Diseases

Human Health & Disease

Every living organism, may be plant or animal, requires food (Nutrition) for its survival, maintenance, growth and development. Nutrition is required is specific amounts. Proper dietary habits lead to sound health and proper mental development. A person is said to be healthy if one:

- Has no symptoms of disease anxiety.
- Has no physical deformity.
- Has no mental problems and social tensions.
- Has no psychological tensions.
- Has all the body organs function property.
- Has purposeful life.
- Has sufficient balanced diet.

"Health is a state of physical, mental and social well being and not merely the absence of disease or infirmity".

(a) Factors Affecting Health: The factors affecting health maybe Intrinsic (inside the body) or Extrinsic (outside the body).

(i) Inside the body or Intrinsic factors: These are factors related to malfunctioning of any organ or part, hormone or immune system of the body.

(ii) Outside the body or Extrinsic factors: These factors include disease causing organisms, deficiency of proper diet and environmental pollutants.

Disease

A disease is a condition of the body or a part of it in which function are disturbed. Disease may also be defined as morphological (structural), physiological (functional) or psychological disturbance in the body or body parts caused by external agencies which may be nonparasitic e.g. deficiency of nutrients or may be parasitic e.g. caused by viruses, bacteria, fungi, etc. the term disease means disease or discomfort or without ease. In short, it can be defined as "Disease is disorder of body".

(a) Acute and Chronic Diseases:

The manifestation of diseases are different depending upon a number of factors. One of the factors is duration of disease. On the basis of duration a serious disease can be acute or chronic.

(i) Acute disease: Acute disease is the one which has a short duration by relatively severe course. Cough and common cold is an example of an acute illness which lasts only for few days. Afterwards the patient becomes well withoutany bad effect such as loss of weight, feeling of tiredness.

(ii) Chronic disease: Chronic disease is the one which is long lasting is usually slow to develop, often having a major effect on health, reducing the person's ability to do work efficiently. The patient will also loose weight and feel tired all the time. Examples of chronic diseases include tuberculosis, diabetes, asthma, hypertension, kidney disease, depression, etc. In these diseases we can develop a treatment plan to manage symptoms and prevent complications with the help of doctor.

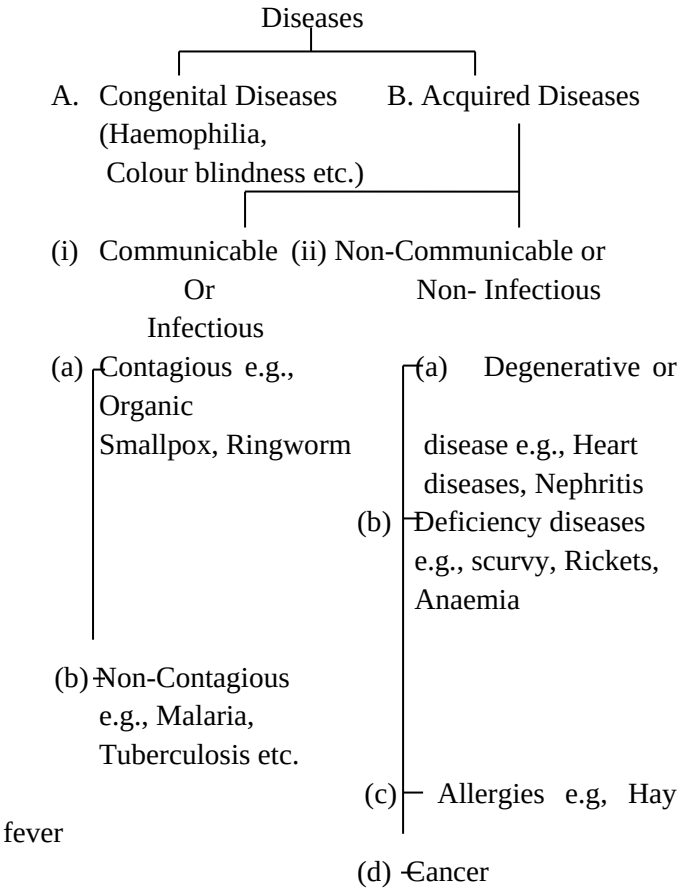
(b) Causes of Diseases: The various causes of diseases are

(i) Pathogens: They are disease causing organisms like bacteria, viruses, fungi, protozoans, worms, etc.

(ii) Lack of nutritious diet: It is a second level cause of disease as absence of nutritious diet makes a person unhealthy.

(iii) Lack of public services: It the public services are poor, there are more chances of contamination of food and water. Government should provide clear drinking water, good sewage disposal, proper garbage disposal, etc.

Types of Diseases



(a) Congenital Diseases:

Congenital diseases are present right from the birth. They are caused either due to genetic disorders or environmental factors during development or due to combination of these factors. These diseases pass on from generation to generation e.g. haemophilia, colour blindness, sickle cell anaemia, down's syndrome, albinism etc.

(b) Acquired Diseases:

These disease are acquired by an organism after birth and are not inheritable i.e. do not pass on from one generation to another. These are further classified into two categories:

(i) Communicable or Infectious diseases: These diseases are caused by pathogens/infectious agents such as bacteria, viruses, fungi, protozoans, worms, etc. These diseases can spread from diseased person to healthy person by means of air (droplet method), water, food, insects, physical contact, etc. e.g. tuberculosis, malaria, diarrhea etc.

(ii) Non- Communicable or Non- Infectious deseases: These diseases can't be spread through infected persons to heathy persons. E.g. Scurvy.

Type of Pathogens	Common diseases caused by them
Viruses	Common cold, Influenza, Measles, Mumps, Poliomyelitis, Rabies, Small pox, Chicken pox, Yellow fever, AIDS etc.
Bacteria	Cholera, Typhoid, Tuberculosis, Tetanus, Diphtheria, Pneumonia, Syphilis, Gonorrhoea, Leprosy etc.
Rickettsiae	Typhus fever, Tick fever etc.
Protozoa	Malaria, Amoebic dysentery, Sleeping sickness etc.
Fungi	Ringworm, Athlete's foot etc.
Worms	Filaria, Ascariasis, Cysticercosis, Pinworm
Mites	Scabies

Infectious Diseases

The various infectious agents are- bacteria, viruses, protozoans, helminthes (worms) and fungi.

(i) Bacteria: They are unicellular, prokaryotic, microscopic organisms. They reproduce very quickly. Some common diseases caused by bacteria are typhoid, cholera, tuberculosis, anthrax, diphtheria, tetanus, etc.

(ii) Viruses: Viruses are connecting link between living and non-living organism. The various diseases caused by viruses are common cold, influenza, dengue fever, AIDS, measles, mumps, polio, small pox, chicken pox, etc.

(iii) Protozoans: They are unicellular, eukaryotic organisms. The various diseases caused by protozoa are malaria (caused by Plasmodium), kala-azar (caused by Leishmania), etc.

(iv) Helminthes: Helminthes are multicellular worms which are mostly present in intestine. They cause taeniasis (caused by tapeworm), ascariasis (caused by round worm), filariasis (caused by filarial worm) etc.

(v) Fungi: They are also multicellular, eukaryoutic, heterotrophic organisms. They cause ring worm, athlete's foot and other skin infections.

(a) Means of Spread:

Infectious diseases are called communicable diseases because they can spread from affected persons to a healthy person. The means of communication or spread are different for different pathogens.

(i) Direct transmission: The pathogens are transmitted from an infected person to a healthy person directly without an intermediate agent. It occurs in the following ways:

(A) Contact with infected person: Diseases like chicken pox, small pox, ring worm are spread by actual contact between infected person and a healthy person. Such diseases are called contagious diseases. The sexual contact is one of the closest physical contacts, two people can have with each other. Diseases like syphilis, Gonorrhoea (both caused by bacteria) and AIDS (caused by virus) are transmitted by sexual contact from one partner (infected) to the other (healthy).

(B) Contact with Soil: The infectious agent of tetanus can enter human body from soil through injuries.

(C) Animal bites. The rabies virus is injected in the human body by the bite of rabied dog or monkey.

(D) Transplacental transmission: The diseases like AIDS, German measles and syphilis can also be transmitted from infected mother to the foetus through placenta.

(ii) Indirect transmission: The pathogens of some diseases are carried through some intermediate agents. It occurs in the following ways:

(A) Vectors: They are living organisms which spread their pathogens from an infected person to a healthy Person. Housefly is carrier of cholera, dysentery, typhoid diarrhoea, etc. Female Anopheles spreads malaria while Culex spreads filarial.

(B) Through contaminated food and water: Cholera, Hepatitis B, diarrhoea, Ascariasis, etc. are some diseases which are transmitted through contaminated food and water.

(C) Air borne diseases: Infectious agents can get transferred from infected person to healthy person through air, dust and droplets (emitted on sneezing, coughing or spitting).

- E.g. Common cold, Pneumoina, Tuberculosis.

(D) Fomite borne: Articles come in contact with patients are a source of infection, e.g. door handles, taps, garments, currency, utensils, crockery.

(b) Treatment:

The basic concept behind the treatment process is to target the biochemical pathways occurring inside an organism. For this certain drugs llike antibiotics are prepared to alter or stop the biochemical reaction of the microbes at some stages to stop them to produce infections, toxins or to kill them or to check their further growth and multiplication.

(i) Reducing the symptoms: By this, infection is not cured but some of the symptoms like fever, pain, aches, inflammation can be reduced to make the patient comfortable. This is done by medicines like pain killers etc.

(ii) Killing infectious agents: This can be dcne by targeting the biochemical pathways of infectious agents using specific drugs.

(A) Drugs: Chemical compounds that targets a particular reaction among the chain of reactions involved in the biochemical pathway by reacting with some substrates of that reaction cannot proceed further and stop infections by killing the microbes. They do not affect human cells.

(B) Antibiotics: They help our body to fight against diseases.

- Penicillin discovered by Sir Alexander Flemming in 1928. From fungi Penicillium notatum.
- Flemming called the antibiotic penicllin.
- Some well known antibiotics are streptomycin, and tetracycline.
- The antibiotics have been obtained from either bacteria or fungi.
- These are the drugs specific for curing bacterial diseases. They either ceases the formation of cell wall or interferes in their metabolic activities like production of proteins. This kills or stops the growth of bacteria.

- Antibiotics are not effective against viruses.

(C) Prevention from Infectious Diseases: Preventive measures are categorized into two distinct groups:

(i) General preventive measures:

- Safe drinking water: Drinking water should be filtered to remove suspended particles, boiled, ozonized and treated with chlorine before drinking to avoid water borne diseases like Typhoid, Cholera, Hepatitis etc.
- Proper disposal of waste: Garbage should not be dumped here and there rather it should be thrown in covered garbage cans and burnt or buried for disposal.
- Control of vectors: Growth and breeding of animals like mosquitoes, rats, flies, cockroaches should be controlled, by keeping surroundings clean, spraying insecticides, removing stagnant water from populated areas.
- Pollution free environment: Environment should be free from any pollutants.
- Strong immune system: It helps to defend our body against invading microbes and can be made strong by proper diet and nourishment.
- Immune system: Our body possesses a special type of protective mechanism called immune system. It provides resistance against disease causing microorganisms. Immunity is the ability of the body to resist the infections. Two specific types of cells are present in our body that provide immunity.
- They are WBC (Ieucocytes) in blood and lymphocytes in lymph when any foreign body attacks our body these cells are released to all parts of body, they isolate. Engulf, kill and digest the infectious agents and thus defend our body against any type of infection.

(ii) Specific preventive measures: This can be done by two ways:

- Immunization: Stimulating the body to produce antibodies by artificial means. Specific prevention is provided by the immune system. It produces specific molecules called antibodies that fight against the invading microorganisms or their products called antigens. Antibodies are proteinaceous molecules made by WBC's and lymphocytes to fight against foreign bodies.
- Vaccination: A vaccine is a suspension of disease- producing micro-organisms which is modified by killing or weakening (attenuated) so that the suspension will not casuse disease. Rather it stimulates the formation of antibodies upon inoculation. The antibodies remain in blood for long and when the germs of a particular disease enter the body the antibodies destroy them. This is the basis of immunization.
- Some common vaccines:
- DPT vaccine, for protection against Diphtheria, whooping cough and Tetanus
- BCG (Bacillus Calmette-Guerin) vaccine, for protection against tuberculosis
- Polio (OPV) vaccine
- Typhoid vaccine
- Measles vaccine
- TT vaccine, against Tetanus
- Pulse polio programme: The aim of this programme it to eradicate polio from our country. It was first held in our country in December, 1995. Polio vaccine called Oral Polio Vaccine (OPV) is given to children orally (Through the mouth), as per the National Immunisation Schedule (N/S).

Non Infectious /Non communicable Diseases

These diseases which remain confined to a person. They are neither present at birth nor spread from one person to another. The diseases are caused due to some specific factors. They may be caused due to improper functioning of an organ (short sightedness, hypertension, and arthritis), hormonal imbalance (diabetes, dwarfism), allergy, cancer, inadequate diet (anaemia, goitre), etc.

- These diseases are of following types:

(a) Deficiency disease: Caused due to lack of some nutrient materials in our body like vitamins, minerals, protein etc.

(b) Vitamins deficiency diseases:

- Xerophthalmia: It is caused due deficiency of vitamin A (retinol).
- Rickets: It is caused due to deficiency of vitamin D (Calciferol).
- Beri-Beri: It is caused due to deficiency of vitamin B1 (thiamine).
- Pellagra: It is caused due to deficiency of vitamin B4 (niacin). It is also called 4D-Syndrome (Dermatitis, Diarrhoea, Dementia & Death).
- Scurvy: It is caused due to deficiency of vitamin C (ascorbic acid).

(c) Protein deficiency diseases: Deficiency of protein, carbohydrates and fats result's in protein calorie malnutrition (PCM) or protein-energy malnutrition (PEM).

- Kwashiorkor: It is caused by severe protein deficiency. It occurs between the age 1 to 3 year child. The child gets oedema due to retention of water in the body.
- **Marasmus:** It means a wasting away of the body. It is caused due to deficieny of proteins and calories. I occurs below the age of one year child (infants).

(d) Mineral Deficiency diseases:

- Anaemia: It is blood deficient in red blood cell, in haemoglobin or in total volume. It is of following three main types:

(i) Microcytic anaemia: It is caused due to deficiency of iron in human diet.

(ii) Pernicious anaemia: It is caused due to deficiency of vitamin B_{12} or cyanocobalamin.

(iii) Megaloblastic anaemia: It is caused due to deficiency of folic acid and vitamin B_{12}

- Goitre: Goitre is an endemic disease which is caused due to deficiency of iodine in human diet. Iodine is important constituent of thyroxine hormone.

(e) Other diseases:

- Degenerative diseases: Caused due to ageing or maifunctioning of any orgain or part of body.
- Allergies. Caused due to hypersensitivity of an organism to certain type of material like poolen grains, dust etc.
- Cancer: This is uncontrolled division or cells. It is casued due to carcinogens.
- Addiction: Caused due to excessive intake of drugs tobacco, alcohol etc.

Genetic Diseases

- Diseases that are transmitted from parents to offsprings are called hereditary of genetic diseases. Some genetic diseases are as follows:

(a) Haemophilia:

It is a sex linked hereditary disease. The genes of the disease are found on sex chromosome-x. Due to this disease blood clots very slow so a patient can die due to excess of haemorrhage. Women acts as carrier only. While in man the recessive gene can be expressed, if present on a X-chromosome.

(b) Colourblindness:

This is a sex linked hereditary disease. Its genes are situated on X- chromosomes. In this disease also women are found as carrier generally and men as patients. A person suffering from coloublindness cannot differentiate between red and green colour.

(c) Thalasemia:

It is a genetic disease that leads synthesis of defective haemoglobin. Blood of patient have to be changed frequently. Cause of this disease is a recessive gene.

(d) Sickle cell Anaemia:

Cause of this disease is a mutation in gene. In this disease shape of red blood cell becomes sickle like. A child with 50% sickle shaped red blood cells and 50% normal red blood cells can survive and remain anaemic.

Harmful Effect of Obesity

- It is a luxury nutritional disorder caused by great intake of food that the requirement of body.
- It is common in person having higher intake of sweets. Fried articles, Fat rich food etc.
- Obese persons are over weight with excessive accumulation of fats.

- Movements are reduced. There is a risk of diabetes osteoarthritis, gall bladder stones, high blood pressure and cardiac problems.

Harmful Effects of Tobacco Chewing

- Regular contact of tobacco increases the possibility of mouth, tongue, throat or lung cancer.
- Nicotine of tobacco causes thickening of walls of arteries which can increase blood pressure and rate of heart beat.
- Rate of embryo development reduces if a pregnant woman uses tobacco.

Harmful Effects of Drugs

- Some druges e.g. morphine, buprenorphine etc. are misused as intoxicants.
- These drugs can cause nightmares, lung and kidney infections, damage to brain and various unending physical and mental health problems.
- It can reduce learning and memory in young ones.

Harmful Effects of Alcohol

- Liver converts excess of alcohol to acetaldehyde which is a poisonous substance.
- Alcohol reduced body coordination capacity and self control power of body.
- It decreases working capacity of person and increases possibilities of accidents.
- Alcohol causes fatty liver syndrome and affects synthesis of protein and carbohydrates.
- It causes economic loss and social reputation goes down.

Sexual Equality

- Human female produces only one type of eggs each having one X- chromosome.
- Male produces one sperm with X and one with Y- chromosome.
- The sex of newly born child is solely determined by the type of spem that fuses with the ovum. The fusion of sperm with ovum is purely determined by chance, so there are equal chances of birth of a male or a female baby. Thus it is the father who is biologically responsible for the sex of the child.

AIDS

- Acquired Immuno-Deficiency Syndrome (AIDS).

(i) AIDS is a severe viral and an acquired disease, so called secondary immunodeficiency. It is caused by a retrovirus-HIV (Human immune-deficiency virus).

(ii) It was first recognized in Hatai (U.S.A.) in 1981. In India AIDS virus was first reported in 1986 among prostitutes in Chennai.

- Transmission: HIV transmitted through following pathway-

(i) Sexual intercourse.
(ii) Use of contaminated needles and syringes.
(iii) Blood transfusion
(iv) Organ transplantation.
(v) From infected mother to baby.

- **Symptoms:**

(i) HIV attacks on helper T-lymphocytes.
(ii) HIV patients becomes highly susceptible to various infections.

DISEASES	CAUSATIVE ORGANISMS
Bacteria	
1.Cholera	Vibrio Cholerae
2.Typhoid	Salmonella typhi
3. Tuberculosis	Mycobacterium tuberculosis
4. Diarrhoea	Salmonella, Shigella
5. Syphilis	Treponema pallidum
6. Gonorrhoea	Neisseria gonorrhoeae
Virus	
1.Hepatitis A	Hepatitis A virus
2.Hepatitis B	Hepatitis B virus
3.Rabies	Rabies virus
4.Influenza	Influenza virus
5.AIDS	HIV Virus (Human Immuno deficiency virus)
Protozoa	
1. Malaria	Plasmodium
2. Amoebiasis	Entamoeba histolytica
Helminth	
1.Filariasis	Wuchereria bancrofti
2. Guinea worm	Dracunculus medinensis.

Some Important points

- Sexually transmitted disease (STD) are AIDS, Syphilis & Gonorrhoea.
- AIDS caused by HIV virus.

- Syphilis is caused by Treponema pallidum (Bacteria).
- Gonorrhoea is caused by Neisseria gonorrhoeae (Bacteria).
- World T.B. day is on 24th March.
- BCG (Bacillus Calmette-Guerin) is a vaccine against T.B.
- Directly Observed Treatment (DOTS) for control of tuberculosis.
- Chloraen is a toxin produced by the cholera bacteria.
- Leprosy is also called as Hasen's disease after the name of it's discoverer.
- 30th January is the Anti Leprosy day.
- Tetanospasmin is the toxin produced by Tetanus bacteria.
- Widal test is a very sensitive test for Typhid.
- Degenerative diseases are also called as organic diseases.
- HIV virus is a 'Retro virus'.
- In our country ELISA and WESTERN BLOT tests for AIDS are available.
- Inflammation: Local tissue response to injury, characterized by redness, swelling, pain and heat.
- Ulcer: Localized interruption of the continuity of an epithelial surface, with an inflamed base.

EXERCISE

1. Food poisoning is caused by
(A) Clostriduim botulinum
(B) Salmonella typhosa
(C) Clostridium tetani
(D) None of these

2. Which of the following is a bacterial disease-
(A)TB (B) Rabies
(C) Malaria (D) Small pox

3. Malaria disease spreads through-
(A) Anopheles mosquito (B) Aedes mosquito
(C) Culex mosquito (D) none of these

4. Bacteria have the following cell organelle.
(A)Mesosomes (B) Golgibodies
(C) Mitochondria (D) Chlorophyll

5. Who laid the foundation of bacteriology?
(A)A.V.Leeuwenhoek (B) Louis Pasteur
(C) Robert Koch (D) De mitri lvanovasky

6. The group of bacterial diseases is:
(A) Mumps, Measles, Kala azar and Cholera
(B) Small pox, Tatanus, trichinosis and French fever.
(C)Measles, Polio, Diptheria and Tetanus
(D) Cholera, Typhoid, Diphtheria and Tetanus

7. Deficiency diseases are
(A)Communicable diseases
(B) non Communicable diseases
(C) allergies
(D) none of these

8. Deficiency of iron causes
(A) pellagra (B) scurvy
(C)anaemia (D) beri beri

9. Anaemia is caused due to the lack of
(A) Calcuim (B) Iodine
(C) Iron (D) Magnesium

10. Sunshine vitamin is
(A) vita.A (B) vita-D
(C) vita-K (D) vita-E

11. In polio, the legs get paralysed and atrophied due to
(A) obstruction of muscles
(B) degeneration of bones
(C) death of some muscles
(D) shrinkage of muscles.

12. AIDS is caused by
(A) fungus (B) virus
(C) bacterium (D) helminth.

13. Full form of AIDS is
(A) Ani-Immune Deficieny Syndrome
(B) Ani- Immune Disease Syndrome
(C)Acquired Immuno Deficiency Syndrome
(D)Acquired Immune Disease Symptoms.

14. Which of the following diseases is caused by virus?
(A)Tuberculosis (B) Smallpox
(C)Cholera (D) Diphtheria

15. Hydrophobia is caused by
(A) acute virus (B) bacteria
(C) rabies virus (D) tubercle

16. An antiviral protein which might help in curing viral disease in future is
(A) antibody (B) histone
(C) nucleoprotein (D) interferon

17. Oral vaccine of Polio was developed by-
(A) Jenner & Sabin (B) Koch & Salk

(C) Salk and Jenner (D) Salk & Sabin

18. Viruses are
(A) obligate parasites
(B) obligate saprophytes
(C) partial parasites
(D) facultative parasites

19. Which of the following disease is transmitted by ani-mal bite?
(A)AIDS (B) Rabies
(C)Tetanus (D) Tuberculosis

20. Diatom is the another name of
(A) green algae (B) red algae
(C) brown algae (D) golden algae

21. Haemophilia is a example of
(A) congenital
(B) acquired diseases
(C) communicable disease
(D) infectious disease

22. Bacteria living in human intestine which synthesizes vitamin B complex is
(A)E.Coli (B) Azotobacter
(C) Clostridium (D) None of these

23. An insect which transmits a disease is known as
(A) intermediate host (B) Parasite
(C) Vector (D) Prey

24. Quinine is extracted from
(A)Bard of Cinnamomus
(B) Leaves of Ocimum
(C) Leaves of Cinnamomum
(D) bark of Cinchona

25. A disease causing organism is called as-
(A) virus (B) antibody
(C) pathogen (D) Fungus

26. Immunization is indused in a body by-
(A)Antibiotics (B) Vaccination
(C)Sterlization (D) Blood transfusion

27. Which of the following disease is caused by bacteria?
(A) Small pox (B) Polio
(C) AIDS (D) Cholera

28. Sleeping sickness is caused by a protozoan Trypano –soma. This protozoan is present in the salivary gland of a blood sucking insect.
The name of that insect is:
(A)Culex mosquito (B) Anopheles mosquito
(C) Fruit fly
(D) Tsetse fly

29. Read the following passage:
When tissue culture raised pine plants were planted in a nursery they did not survive. But when a small amount of soil from the hills where pine plants grow was mixed with the nursery soil, the plantlets survived. Later investigations showed that the hill soil contained specific fungi which are required for growth of pine plants:
Which of the following statements regarding soil micro-organisms is NOT correct?
(A) They provide certain' proteins and polysaccharides required for growth of plants.
(B) Roots of most of the plants are closely associated with fungi.
(C) They maintain certain mineral elements in soluble form in the soil for easy absorption by roots.
(D) They absorb and transfer minerals from soil to roots of plants.

30. Examine the statements given below:
(A) The activity of fungi is absolutely essential for the recycling of inorganic resources in the biosphere.
(B) The spore is a typical reproductive unit of a fungus.
(C) The greenish growth on bread is due to funi.
(D) All fungi have a cell wall composed of cellulose, a nitrogen containing polysaccharide.
Which one is the correct alternative?
(A) B,C and D are true, A is false
(B) A,C and D are true, B is false
(C) A, B & D are true, C is false
(D) A,B & C are true, D is false

31. Which desease is cured by DOTS strategy?
(A) T.B. (B) Typhoid
(C) Rabbies (D) Malaria

32. Diagnostic test for AIDS is –
(A) Widal Test (B) Lepamin test
(C) Elisa test (D) Biopsy

33. Virus was discovered by –
(A) Darwin (B) Dr. Khurana
(C) Robert Hooke (D) Iwanowski

34. Which organ of human body does the goiter disease affect-
(A) The nose (B) The ear

(C) The throat (D) The eye

35. Measles disease in children is caused by-

(A) Bactria (B) Virus

(C) Fungi (D) Mycoplasma

36. Which of the following diseases is caused by insect-bite-

(A) Scurvy (B) Dengu

(C) Pneumonia (D) Asthama

37. Match the items in colum I with column ll.

I	II
A. Plasmodium	a. Sleeping sickness
B. Trypanosoma	b. Common cold
C. Bacteria	c. Malaria
D. Virus	d. Diphtheria

Which one of the following alternative is correct?

(A) A-a, B-a, C-d, D-c

(B) A-c, B-a, C-d, D-b

(C) A-b, B-c, C-d, D-a

(D) A-c, B-d, C-a, D-b

38. Which of the following pair of diseases is caused by virus?

(a) Chicken pox and Polio

(b) Polio and Malaria

(c) Tuberculosis and Chicken pox

(d) Sleeping sickness and Tetanus

ANSWER KEY

DISEASES

Q.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A.	A	A	A	A	C	D	B	C	C	B	C	B	C	B	C
Q.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A.	D	D	A	B	D	A	A	C	D	C	B	D	D	A	C
Q.	31	32	33	34	35	36	37	38							
A.	A	C	D	C	B	B	B	A							