

Cancer

- → Most dreaded disease of human beings.
- → Develops due to Oncogenic transformation.

Smoking

- → Tobacco contains nicotine (an alkaloid) which stimulates adrenal gland to release adrenaline + nor-adrenaline, due to this BP and heart rate increases.
- → Drugs and Alcohol abuse
 - → Cauases which motivates youngsters, towards drug and alcohol use are:
 - → Curiosity
 - → Need for adventure
 - → Excitement
 - → Experimentation
 - → Pressures to excel in academics/ examination
 - → Perception of 'Cool/Progress'
 - → Unsupportive family structure or "Peer pressure"
- → Addiction:
- → Because of perceived benefits, drugs are frequently used repeatedly
- → It is psychological attachment of certain effects like 'Euphoria'
- → Use of drugs even once, can be a fore-runner to addiction.

SOLVED EXAMPLE

Ex.6

- Ex.1 Which one of the following provide non specific pathogen defence for the body
 - (A) T-cells
- (B) B-cells
- (C) Phagocytes
- (D) Stem cells

- Sol. (C
- Ex.2 Which one of the following statements is correct with respect to immunity
 - (A) Preformed antibodies need to be injected to treat the bite by a viper snake
 - (B) The antibodies against small pox pathogen are produced by T-lymphocytes
 - (C) Antibodies are protein molecules, each of which has four light chains
 - (D) Rejection of a kidney graft is the function of B-lymphocytes
- **Sol.** (A): Preformed antibodies need to be injected to treat the bite by a viper snake. It is also a type of immunisation which is called as passive immunization
- Ex.3 B. C. G. vaccine is used against
 - (A) T. B.
- (B) Leprosy
- (C) Food poisoning
- (D) None of these

- Sol. (A)
- Ex.4 Read the following four statements (A-D)
 - (A) Colostrum is recommended for the new born because it is rich in antigens
 - (B) Chikenguniya is caused by a Gram negative bacterium
 - (C) Tissue culture has proved useful in obtaining virus-free plants
 - (D) Beer is manufactured by distillation of fermented grape juice
- Sol. (A): Colostrum is recommended for the new born because it is rich in antibodies (B) Chickengunya is caused by a virus.
- Ex.5 At which stage of HIV infection does one usually show symptoms of AIDS
 - (A) Within 15 days of sexual contact with an infected person
 - (B) When the infecting retrovirus enters host cells
 - (C) When viral DNA is produced by reverse transcriptase
 - (D) When HIV replicates rapidly in helper T-lymphocytes and damages large number of these

- (D): Symptoms of AIDS appear when there is depletion of helper T-cells.
 - A certain patient is suspected to be suffering from Acquired Immuno Deficiency Syndrome. Which diagnostic technique will you recommend for its detection
 - (A) ELISA
- (B) Australian antigen
- (C) HIV test
- (D) None of these

- Sol. (A)
- Ex.7 HIV causes reduction in

Or

HIV virus affects..... in AIDS patient

- (A) T-helper cells only
- (B) All T-cells
- (C) B-cells only
- (D) Both B and T-cell

- Sol. (A)
- **Ex.8** The immunoglobulin abundant in colostrum is

Or

The yellowish fluid colostrum has abundant antibodies to protect the infant

- (A) Ig G
- (B) Ig M
- (C) Ig D
- (D) Ig E
- (E) Ig A
- Sol. (E)
- Ex.9 Which of the following is an autoimmune disease
 - (A) Rheumatoid arthritis
 - (B) Grave's disease
 - (C) Hashimoto's disease
 - (D) All of the above
- Sol. (D
- Ex.10 Select the correct statement with respect to diseases and immunisation
 - (A) Certain protozoans have been used to mass produce hepatitis B vaccine
 - (B) Injection of snake antivenom against snake bite is an example of active immunisation
 - (C) If due to some reason B and T-lymphocytes are damaged, the body will not produce antibodies against a pathogen
 - (D) Injection of dead/inactivated pathogens causes passive immunity

SINGLE OBJECTIVE Exercise # 1 NEET LEVEL 13. 'Dengue fever' is caused by 1. Sensitivity to any allergen is related to (B) Plasmodium (A) Bacteria (A) Deviation from the process of immunity (C) Virus (D) Entamoeba histolytica (B) Age of the person (C) Eating habit 'Encephalitis' in man is a viral disease and is 14. transmitted by (D) Rise in environmental temperature (A) Anopheles (B) Culex 2. Passive immunity was discovered by (D) Culex and Aedes (C) Aedes (A) Robert Koch (B) L. Pasteur 15. Which of the disease is not transmitted by house (C) Edward Jenner (D) Eemil Von Behring flies 3. Antibodies fight against (B) Yellow fever (A) Typhoid (A) Infection (B) Thirst (C) Cholera (D) Dysentery (C) Starvation (D) Stress 16. The disease caused by viruses is (A) Tuberculosis (B) Small pox 4. Which of the following is responsible for cellular (C) Cholera (D) Typhoid immunity (A) B-lymphocyte (B) T-lymphocyte 17. Which one of the following is a common disease (C) Erythrocytes (D) Thrombocytes caused by virus (A) Yellow fever (B) Typhoid HIV causes reduction in 5. (C) Syphilis (D) Tetanus (A) T-helper cells only (B) All T-cells (D) Both B and T-cells 18. Which virus, for the first time, was synthesised in (C) B-cells only the form of non-living crystals 6. A molecule that elicits an immune response is called (A) Bacteriophage (A) Antibody (B) Antigen (B) Flu virus (D) Carcinogen (C) Mutagen (C) Pox virus (D) Tobacco mosaic virus 7. Vaccines are prepared from immune (A) Vitamins (B) Blood 19. The smallest virus one, which causes (A) Measles (B) Mumps (C) Serum (D) Plasma (D) Poliomyelitis (C) Rabies 8. AIDS can be transmitted by Interferons curb infection of (A) Blood circulation (B) Hand shake 20. (A) Bacteria (B) Fungi (C) Courtship (D) All of the above (C) Cancer (D) None of the above 9. The antibodies are 21. 'Plague' is transmitted by (A) Egamma–globulins (B) Albumins (A) House fly (B) Tse-tse fly (C) Vitamins (D) Sugar (C) Rat flea (D) Mosquito 10. The factor responsible for cirrhosis of liver is The test for 'syphilis' was developed by 22. (A) Sugar (B) Vitamins (A) Robert Koch (B) Edward Jenner (C) Fats and oils (D) Alcoholism (C) Wasserman (D) Louis Pasteur 11. 'Chicken pox' is caused by 23. Which one of the following sets includes the (B) Varicella virus

12.

(A) Adeno virus

(C) SV–40 virus

(A) Malaria

(C) Diphtheria

(D) Bacteriophage T-2

(B) Influenza

(D) Typhoid

Out of the following one disease is caused by virus

bacterial disease

(A) Cholera, typhoid, mumps (B) Tetanus, tuberculosis, measles

(C) Malaria, mumps, poliomyelitis

(D) Diphtheria, leprosy, plague

	Exercise # 2	SINGLE OB.	JECTIV	VE AIIN	AS LEVEL
1.	Full form of AIDS is (A) Anti immune deficienc (B) Auto immune deficience	cy syndrome	12.	The region in the body with multiplies is (A) Nerve cells	where the polio virus (B) Intestinal cells
	(C) Acquired immune defic (D) Acquired immune dise			(C) Muscle cells	(D) None of these
2.	AIDS causing factors are a (A) RNA virus (C) Bacteria	associated with (B) DNA virus (D) Protozoa	13.	The biological agents of (A) Minerals, vitamins, drates	proteins and carbohy-
3.	The term 'active immunity' (A) Resistance developed (B) Resistance developed (C) Resistance rate of hear	after disease before disease t beat		(B) Viruses, bacteria, fur organisms(C) Heat, cold, humidity(D) All the above	pressure, radiations
4.	(D) Increasing quantity ofThe antibodies are(A) Lipids(C) Proteins	(B) Germs (D) Carbohydrates	14.	The pathogen of buboni through the bite of (A) Pediculus humanis (C) Aedes cheapis	(B) Glossina palpalis (D) Xenopsylla
5.	The AIDS test is known as (A) ELISA (C) HIV test	(B) Australian antigen (D) None of these	15.	A kind of allergy is (A) Asthma	(B) Yellow eyes
6.	Which one of the followin spread through blood tran (A) Cholera and hepatitis (B) Hepatitis and AIDS (C) Diabetes mellitus and n (D) Hay fever and AIDS	sfusion	16. 17.	(C) Typhoid Mumps is a (A) Viral disease (C) Bacterial disease A cell-coded protein tha	(D) Mumps(B) Fungal disease(D) Protozoan diseaset is formed in response to
7.	'ELISA' test is done for the (A) Anthrax (C) Hepatitis	e diagnosis of (B) HIV (D) Malaria	17.	infection with most anim (A) Antigen (C) Histone	
8.	Humoral immunity is due to (A) B-lymphocytes (C) L-Lymphocytes	(B) T-lymphocytes (D) P- Lymphocytes	18.	Pulse-Polio programme country (A) To cure polio	(B) To eradicate polio
9.	The term"antibiotic" was a (A) Alexander fleming (C) Louis pasteur	coined by (B) Edward Jenner (D) Selman waksman	19.	(C) To spread polio Which one of the follow disease	
10.	Which cell of immune syst tion at the surface of the pla (A) Helper T-cell (C) Suppressor T-cell			(A) Tetanus and typhoic(B) Syphillis and AIDS(C) Whooping cough ar(D) Measles and rabbies	nd sleeping sickness
11.	Common symptoms of mea (A) Dew drop-like rashes of (B) Erupting of small red sport mucous membrane of (C) Lacerating ulcers (D) None of the above	on skin and high fever pots and inflammation	20.	In human beings retrovicause of cancer because (A) In their genome onc (B) Their hereditary mat stranded RNA (C) They have a gene for	ogene is present erial made up of single

Exercise # 3

PART - 1

MATRIX MATCH COLUMN

1. Match the type of immunity listed in column I with the examples listed in column II. Choose the answer that gives the correct combination of alphabets of the two columns

Column - I

Vvieiv of immunivy

- A. Navural acvive
- **B.** Arvificial iaivivive
- C. Arvificial acivve
- D. Navural iaivivive

(A) A - iv; B - v; C - ii, D - r

- (B) A v; B iv; C r, D i
- (C) A i; B ii; C r, D v
- (D) A iv; B r; C v, D ii

Match each disease with its correct type of vaccine 2.

Column - I

- A. Tuberculosis
- **B.** Whooping cough
- C. Diphtheria
- D. Polio

Column - II

Column - II

i. Immunivy develoied by heredivy

iv. Fighving infectioniv navurally v. Induced by vaccinavion

ii. From movher vo foevuiv

r. Injection of antiverum

Examile

i Harmless virus

- ii Inactivated toxin
- iii Killed bacteria
- iv Harmless bacteria

3. Match Column - I with Column - II and select the correct answer from codes given below.

Column - I

- A. Sporozoties
- **B.** Filariasis
- C. Typhoid
- D. Chikingunya

Column - II

- i. Infectious form
- ii. Aedes mosquitoes
- iii. Wuchereria
- iv. Widal test

- (B) A-iii; B-iv; C-ii; D-i
- (C) A ii; B iii; C i; D iv
- (D) A i; B iii; C iv; D ii

4. Match Column - I with Column - II and select the correct answer from codes given below.

Column - I

Column - II

- A. Amoebiasis
- **B.** Diphtheria
- C. Cholera D. Syphilis

- i. Treponema pallidum ii. Use only sterilized food and water
- iii. DPT vaccine
- iv. Oral rehydration therapy

	A	В	C	D
(A)	ii	i	iii	iv
(B)	ii	iii	iv	i
(C)	i	ii	iii	iv
(D)	ii	iv	i	iii

	Exercise # 4 PART - 1	_/_	PREVIOUS YEAR (NEET/AIPMT)
1.	Bovine spongiform encephalopathy is a bovine disease. To which of the following human diseases it is related? [CBSE ATPMT 2000] (A) Kala-azar (B) Encephalitis (C) Cerebral spondylitis (D) Creutzfeldt Jacob disease	11.	Which one of the following conditions though harmful in itself, is also a potential saviour from a mosquito borne infectious disease? [CBSE AIPMT 2003] (A) Pernicious anaemia (B) Leukaemia (C) Thalassemia (D) Sickle-cell anaemia
2.	Small proteins produced by vertebrate cells naturally in response to viral infections and which inhibit mutliplication of viruses are called [CBSE ATPMT 2000] (A) immunoglobulins (B) interferons (C) antitoxins (D) lipoproteins	12.	Carcinoma refers to [CBSE AIPMT 2003] (A) malignant tumours of the colon (B) benign tumours of the connective tissue (C) malignant tumours of the connective tissue (D) malignant tumours of the skin or mucous membrane
3.	Which of these is most infectious disease? [CBSE AIPMT 2001] (A) Hepatitis-B (B) AIDS (C) Cough and cold (D) Malaria	13.	The term 'antibiotic' was coined by [CBSE AIPMT 2003] (A) Selman Waksman (B) Alexander Fleming (C) Edward Jenner (D) Louis pasteur
4.	Salmonella is related with [CBSE AIPMT 2001] (A) typhoid (B) polio (C) TB (D) tetanus	14.	What is true about T-lymphocytes in mammals? [CBSE AIPMT 2004] (A) They scavenge damaged cells and cellular de-
5.	LSD is [CBSE AIPMT 2001] (A) hallucinogenic (B) sedative (C) stimulant (D) tranquiliser		bris (B) These are produced in thyroid (C) There are three main types-cytotoxic T-cells, helper T-cells and suppressor T-cells
6.	Which one of the following is correct match? [CBSE AIPMT 2001] (A) Reserpine - Tranquiliser (B) Cocain - Opiatic narcotic (C) Morphine - Hallucinogenic (D) Bhang - Analgesic	15.	(D) These originate in lymphoid tissues Which one of the following pairs is not correctly matched? [CBSE AIPMT 2004] (A) Streptomyces - Antibiotic
7.	Reason of lung cancer is (A) coal mining (B) calcium fluoride (C) cement factory (D) bauxite mining		(B) Serratia - Drug addiction (C) Spirulina - Single cell protein (D) Rhizobium - Biofertiliser
8.	Interferons are synthesised in response to [CBSE AIPMT 2001] (A) Mycoplasma (B) bacteria (C) viruses (D) fungi	16.	Which one of the following is not correctly matched [CBSE AIPMT 2005] (A) Glossrina palpalis - Sleeping sickness (B) Culex pipiens - Filariasis
9.	Cancerous cells can easily be destroyed by radiation due to [CBSE AIPMT 2002] (A) rapid cell division (B) lack of nutrition (C) fast mutation (D) lack of oxygen	17.	(C) Aedes aegypti - Yellow fever (D) Anopheles culicifacies - Leishmaniasis Which one of the following depresses brain activ-
10.	ELISA is used to detect viruses where the key reagent is [CBSE AIPMT 2003] (A) DNA probe (B) RNase (C) alkaline phosphatase (D) catalase		ity and produces feelings of calmness, relaxation and drowsiness? [CBSE AIPMT 2005] (A) Valium (B) Morphine (C) Hashish (D) Amphetamines

MOCK TEST

- 1. Internal bleeding, muscular pain, blockage of the intestinal passage and anaemia are some of the symptoms caused due to infection by
 - (A) Ascaris
- (B) Wuchereria
- (C) Plasmodium
- (D) Trichophyton
- 2. Which of the following sets of diseases is caused by bacteria?
 - (A) Cholera and tetanus

(B) Typhoid and smallpox

(C) Tetanus and musps

- (D) Herpes and influenze
- 3. Some of the events occur during life cycle of Plasmodium are given below. Identify the correct statement
 - (A) Female mosquito take up sporzoites with blood meal
 - (B) The sporozoites reproduce sexually in liver cells.
 - (C) When mosquito bites a man, gametocytes are injected.
 - (D) The gametocytes develop in RBS
- 4. Which one of the following is the correct statement regarding the particular psychotropic drug specified?
 - (A) Morphine leads to delusions and disturbed emotions.
 - (B) Barbiturates cause relaxation and temporary euphoria.
 - (C) Hashish causes after though perceptions and Hallucinations.
 - (D) Opium stimulates nervous system and causes halluci-nations.
- 5. The time interval of appearance of fever in the malarial patients depends on the types of malaria. The research evidence suggest that such time intervals are (1) 36 to 48 hours, (2) 48 hours, and (3) 72 hours. If any such patient experiences fever at an interval of 48 hours, then the said patient suffers from
 - (A) Only benign retian malaria
 - (B) Quartan malaria or mild tertian malaria
 - (C) Malignant tertian malaria or benign tertian malaria
 - (D) mild tertian malaria of benign tertain malaria.
- 6. Common cold differs from pneumonia in that
 - (A) Pneumonia is a communicable disease whereas the common cold is a nutritional deficiency disease
 - (B) Pneumonia can be prevented by a live attenuated bacterial vaccine whereas the common cold has no effective vaccine
 - (C) Pneumonia is caused by a virus while the common cold is caused by the bacterim Haemophilsus influenzae
 - (D) Pneumonia pathogen infects alveoli alveoli whereas the common cold affects notse and respiratory passage l but not the lungs.
- 7. Infection of Ascaris usually occurs by
 - (A) Tse-tse fly

(B) mosquito bite

(C) drinking water containing eggs of Ascaris

- (D) Eating imperfectly cooked pork
- 8. Which one of the following options gives the correct matching of a disease wiht its causative organism and mode of infection?

Disease

Causative organism Mode of infection

(A) Typhoid Salmonella

typhi With inspired air

(B) Pneumonia

Streeptococcus pneumoniae Droplet infection

(C) Elephantiasis

Wuchereria bancrofti With infected water and food

(D) Malaria

Plasmodium vivax Anopheles mosquito

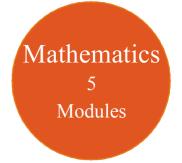
11th Class Modules Chapter Details

Physics
5
Modules

1. Oscillations

2. Waves

Chemistry
5
Modules



3. Plant Growth and Development

5. Breathing & Exchange of Gases

1. Body Fluids & Its Circulation

2. Excretory Products & Their

3. Locomotion & Its Movement

4. Neural Control & Coordination5. Chemical Coordination and

4. Digestion & Absorption

Module-5

Elimination

Integration

PHYSICS	CHEMISTRY	BIOLOGY
Module-1	Module-1(PC)	Module-1
 Physical World & Measurements Basic Maths & Vector Kinematics 	 Some Basic Conceps of Chemistry Atomic Structure Chemical Equilibrium 	 Diversity in the Living World Plant Kingdom Animal Kingdom
Module-2 1. Law of Motion & Friction 2. Work, Energy & Power Module-3	 4. Ionic Equilibrium Module-2(PC) 1. Thermodynamics & Thermochemistry 2. Redox Reaction 3. States Of Matter (Gaseous & Liquid) 	 Module-2 1. Morphology in Flowering Plants 2. Anatomy of Flowering Plants 3. Structural Organization in Animals Module-3
 Motion of system of particles & Rigid Body Gravitation Module-4 Mechanical Properties 	Module-3(IC) 1. Periodic Table 2. Chemical Bonding 3. Hydrogen & Its Compounds 4. S-Block	1. Cell: The Unit of Life 2. Biomolecules 3. Cell Cycle & Cell Division 4. Transport in Plants 5. Mineral Nutrition
of Matter 2. Thermal Properties of Matter Module-5	Module-4(OC) 1. Nomenclature of Organic Compounds	Module-4 1. Photosynthesis in Higher Plants 2. Respiration in Plants

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2. Isomerism

Module-5(OC)

3. General Organic Chemistry

1. Reaction Mechanism

3. Aromatic Hydrocarbon

4. Environmental Chemistry &

Analysis Of Organic Compounds

2. Hydrocarbon

12th Class Modules Chapter Details

Physics
5
Modules

Chemistry 5 Modules



PHYSICS	CHEMISTRY	BIOLOGY
Module-1	Module-1(PC)	Module-1
 Electrostatics Capacitance 	 Solid State Chemical Kinetics Solutions and Colligative Properties 	 Reproduction in Organisms Sexual Reproduction in Flowering Plants
Module-2 1. Current Electricity	Module-2(PC)	3. Human Reproduction4. Reproductive Health
2. Magnetic Effect of Current and Magnetism	 Electrochemistry Surface Chemistry 	Module-2 1. Principles of Inheritance and
Module-3	Module-3(IC)	Variation 2. Molecular Basis of Inheritance
 Electromagnetic Induction Alternating Current 	 P-Block Elements Transition Elements (d & f block) 	3. Evolution
Module-4	3. Co-ordination Compound	Module-3
 Geometrical Optics Wave Optics 	4. Metallurgy	 Human Health and Disease Strategies for Enhancement in
	Module-4(OC)	Food Production 3. Microbes in Human Welfare
 Module-5 Modern Physics Nuclear Physics Solids & Semiconductor 	 HaloAlkanes & HaloArenes Alcohol, Phenol & Ether Aldehyde, Ketone & Carboxylic Acid 	Module-4 1. Biotechnology: Principles and Processes
Devices 4. Electromagnetic Waves	Devices Module-5(OC)	2. Biotechnology and ItsApplications3. Organisms and Populations

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Module-5

2. Biodiversity and Conservation

3. Environmental Issues