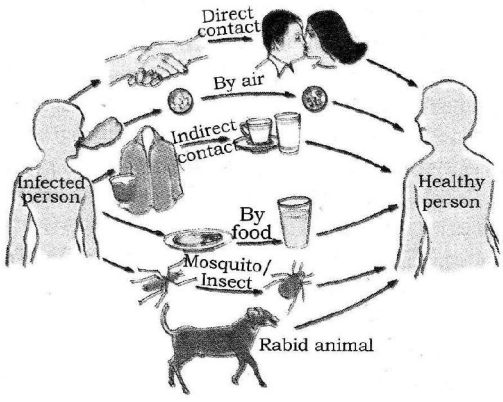
Chapter 6

Why Do We Fall Ill

- Tissues and organs carry out different functions like lungs help in breathing, kidney filters urine and brain thinks. All these functions of our body are interconnected. If one fails others get affected. To carry out these functions we need energy in the form of food. Anything that disturbs the proper functioning of cells, tissues and organs will result in the lack of proper activity of the body or unhealthy body.
- **The significance of health:** The word health gives us an idea of "being well". It is used to indicate our body's well functioning or sometimes it tells about our social attitude. Health is a state of physical, mental and social well being.
- **Personal and Community Issues Both Matter For Health:** Our social environment also affects the health of each individual. The system of public cleanliness plays a vital role in well being of an individual. Proper garbage disposal system and drainage helps us to keep ourselves healthy. Social equality and harmony are also necessary for good health of people.
- **Distinction between "Healthy" and "Disease-free" condition :** The word disease literally means being uncomfortable due to a particular cause. Poor health does not always mean that we are suffering from a particular disease.
- **Disease and its causes :** In case of any disease, the functioning or appearance of one or more systems of the body changes which give, rise to symptoms of the disease. With the help of these symptoms and lab tests, the physician diagnoses the disease.
- **Types of diseases**
  - **(i) Acute diseases:** Disease that last for only very short period of time is called acute disease. *E.g.* Common cold.
  - **(ii) Chronic diseases:** The diseases which last for a long time as much as lifetime are chronic disease *E.g.* Elephantiasis. Chronic diseases have very drastic long-term effects on people's health as compared to acute diseases.
- **Causes of diseases :**
  - **(i) Immediate cause:** The micro-organism, bacteria or virus causing a particular disease is the immediate cause.
  - **(ii) First level cause:** It occurs due to personal unhygienic conditions like drinking unclean water, food etc.
  - **(iii) Second level cause:** It may be due to lack of good nourishment as poor household cannot afford healthy food.
  - **(iv) Third level cause:** Poverty or lack of public services.
  - **(v) Contributory cause:** Genetic differences of an individual also contributes to the disease sometimes.
- **Immediate causes of disease are of two types :**
  - **(i) Infectious causes:** Diseases where microbes are immediate causes are called infectious diseases. Microbes can spread in a community and thereby spread the disease.
  - **(ii) Non infectious causes:** The causes are internal and non-infectious. *E.g.* Cancer is caused due to genetic abnormalities.
- **Infectious diseases and agents:** Disease causing organisms include viruses, bacteria, fungi, protozoans, worms etc.

Micro-organisms	Diseases
Viruses	Common cold, Influenza, Dengue fever, AIDS
Bacteria	Typhoid, Anthrax, Cholera, Tuberculosis
Fungi	Skin infections
Protozoan	Malaria, Kala-azar
Worms	Elephantiasis

- All these organisms have many common biological characters. As a result drugs that are effective against one member of group is likely to be effective against many other members of the group. But it will not work against a microbe belonging to a different group. Many antibiotics work against many species of bacteria rather than working against one. Antibiotics are not effective in viral infections.
- **Means of spread :** Infectious diseases are also called communicable diseases. Disease causing microbes could spread through air, water, sexual contact, casual physical contact (like handshakes, hugs, wrestling etc), blood-to-blood contact, and from infected mother to her baby. Mosquitoes are vectors and they also help in spreading many diseases like malaria.



Methods of transmission of diseases

- **Organ-specific and Tissue-specific manifestations:** After entering the body, different microbes go to different organs or tissues. When they enter from air via nose they go to the lungs. For example, the bacterium that cause tuberculosis enter through mouth and then goes to stomach or liver. The sign and symptoms of a disease depends on the tissue or organ on which the microbes target.
- **Inflammation:** In case of any infection our immune system activates many cells of the infected tissue to kill the microbes. This process is called inflammation. Due to this process there are local effects such as swelling, pain, and fever.
- **Principles of treatment:** There are two ways of treatment –
  (i) To reduce the effects of the disease
  (ii) To kill the cause of the disease.
  (iii) Use an antibiotic that blocks the bacterial synthesis pathway. It is difficult to make anti-viral medicines than making anti-bacterial medicines because viruses have few biochemical mechanisms of their own. They enter our cells and use our machinery for their life activities.
- The term antibiotics was coined by **Waksman**. The first antibiotic **penicillin** was extracted form fungi **Penicillium notatum by Alexander Flemming 1944**.
- **Principles of prevention:** Prevention of diseases is better than their cure. Two ways of prevention are general, and specific ways of prevention.
  (i) General ways: General ways involve preventing exposure. For air-born microbes we can prevent exposure by avoiding overcrowded places. Safe drinking water prevents from water-borne microbes. For vector-borne infections we can provide clean environment. Our immune system also plays an important role in killing off microbes.
  (ii) Specific ways : In case of any infection for the first time our immune system responds against it specifically. Next time when the same microbe enters our body the immune system responds with greater vigour which eliminates the infection more quickly than the first time. So, immunisation is done to prevent diseases.
- Many vaccines are now available for preventing a whole range of infectious diseases. Many vaccines are available against **tetanus**, **diptheria**, **whooping cough**, **measles**, **polio** etc.

Exercise 1

DIRECTIONS : This section contains multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which only one is correct.

1. Food is a necessity for _____ and _____ functions.
   (1) heart, mind (2) cell, tissue
   (3) kidney, lungs (4) health, disease
2. Health is a state of being well enough to function well
   (1) physically
   (2) mentally
   (3) socially
   (4) all three - physically, mentally and socially
3. Physical environment is decided by
   (1) the individual (2) our social environment
   (3) the authorities (4) the plants
4. Vaccines are prepared from
   (1) vitamins (2) blood
   (3) serum (4) plasma
5. Which one of the following pairs of disease can spread through blood transfusion ?
   (1) Cholera and hepatitis
   (2) Hepatitis and AIDS
   (3) Diabetes mellitus and malaria
   (4) Hay fever and AIDS
6. Antibodies are produced by
   (1) erythrocytes (2) thrombocytes
   (3) monocytes (4) lymphocytes
7. DPT vaccine is given for
   (1) tetanus, polio and plague.
   (2) diptheria, whooping cough and leprosy.
   (3) diptheria, pneumonia and tetanus.
   (4) diptheria, whooping cough and tetanus.
8. Conditions necessary for good individual health are
   (1) public cleanliness
   (2) good economic condition
   (3) social equality and harmony
   (4) All of the above
9. An individual free from diseases
   (1) is always healthy
   (2) is a sick person
   (3) need not be a healthy person
   (4) is able to perform well
10. If the functioning or appearance of one or more systems of the body changes for worse, then
    (1) the individual is suffering from a disease
    (2) the changes give rise to symptoms of disease
    (3) Both (1) and (2)
    (4) None of these
11. Which is an autoimmune disease ?
    (1) Cancer
    (2) Asthma
    (3) Erythroblastosis foetalis
    (4) Tuberaculosis
12. Kala azar is transmitted by
    (1) *Phlebatomus* (2) *Anopheles*
    (3) *Trypanosoma* (4) *Glossina palpalis*
13. Tobacco smoke contains carbon monoxide which
    (1) reduces the oxygen-carrying capacity of blood.
    (2) causes gastric ulcers.
    (3) raises blood pressure.
    (4) is carcinogenic.

14. In persons addicted to alcohol, the liver gets damaged because it
    (1) has to detoxify the alcohol.
    (2) stores excess of glycogen.
    (3) is over stimulated to secrete more bile.
    (4) accumulates excess of fats.
15. Are the symptoms enough to diagnose the kind of disease?
    (1) Yes
    (2) Not surely, may require some laboratory tests
    (3) Sometimes
    (4) Never
16. Chronic diseases are the disease that may
    (1) require long time for their cure
    (2) may not be cured throughout the life
    (3) have very drastic long term effects on people's health
    (4) All of these
17. General Health is severely affected by
    (1) acute diseases
    (2) chronic diseases
    (3) Both acute and chronic diseases
    (4) Neither acute nor chronic diseases
18. Mosquito is not a vector for which disease from following?
    (1) Malaria (2) Typhoid
    (3) Dengu (4) Elephantatis
19. Health is a
    (1) complete physical well being
    (2) mental well being
    (3) social well being
    (4) All the above
20. Community health aims at
    (1) better health and family planning
    (2) better hygiene and clean environment
    (3) removing communicable diseases
    (4) All of the above
21. Immune deficiency syndrome in human could develop as a consequence of
    (1) AIDS virus infection
    (2) defective liver
    (3) defective thymus
    (4) weak immune system
22. All diseases have
    (1) been caused by infection only
    (2) one or more than one immediate causes and contributory causes
    (3) been caused by environment only
    (4) All of these
23. Different levels of causes of disease are
    (1) Primary, secondary and tertiary
    (2) Infection, household, public services
    (3) Infection (Primary level), household (secondary level), Lack of public services (level three)
    (4) None of the above
24. Diseases where microbes or micro organisms are the immediate causes are called
    (1) infectious diseases
    (2) genetic abnormalities
    (3) community diseases
    (4) chronic diseases
25. Full form of AIDS is
    (1) Anti immune deficiency syndrome
    (2) Auto immune deficiency syndrome
    (3) Acquired immune deficiency syndrome
    (4) Acquired immune disease syndrome
26. The biological agents of disease include
    (1) minerals, vitamins, proteins and carbohydrates
    (2) viruses,bacteria, fungi, helminths and other organisms
    (3) heat, cold, humidity pressure, radiations
    (4) All the above
27. The group of diseases spread by houseflies is
    (1) malaria, cholera, rables
    (2) rabies, rickets, diarrhoea
    (3) typhoid, dysentery, tuberculosis
    (4) ringworm, scurvy, vomiting
28. Which of the following can be used for biological control of mosquitoes ?
    (1) Oil (2) Ointments
    (3) DDT (4) *Gambusia*
29. Choose the incorrect statement
    (1) Any disease that causes poor functioning of some parts of the body will affect general health because all functions of the body are necessary for good health.
    (2) Chronic disease will cause major effects on general health because they last for longer durations.
    (3) Acute diseases will not have time to cause major effects on general health.
    (4) Acute diseases have very drastic long term effects on people's health.
30. Infectious diseases
    (1) have mostly microbes or micro organisms as immediate causes
    (2) spread in community as the microbes can spread in the community
    (3) Neither (1) nor (2)
    (4) Both (1) and (2)
31. Non-infectious diseases do not spread in community because
    (1) they are not caused by external agents or infectious agents
    (2) they are caused by internal reasons
    (3) they are caused due to genetic abnormalities
    (4) All of these
32. In addition to the immune system, we are protected from disease by
    (1) the skin
    (2) mucous membranes
    (3) natural secretions such as acids, protein-digesting enzymes, and antibiotics
    (4) All of the above
33. Fevers
    (1) decrease interferon production.
    (2) decrease the concentration of iron in the blood.
    (3) decrease the activity of phagocytes.
    (4) increase the reproduction rate of invading bacteria.
34. Which one of the following pairs of disease can spread through blood transfusion ?
    (1) Cholera and hepatitis
    (2) Hepatitis and AIDS
    (3) Diabetes mellitus and malaria
    (4) Hay fever and AIDS

35. Which of the following statement is true?
    (1) AIDS spreads by the bite of a mosquito.
    (2) Diabetes is a communicable diseases.
    (3) *Ascariasis* is caused by protozoans.
    (4) Ulcers in the intestine is an infectious disease.
36. Wide range of categories of classification of organisms causing infectious diseases include
    (1) single celled organisms like protozoan
    (2) very small microbes likes virus
    (3) multi cellular organisms such as worms
    (4) All of these
37. Categories of infectious agents are factors that help in deciding
    (1) what kind of work one should do
    (2) what kind of treatment to use
    (3) biological common characteristics
    (4) mode of transmission of disease
38. Which of the following statement is false?
    (1) A person suffering from disease is in a state of discomfort.
    (2) Non-infectious disease are called communicable diseases.
    (3) Communicable diseases can spread through air, water, food, sexual contact or vectors.
    (4) Cholera spread through water.
39. Which of the statement is true?
    (1) Vaccines prevent many infectious diseases like tetanus, polio, measles.
    (2) Penicillin interferes with viral cell wall production, thus killing the bacteria.
    (3) Physical and social environment does not play an important role in maintaining good health
    (4) Sexual contact causes the spread of diseases like Anthrax.
40. Making anti-viral drugs is more difficult than making antibacterial medicines because
    (1) viruses make use of host machinery.
    (2) viruses are on the border line of living and non-living.
    (3) viruses have very few biochemical mechanisms of their own.
    (4) viruses have a protein coat.
41. If you live in a overcrowded and poorly ventilated house, it is possible that you may suffer from which of the following diseases
    (1) Cancer (2) AIDS
    (3) Air borne diseases (4) Cholera
42. Antibiotics help in treatment of diseases caused by
    (1) virus by rendering them ineffective.
    (2) protozoan as they are able to survive in presence of antibiotics.
    (3) bacteria as the biochemical pathways important for them are blocked.
    (4) worms.
43. Choose the odd one out
    (1) All viruses live inside host cells, whereas bacteria very rarely do.
    (2) All bacteria are closely related to each other.
    (3) Many important life processes are similar in the bacteria group but not shared by virus group.
    (4) Same drug will work against a microbe belonging to a different group.
44. Spreading of disease-causing microbes through air occurs through
    (1) dust particles of the atmosphere.
    (2) the little droplets thrown out by an infected person are inhaled by a healthy person.
    (3) water drops present in the air.
    (4) All of these
45. Microbial diseases like Syphilis and AIDS are transmitted through
    (1) casual physical contact
    (2) blood to blood contact
    (3) sexual contact
    (4) Both (2) and (3)
46. Dilation of blood vessels, increase in fat synthesis, low blood sugar and inflammation of stomach are due to the consumption of
    (1) tobacco
    (2) drug addition
    (3) alcohol
    (4) tobacco and drug addiction
47. Which of the following is a mismatch ?
    (1) AIDS - Bacterial infection
    (2) Polio - Viral infection
    (3) Malaria - Protozoan infection
    (4) Elephantiasis - Helminth infection
48. We should not allow mosquitoes to breed in our surroundings because they
    (1) multiply very fast and cause pollution.
    (2) are vectors for many diseases.
    (3) bite and cause skin diseases.
    (4) are not important insects.
49. Clean drinking water is related to
    (1) personal hygiene (2) public hygiene
    (3) economic status (4) social status
50. Inflammation is the process of
    (1) effecting swelling and pain.
    (2) recruiting many cells to the affected tissue to kill off the disease causing microbes.
    (3) activating the immune system.
    (4) making the specific tissues ineffective.
51. A disease is treated in two ways.
    (1) one is to isolate the person and the second is to take rest.
    (2) one is tissue specific and the second is environment specific.
    (3) one is to reduce the effects of the disease and the other to kill the cause of the disease.
    (4) one is to take the patient to a quack and the second is to rush to hospital.
52. Immunisation works on the principle
    (1) The immune system sees an infectious microbe, responds against it and then remembers it.
    (2) The immune system responds with even greater vigour when it sees that particular microbe or its close relatives.
    (3) The immune system develops a memory for a particular infection by something (Vaccine) that mimics the particular microbe.
    (4) All of these

53. Prevention of a disease is more desirable than its cure because
(1) some of the body functions may be damaged during the effect of the disease.
(2) the person suffering from the disease will be bad ridden for quite some time.
(3) the disease may be communicated to others during the course of treatment.
(4) All of these

54. Which one is an acute disease ?
(1) Tuberculosis (2) Hypertension
(3) Typhoid (4) Diabetes

55. Harelip is a
(1) acquired disease (2) infectious disease
(3) metabolic disease (4) congenital disease

56. Non-communicable disease is the one which is
(1) non-infectious
(2) remains restricted to affected person
(3) Both (1) and (2)
(4) caused by a pathogen

57. BCG stands for –
(1) Bacillus Carol Gram
(2) Bacillus Chalmette Guerin
(3) Bacteria Chalmette Guierin
(4) None of the above

58. Which one of the following has a long term effect on the health of an individual?
(1) Common cold
(2) Chicken pox
(3) Chewing tobacco
(4) Stress

59. A communicable disease is caused by
(1) metabolic disorder
(2) allergy
(3) pathogen
(4) hormonal balance

60. *Helicobacter pylori* causes
(1) tuberculosis (2) peptic ulcers
(3) pneumonia (4) cholera

61. Which one is a bacterial disease ?
(1) Tuberculosis (2) Mumps
(3) Measles (4) Malaria

62. Ringworm is caused by
(1) protozoan (2) helminth
(3) virus (4) fungus

63. Louis Pasteur is responsible for which of the following reforms?
(1) The present-day classification system of using binomial nomenclature names to identify organisms.
(2) All surgical equipment must be boiled to kill germs before surgery.
(3) The vaccination of people to prevent disease.
(4) The specific scientific steps taken to prove a specific germ causes a specific disease.

64. Which scientist is credited with the development of medical vaccinations?
(1) Robert Koch (2) Charles Darwin
(3) Edward Jenner (4) William Harvey

65. A disease transmitted through sexual contact is
(1) HIV (2) gonorrhoea
(3) Syphilis (4) All the above

66. Ascariasis spreads through
(1) vectors (2) contaminated food and water
(3) fomites (4) droplets

67. Kala-azar (black fever) is caused by
(1) protozoan (2) fungus
(3) helminth (4) bacterium

68. SARS and Swine flu are caused by
(1) virus
(2) virus and bacterium
(3) virus and protozoan
(4) virus and helminth

Exercise 2

Matching Based MCQ

DIRECTIONS (Qs 1 to 5) : Match Column-I with Column-II and select the correct answer using the codes given below the columns.

1.

	Column I		Column II
(A)	Tuberculosis	(p)	Bite of animal
(B)	Rabies	(q)	Unlimited division of cell
(C)	Cholera	(r)	Water borne disease
(D)	Typhoid	(s)	Fever rises to maximum in the afternoon
(E)	Cancer	(t)	Air-borne disease

(1) A – (t) ; B – (p) ; C – (r) ; D – (s) ; E – (q)
(2) A – (s) ; B – (t) ; C – (p) ; D – (q) ; E –(r)
(3) A – (q) ; B – (s) ; C – (r) ; D – (p) ; E –(t)
(4) A – (r) ; B – (p) ; C – (t) ; D – (q) ; E – (s)

2.

	Column I (Disease)		Column II (Infectious agent)
(A)	Elephantiasis	(p)	Bacteria
(B)	Malaria	(q)	Fungi
(C)	Skin infection	(r)	Protozoans
(D)	Typhoid	(s)	Virus
(E)	Influenza	(t)	Worms

(1) A – (r) ; B – (t) ; C – (q) ; D – (p) ; E – (s)
(2) A – (s) ; B – (q) ; C – (p) ; D – (t) ; E – (r)
(3) A – (t) ; B – (r) ; C – (q) ; D – (p) ; E– (s)
(4) A – (s) ; B – (p) ; C – (q) ; D – (r) ; E – (t)

3.

	Column I		Column II
(A)	Lungs	(p)	AIDS
(B)	Liver	(q)	Encephalitis
(C)	Brain	(r)	Pneumonia
(D)	Lymph nodes	(s)	Malaria

(1) A – (p) ; B – (r) ; C – (q) ; D – (s)
(2) A – (q) ; B – (r) ; C – (s) ; D – (p)
(3) A – (r) ; B – (s) ; C – (q) ; D – (p)
(4) A – (r) ; B – (q) ; C – (s) ; D – (p)

4.

	Column I	Column II
(A)	Jaundice	(p) Infectious diseases
(B)	Encephalitis	(q) Malaria
(C)	Immune system	(r) Water borne disease
(D)	Liver	(s) Penicillin
(E)	Immunisation	(t) Mosquito bite
		(u) HIV

(1) A – (r) ; B – (t) ; C – (u) ; D – (q) ; E – (p)
(2) A – (t) ; B– (u) ; C – (r) ; D – (q) ; E – (p)
(3) A – (p) ; B – (q) ; C – (t) ; D – (u) ; E – (r)
(4) A – (r) ; B – (t) ; C – (p) ; D – (u) ; E – (q)

5.

	Column I	Column II
(A)	Jaundice	(p) Allergic inflammation of nose
(B)	Stenosis	(q) Loss of motion functions
(C)	Rhinitis	(r) Increase in the bile pigments in the blood
(D)	Paralysis	(s) Septal defect of heart

(1) A – (s) ; B – (r) ; C – (p) ; D → q)
(2) A – (p) ; B – (p) ; C – (p) ; D – (r)
(3) A – (q) ; B – (s) ; C – (q) ; D – (s)
(4) A – (r) ; B – (t) ; C– (p) ; D → q)

Statement Based MCQ

6. Consider the following statements :
(a) Lack of resistance against a disease is the immediate cause of that disease.
(b) Immediate causes of all infectious diseases are microscopic organisms.
Which of these statement(s) is/are correct ?
(1) (a) only (2) (b) only
(3) Both (a) and (b) (4) Neither (a) nor (b)

7. Consider the following statements :
(a) Disease may be due to infectious or non-infectious causes.
(b) The category to which a disease-causing organism belongs decides the type of treatment.
Which of these statement(s) is/are correct ?
(1) (a) only (2) (b) only
(3) Both (a) and (b) (4) Neither (a) nor (b)

8. Consider the following statements :
(a) Syphilis is a sexually transmitted viral disease.
(b) Typhoid primarily affects lungs.
Which of these statement(s) is/are correct ?
(1) (a) only (2) (b) only
(3) Both (a) and (b) (4) Neither (a) nor (b)

9. Consider the following statements :
(a) The immune system is involved in protecting the body from disease and the recognition of self.
(b) Vaccines are small doses of live, pathogenic viruses or bacteria.
Which of these statement(s) is/are correct ?
(1) (a) only (2) (b) only
(3) Both (a) and (b) (4) Neither (a) nor (b)

10. Consider the following statements :
(a) Rabies is also called hydrophobia.
(b) Tobacco smoking is the main causes of lung cancer.
Which of these statement(s) is/are correct ?
(1) (a) only (2) (b) only
(3) Both (a) and (b) (4) Neither (a) nor (b)

11. Consider the following statements :
(a) HIV breaks down the body's immune system.
(b) BCG vaccine is used for typhoid.
Which of these statement(s) is/are correct ?
(1) (a) only (2) (b) only
(3) Both (a) and (b) (4) Neither (a) nor (b)

12. Consider the following statements :
(a) Lack of iodine causes anaemia.
(b) Egg is a good source of protein, vitamin and carbohydrate.
Which of these statement(s) is/are correct ?
(1) (a) only (2) (b) only
(3) Both (a) and (b) (4) Neither (a) nor (b)

13. Consider the following statements :
(a) Malarial infection is characterized by paroxysms of chills, fever, sweating, enlargement of liver and spleen *etc.*
(b) Tse-tse fly carries rabies virus from dog to human beings.
Which of these statement(s) is/are correct ?
(1) (a) only (2) (b) only
(3) Both (a) and (b) (4) Neither (a) nor (b)

14. Consider the following statements :
(a) Turberculosis, commonly called T.B., is a viral disease common among poor people living in ill-ventilated congested societies in big cities.
(b) Vaccination is a technique to develop immunity in individuals by giving them antibiotics.
Which of these statement(s) is/are correct ?
(1) (a) only (2) (b) only
(3) Both (a) and (b) (4) Neither (a) nor (b)

15. Consider the following statements :
(a) Cholera, typhoid, diarrhoea *etc.* are transmitted by mosquitoes.
(b) Deficiency of fluorine cause cheilosis disease.
(c) DTP-Hib vaccine is given to children between 10-14 years of age.
Which of these statement(s) is/are correct ?
(1) (a) and (b) (2) (a) , (b) and (c)
(3) (b) and (c) (4) None of these

Passage Based MCQ

DIRECTIONS (Qs. 16 to 25) : Read the passage(s) given below and answer the questions that follow.

PASSAGE-1

Pulse Polio Programme is a programme to eradicate polio through mass immunisation of children. The pulse polio immunisation programme was launched in 1995-1996 to cover all the children below the age of 3 years. In order to accelerate the pace of polio eradication, the target age group was increased from 1996-1997 to all children under to age of 5 years. In this programme, polio drops are given to children twice a year. The programme is continuing till date due to occurrence of a few stray polio cases even in the year 2009. Rather, it has been ex tended using bivalent oral vaccine (P1 and P3, instead of only P1) from January, 2010.

16. Pulse Polio Programme is associate with
(1) to eradicate Polio.
(2) to give the knowledge about Polio.
(3) to make the conference about Polio virus.
(4) to conserve Polio virus.

17. The Pulse Polio immunisation programme was launched for the children below the age of
(1) 3 years (2) 2 years
(3) 5 years (4) 4 years

18. In Pulse Polio Programme, polio drops are given to children
(1) twice a year (2) thrice a year
(3) once a year (4) none of these

19. The pulse polio immunisation programme was launched in
(1) 1995-96 (2) 1996-97
(3) 1994-95 (4) 1997-98

PASSAGE-2

Peptic ulcers are painful bleeding areas in stomach and duodenum. They were once considered to be caused by increased gastric acidity due to stress and life style of the afflicted persons. However, Robin Warren (born 1937) a Perth based Australian pathologist observed in 1984 that area of peptic ulcers contained many small curved bacteria named *Helicobacter pylori*. Barry Marshall (born 1951), a young clinical fellow of Warren succeeded in culturing the bacteria (1985). Marshall and Warren (1985) found that amoxicillin an antibiotic effective in killing the bacteria could also cure the peptic ulcers. The finding helped in converting once painful chronic and disabling condition into short duration treatable disease. For this, Marshall and Warren were awarded Nobel Prize for physiology and medicine in 2005.

20. Peptic ulcers are painful bleeding areas in
(1) stomach and duodenum
(2) liver and pancrease
(3) mouth and pharynx
(4) hands and legs

21. The area of peptic ulcers contains many small curved bacteria named
(1) *Helicobacter pylori*
(2) *Salmonella typhi*
(3) *Escherichia*
(4) *Mycobacterium tuberculum*

22. Nobel Prize for physiology and medicine for the discovery of the cause of peptic ulcers was awarded to
(1) Marshall and Warren (2) Hershy and Chase
(2) Schleiden and Schwan (4) Bovery and Brnoon

23. Marshall and Warren were awarded Nobel Prize for Physiology and Medicine in
(1) 2005 (2) 2006
(3) 2004 (4) 2007

PASSAGE-3

AIDS stands for Acquired Immuno Deficiency Syndrome. The disease was first identified in 1981 in USA after that it was quickly detected in Europe and other part of the world. It is an infectious disease caused by a retrovirus which brings some defect or interferes in the natural immunity system, present in human beings. As a result, the patients become susceptible and vulnerable to serious illness and infections which would not have caused any harm to any one having their body immune system working normally.

24. The expanded name of AIDS is
(1) Acquired Immuno Deficiency Syndrome.
(2) Addition of Internal Deficiency Syndrome.
(3) Advanced Internal Deficiency Symptom.
(4) Acquired Intenstinal Deficiency Syndrome.

25. The AIDS through
(1) deficiency of vitamin B (2) deficiency of Iron
(3) contaminated syringe (4) None of these

Assertion Reason Based MCQ

DIRECTIONS (Qs. 26 to 30) : Following questions consist of two statements, one labelled as the **'Assertion'** and the other as **'Reason'**. You are to examine these two statements carefully and select the answer to these items using the code given below.

Code :
(1) Both A and R are individually true and R is the correct explanation of A:
(2) Both A and R are individually true but R is not the correct explanation of A.
(3) A is true but R is false
(4) A is false but R is true.

26. **Assertion :** Polio is known to cause paralysis and cripping in large number of children every year.
Reason : Government has started a polio eradication programme.

27. **Assertion :** Haemophilia is a congenital disease.
Reason : Haemophilia is caused by a gene mutation during own life span.

28. **Assertion:** ORS is given to the patients suffering from cholera.
Reason : ORS contains water, minerals and sugar to avoid dehydration.

29. **Assertion :** Rabies is also called hydrophobia.
Reason : In Rabies, the dog fears from water.

30. **Assertion :** Anti-AIDS vaccines are being developed in USA.
Reason : These vaccines may be used to control HIV infection in India.

Correct Definition Based MCQ

31. Pathogen is
(1) an agent (microscopic organism) that causes disease.
(2) dead, attenuated, modified micro-organisms in the healthy body.
(3) micro-organism that has the capable of destroying microorganisms.
(4) person who is suffering from any disease.

32. Chronic disease is
(1) the disease which last for only very short period of time.
(2) the disease where microbes are the immediate cause.
(3) the disease which is not spreaded by infectious agents.
(4) the disease which last for a long time, even as much as a life time.

33. Antibiotic is
(1) an organism which carries germs from a sick person to some other person acting as intermediator.
(2) the production of immunity in an individual by artificial means.
(3) chemical substance produced by living organisms such as bacteria and fungi etc. which can kill or stop the growth of some pathogenic microorganisms.
(4) the body's power to resist and overcome infection.

34. Pasteurization is
(1) the boiling and cooling of a substance to kill possible pathogens.
(2) the method of separating substances in a mixture by evaporation of a liquid and the following condensation of its vapour.
(3) the reaction of an acid with a base to produce salt and water.
(4) the phase change of a substance from a solid directly to a vapour.

Feature Based MCQ

35. On the basis of following features identify correct option.
(I) It is caused by a bacterium *Mycobacterium tuberculosis*.
(II) The symptoms are swelling and tenderness of lymph gland.
(III) Immunisation with BCG vaccine should be taken.
(1) Polio (2) Jaundice
(3) AIDS (4) Tuberculosis

36. On the basis of following features identify correct option.
(I) Infection is caused by rod shaped bacterium found in intestine of human beings.
(II) The symptoms are headache and continuous high fever.
(III) Standard drug Chloromycetin should be used to control.
(1) AIDS (2) Rabies
(3) Typhoid (4) Jaundice

37. On the basis of following features identify correct option.
(I) Causative agent is *E.coli* bacteria.
(II) The symptoms are frequent loose motion, vomiting leads to dehydration.
(III) ORS should be given and anti-microbial drugs should be used.
(1) Diarrhoea (2) Typhoid
(3) Malaria (4) Syphilis

38. On the basis of following features identify correct option.
(I) A fatal disease caused by bacterium *Clostridium tetani*.
(II) Due to this, cramps starts on back, jaws and neck.
(III) For its prevention, D.P.T. vaccine dose is given to infants.
(1) Tuberculosis (2) Typhoid
(3) Tetanus (4) Polio

Hints & SOLUTIONS

Exercise 1

1. **(2)** Food is a necessity for cell and tissue functions.
2. **(4)** Health is a state of being well enough to function well - physically, mentally and socially.
3. **(2)** Physical environment is decided by our social environment.
4. **(3)** **5.** **(2)** **6.** **(4)** **7.** **(4)**
8. **(4)** Conditions necessary for good individual health are public cleanliness, good economic condition, and social equality and harmony.
9. **(3)** An individual free from diseases need not be a healthy person.
10. **(3)** If the functioning or appearance of one or more systems of the body changes for worse, then the individual is suffering from a disease and the changes give rise to symptoms of disease.
11. **(3)** **12.** **(1)** **13.** **(1)** **14.** **(3)**
15. **(2)** Different diseases may have similar symptoms. So some laboratory tests are necessary to diagnose the disease correctly.
16. **(4)** Chronic diseases are the disease that may require long time or even life time for their cure. They have very drastic long term effects on people's health.
17. **(3)** General health is severely affected by any disease that causes poor functioning of some parts of the body.
18. **(4)** **19.** **(4)** **20.** **(4)** **21.** **(1)**
22. **(2)** All diseases have one or more than one immediate causes and contributory causes.
23. **(3)** Different levels of causes of disease are: Infection (Primary level), household (secondary level), lack of public services (level three).
24. **(1)** Diseases where microbes or micro organisms are the immediate causes are called the infectious diseases.
25. **(3)** **26.** **(2)** **27.** **(3)** **28.** **(4)**
29. **(4)** Acute diseases have drastic effects on people's health, but for a limited period.
30. **(4)** Infectious diseases have mostly microbes or micro organisms as immediate causes and spread in community as the microbes can spread in the community.
31. **(4)** Non-infectious diseases do not spread in community because they are not caused by external agents or infectious agents. They are caused by internal reasons mainly due to genetic abnormalities.
32. **(4)** **33.** **(2)** **34.** **(2)** **35.** **(3)**
36. **(4)** Wide range of categories of classification of organisms causing infectious diseases include single celled organisms like protozoan, very small microbes like virus, multi-cellular organisms such as worms.
37. **(2)** Categories of infectious agents are factors that help in deciding what kind of treatment to use.
38. **(2)** **39.** **(1)** **40.** **(3)** **41.** **(3)**
42. **(2)** Antibiotics help in treatment of diseases caused by bacteria as the biochemical pathways important for them are blocked.
43. **(4)** Particular drug will work against a specific microbe.
44. **(2)** Spreading of disease-causing microbes through air occurs through the little droplets thrown out by an infected person during coughing or sneezing. These are inhaled by a healthy person in close vicinity. The microbes get a new host body.
45. **(4)** Microbial diseases like syphilis and AIDS are transmitted through blood to blood contact (breast feeding by an infected person or during blood transfusion or by using infected surgical instruments) or sexual contact.
46. **(3)** **47.** **(1)** **48.** **(2)** **49.** **(2)**
50. **(2)** Inflammation is the process of recruiting many cells to the affected tissue to kill off the disease causing microbes.
51. **(3)** A disease is treated in two ways : one is to reduce the effects of the disease and the other to kill the cause of the disease.

52. **(4)** Principle of immunisation is that the immune system sees an infectious microbe; responds against it and then remembers it. It responds with even greater vigour when it sees that particular microbe or its close relatives. It also develops a memory for a particular infection by something (Vaccine) that mimics the particular microbe.

53. **(4)** Prevention of a disease is more desirable than its cure because some of the body functions may be damaged during the effect of the disease. The person suffering from the disease will be bad ridden for quite some time. The disease may be communicated to others during the course of treatment.

54 **(3)** **55. (4)** **56. (3)**

57. **(2)** BCG is vaccine for Tuberculosis and was given by Chalmette Guerin.

58. **(3)** **59. (3)** **60. (2)** **61. (1)** **62. (4)**

63. **(2)** Louis Pasteur is responsible for the practice of boiling surgical equipment before surgery to kill possible germs present on these utensils.

64. **(3)** Edward Jenner was the first person to vaccinate people against disease. Robert Koch formulated ideas concerning the study of disease. Charles Darwin is famous for his ideas on evolution.William Harvey is noted for his work on blood circulation.

65. **(1)** **66 (2)** **67. (1)** **68 (1)**

Exercise 2

1. **(1)** **2. (3)** **3. (3)** **4. (1)** **5. (1)**

6. **(4)** **7. (3)**

8. **(4)** Syphilis is a sexually transmitted bacterial disease. Typhoid primarily affects digestive system.

9. **(1)** **10. (3)**

11. **(1)** BCG vaccine is used for Tuberculosis.

12. **(4)** The lack of iodine causes goitre and anaemia caused by deficiency of iron in blood. Egg is an important source of protein.

13. **(1)** Tse - tse fly caused by Trypanosome protozoan and cause sleeping sickness.

14. **(4)** Tuberculosis is a bacterial disease caused by *Mycobacterium tuberculosis*. Vaccination is the injection of a killed microbe in order to stimulate the immune system against the microbe, there by preventing disease.

15. **(4)**

16. **(1)** Poliomyelitis is a viral disease that can affect nerves and can lead to partial or full paralysis.

17. **(1)** **18. (1)** **19. (1)** **20. (1)**

21. **(1)** **22. (1)** **23. (1)** **24. (1)**

25. **(3)** AIDS can be transmitted through sexual contact, pregnancy, child birth and breast feeding.

26. **(2)** Polio is misnomerly called infantile paralysis. Pulse- polio programme was started in December 1995 in India. It was eradicate this crippling disease by the end of 20th century.

27. **(3)** Haemophilia is an inherited disease. It is caused by mutations in the F8 or F9 genes.

28. **(1)** ORS is oral dehydration solution used for correcting dehydration caused by diarrhoea in all age groups. Citrate and ORS given to the patients who is suffering from cholera.

29. **(3)** Rabies is a disease caused by a *Rabies* virus. Its other name is hydrophobia. The patient fear from water, then he paralysed and death.

30. **(3)** **31. (1)** **32. (4)** **33. (3)**

34. **(1)** **35. (4)** **36. (3)** **37. (1)** **38. (3)**