

1. Larynx is called
 - a. Voice box
 - b. Music box
 - c. Respiratory organ
 - d. None of these
1. The disease that affects our lungs is
 - a. AIDS
 - b. Rabies
 - c. Polio
 - d. Tuberculosis
2. The BCG vaccine is given for the immunity against
 - a. Hepatitis
 - b. Jaundice
 - c. Tuberculosis
 - d. Malaria
3. Malaria is caused due to
 - a. Protozoa
 - b. Anopheles mosquito
 - c. Both a and b
 - d. None of these
4. Plasmodium is an example of
 - a. Virus
 - b. Bacteria
 - c. Protozoa
 - d. Worm
5. Diarrhea, cholera, typhoid are the diseases that have one thing in common that is
 - a. All of them are caused by bacteria
 - b. All of them is transmitted by contaminated food and water
 - c. All of them are cured by antibiotics
 - d. All of the above
6. The bacteria among the following is
 - a. Plasmodium
 - b. Trypanosome
 - c. Rabies virus
 - d. Salmonella typhi
7. HIV virus attacks one of the following cells in our body
 - a. Red blood cells
 - b. White blood cells
 - c. Liver cell

- d. Long cell
8. The pathogens of disease are
- Bacteria
 - Virus
 - Protozoa
 - All of the above
9. Penicillin is a drug that can
- Interfere in the biological pathway of bacteria
 - An antibiotic that can kill bacteria
 - Both a and b
 - None of the above
10. The disease caused due to worm is
- Tetanus
 - Rabies
 - Sleeping sickness
 - Filariasis

ANSWERS

- D
- C
- C
- C
- D
- B
- D
- C
- D
- D

1. Which of the following tissues has dead cells?

- (a) Parenchyma
- (b) Sclerenchyma
- (c) Collenchyma
- (d) Epithelial tissue

2. Find out incorrect sentence

- (a) Parenchymatous tissues have intercellular spaces

- (b) Collenchymatous tissues are irregularly thickened at corners
 - (c) Apical and intercalary meristems are permanent tissues
 - (d) Meristematic tissues, in its early stage, lack vacuoles
3. Girth of stem increases due to
- (a) apical meristem
 - (b) lateral meristem
 - (c) intercalary meristem
 - (d) vertical meristem
4. Which cell does not have perforated cell wall?
- (a) Tracheids
 - (b) Companion cells
 - (c) Sieve tubes
 - (d) Vessels
5. Intestine absorb the digested food materials. What type of epithelial cells are responsible for that?
- (a) Stratified squamous epithelium
 - (b) Columnar epithelium
 - (c) Spindle fibres
 - (d) Cuboidal epithelium
6. A person met with an accident in which two long bones of hand were dislocated. Which among the following may be the possible reason?
- (a) Tendon break
 - (b) Break of skeletal muscle
 - (c) Ligament break
 - (d) Areolar tissue break
7. While doing work and running, you move your organs like hands, legs etc. Which among the following is correct?
- (a) Smooth muscles contract and pull the ligament to move the bones
 - (b) Smooth muscles contract and pull the tendons to move the bones
 - (c) Skeletal muscles contract and pull the ligament to move the bones

- (d) Skeletal muscles contract and pull the tendon to move the bones

8. Which muscles act involuntarily?

- (i) Striated muscles
- (ii) Smooth muscles
- (iii) Cardiac muscles
- (iv) Skeletal muscles

- (a) (i) and (ii)
- (b) (ii) and (iii)
- (c) (iii) and (iv)
- (d) (i) and (iv)

9. Meristematic tissues in plants are

- (a) localised and permanent
- (b) not limited to certain regions
- (c) localised and dividing cells
- (d) growing in volume

10. Which is not a function of epidermis?

- (a) Protection from adverse condition
- (b) Gaseous exchange
- (c) Conduction of water
- (d) Transpiration

11. Select the incorrect sentence

- (a) Blood has matrix containing proteins, salts and hormones
- (b) Two bones are connected with ligament
- (c) Tendons are non-fibrous tissue and fragile
- (d) Cartilage is a form of connective tissue

12. Cartilage is not found in

- (a) nose
- (b) ear
- (c) kidney
- (d) larynx

13. Fats are stored in human body as

- (a) cuboidal epithelium
- (b) adipose tissue
- (c) bones
- (d) cartilage

14. Bone matrix is rich in

- (a) fluoride and calcium
- (b) calcium and phosphorus
- (c) calcium and potassium
- (d) phosphorus and potassium

15. Contractile proteins are found in

- (a) bones
- (b) blood
- (c) muscles
- (d) cartilage

16. Voluntary muscles are found in

- (a) alimentary canal
- (b) limbs
- (c) iris of the eye
- (d) bronchi of lungs

17. Nervous tissue is not found in

- (a) brain
- (b) spinal cord
- (c) tendons
- (d) nerves

18. Nerve cell does not contain

- (a) axon
- (b) nerve endings
- (c) tendons

- (d) dendrites

19. Which of the following helps in repair of tissue and fills up the space inside the organ?

- (a) Tendon
- (b) Adipose tissue
- (c) Areolar
- (d) Cartilage

20. The muscular tissue which function throughout the life continuously without fatigue is

- (a) skeletal muscle
- (b) cardiac muscle
- (c) smooth muscle
- (d) voluntary muscle

21. Which of the following cells is found in the cartilaginous tissue of the body?

- (a) Mast cells
- (b) Basophils
- (c) Osteocytes
- (d) Chondrocytes

22. The dead element present in the phloem is

- (a) companion cells
- (b) phloem fibres
- (c) phloem parenchyma
- (d) sieve tubes

23. Which of the following does not lose their nucleus at maturity?

- (a) Companion cells
- (b) Red blood cells
- (c) Vessel
- (d) Sieve tube cells

24. In desert plants, rate of water loss gets reduced due to the presence of

- (a) cuticle

- (b) stomata
- (c) lignin
- (d) suberin

25. A long tree has several branches. The tissue that helps in the side ways conduction of water in the branches is

- (a) collenchyma
- (b) xylem parenchyma
- (c) parenchyma
- (d) xylem vessels

26. If the tip of sugarcane plant is removed from the field, even then it keeps on growing in length. It is due to the presence of

- (a) cambium
- (b) apical meristem
- (c) lateral meristem
- (d) intercalary meristem

27. A nail is inserted in the trunk of a tree at a height of 1 metre from the ground level. After 3 years the nail will

- (a) move downwards
- (b) move upwards
- (c) remain at the same position
- (d) move sideways

28. Parenchyma cells are

- (a) relatively unspecified and thin walled
- (b) thick walled and specialised
- (c) lignified
- (d) none of these

29. Flexibility in plants is due to

- (a) collenchyma
- (b) sclerenchyma
- (c) parenchyma

- (d) chlorenchyma

30. Cork cells are made impervious to water and gases by the presence of

- (a) cellulose
- (b) lipids
- (c) suberin
- (d) lignin

31. Survival of plants in terrestrial environment has been made possible by the presence of

- (a) intercalary meristem
- (b) conducting tissue
- (c) apical meristem
- (d) parenchymatous tissue

32. Choose the wrong statement

- (a) The nature of matrix differs according to the function of the tissue
- (b) Fats are stored below the skin and in between the internal organs
- (c) Epithelial tissues have intercellular spaces between them
- (d) Cells of striated muscles are multinucleate and unbranched

33. The water conducting tissue generally present in gymnosperm is

- (a) vessels
- (b) sieve tube
- (c) tracheids
- (d) xylem fibres

Answers to Multiple Choice Questions

1. (b)	2. (c)	3. (b)	4. (b)	5. (b)
6. (c)	7. (d)	8. (b)	9. (c)	10. (c)
11. (c)	12. (c)	13. (b)	14. (b)	15. (c)

16. (b)	17. (c)	18. (c)	19. (c)	20. (b)
21. (d)	22. (b)	23. (a)	24. (a)	25. (d)
26. (d)	27. (c)	28. (a)	29. (a)	30. (c)
31. (b)	32. (c)	33. (c)		

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 - d. Filariasis

ANSWERS

- 1. D
- 2. C
- 3. C
- 4. C
- 5. D
- 6. B
- 7. D
- 8. C
- 9. D
- 10. D

1. Examples of communicable diseases are Tuberculosis
Diabetes
Arthritis
Cancer
_____ is caused by bacterium *Vibrio cholera*.

2. Malaria
Dengue
Cholera
Typhoid

3. Which of the following is not transferred by houseflies?
Typhoid

Cholera
Dysentery
AIDS

4. Mosquito is not a vector for disease

Malaria
Typhoid
Dengue
Elephantiasis

5. Which of the following is a fungal infection?

Ringworm
Measles
Syphilis
Tetanus

6. Which of the following is a chronic disease?

Cold
Diabetes
Influenza
Typhoid

7. Which of these is an air-borne disease?

Diphtheria
Jaundice
Syphilis
Cancer

8. Viruses, which cause hepatitis is transmitted by

Air
Water
Vector
Sexual contact

9. Droplet method of transmission of disease is found in

Common cold
Syphilis
Diabetes
Typhoid

10. Microbes that enter the body through nose most likely affects

Liver
Heart
Lungs
Stomach

11. HIV virus when active in body mainly attacks

Liver
Lungs
Nerves
Immunity

12. An organism which harbours a pathogen and may pass it on to another person to cause a disease is known as

Host
Vector
Parasite
Predator

13. DPT vaccine is given to develop immunity against _____ disease.

Tetanus
Diphtheria
Pertussis
All of these

14. Which of the following statements is correct regarding vaccination?

It develops resistance against pathogen attack.
It kills pathogen causing disease
It blocks the food supplied to pathogens
It does not allow pathogens to multiply in hosts.

15. ORS is given in case of _____ disease.

Diarrhoea
Measles
Typhoid
Tetanus

16. Which of the following statement is correct for a chronic case?

It is a long-lasting disease
It lasts for a short period.

It does not damage any organ.
All the above.

17. Congenital disease is
Deficiency disease
Present from the time of birth
Spread from man to man
That occurs during lifetime

18. Which of the following is a mismatch?
Leprosy- Bacterial infection
AIDS- Bacterial infection
Malaria- Protozoan infection
Common cold- Viral infection

19. Fever, slow pulse, abdominal tenderness and rose coloured rash indicate the disease
Measles
Typhoid
Chickenpox
Tuberculosis

20. If you live in an overcrowded and poorly ventilated house, it is possible that you may suffer from
Waterborne disease
Airborne disease
Congenital disease
Sexually transmitted disease

21. Which one of the following is not important for individual health?
Living in a clean place
Good economic condition
Social equality and harmony
Living in large, well-furnished house

22. We should not allow mosquitoes to breed in our surroundings as they
Are vectors of many diseases
Bite and cause skin diseases
Are not economically important insects
Cause pollution

23.Children are vaccinated against polio because
Vaccination kills polio causing microbes
Prevents the entry of polio causing organisms
It creates immunity against the virus.
All the above

24.What is common between Malaria and Dengue? They spread by
Droplets
Housefly
Mosquito
Sexual contact

25.Liver is damaged by the ____i____ in the disease ____ii____.
i-bacteria, ii- pneumonia
i- bacteria, ii- jaundice
i- Virus, ii- Pneumonia
i- Virus, ii- jaundice

26.Microbes are immediate cause of _____ disease.
Infectious
Non-infectious
Acute
Chronic.

Answers:

Multiple Choice Questions

1-a, 2- c, 3- d, 4- b, 5- a, 6- b, 7- a, 8- b, 9- a, 10- c, 11- d, 12- b, 13- d, 14- a, 15- a,
16- a, 17- b, 18- b, 19- b, 20- b, 21- d, 22- a, 23- d, 24- c, 25- d, 26- a

In-Text Questions Solved

NCERT Textbook– Page 178:

Question 1. State any two conditions for good health

Answer: Two conditions essential for good health are:

1. State of physical, mental and social well-being.
2. Better surroundings or -environment.

Question 2. State any two conditions essential for being free of disease.

Answer. The two conditions essential for being free of disease are:

1. Personal and -domestic .hygiene.
2. Clean environment and surroundings

Question 3. Are the answers to the above questions necessarily the same or different ? Why ?

Answer: The answer to the above questions are different because a person may be free of disease but his mental, social or economical health may not be good.

NCERT Textbook – Page 180

Question 1. List any three reasons why you would think that you are sick and ought to see a doctor. If only one of these symptoms were present, would you still go to the doctor? Why or why not?

Answer: The 3 reasons why one would think that he is sick are—(1) headache, (2) cold and cough, (3) loose-motions.

This indicates that there may be a disease but does not indicate what the disease is. So one would still visit the doctor for the treatment and to know the cause of above symptom.

Even in case of single symptom one needs to go to the doctor to get proper treatment.

Question 2. In which of the following case do you think the long-term effects on your health are likely to be most unpleasant?

- If you get jaundice
- If you get lice

- If you get acne.

Why.

Answer: In the above cases, lice and acne are acute problems of our health which can be cured in short duration. But jaundice is the disease that can have most unpleasant effect on our health as it affects the most important organ of our body i.e., liver. This disease is a chronic one.

NCERT Textbook– Page 187

Question 1. Why are we normally advised to take bland and nourishing food when we are sick?

Answer: We are advised to take bland and nourishing food when we are sick because our body needs energy to release cells to overcome the infection, the wear and tear of body organ. The nourishing food provides nutrients to our body that will further provide energy and make new cells. No spices in the food makes its digestion process faster, does not release acids in the body that can interfere in the treatment and cure.

Question 2. What are the different means by which infectious diseases are spread?

Answer: The different means by which infectious diseases spread are:

(a) Through air: They are also called air-borne diseases. The air carries bacteria, virus and the diseases that can be caused are: common cold, influenza, tuberculosis etc.

(b) Through food and water: When one eats/drinks contaminated food/water, that contains bacteria, virus, worm etc. it can cause diseases like cholera typhoid, hepatitis.

(c) Through contact: Many diseases spread by contact of infected person with the healthy person. Example, fungal infections, skin diseases, scabies etc.

(d) By sexual contact: Many diseases can be transmitted, example, syphilis, AIDS.

(e) By body fluids: Fluids like blood, semen, mother's milk, when infected, can also cause diseases. Example, AIDS.

(f) Vectors: The organism that spreads a disease by carrying pathogens from one place to another is called vector. Example, mosquitoes are vectors that carry pathogens like protozoa.

Question 3. What precautions can you take in your school to reduce the incidence of infectious diseases?

Answer: The precautions that one can take in school to reduce the incidence of infectious diseases are

- (a) By using handkerchief while coughing sneezing.
- (b) Washing hands before eating tiffins.
- (c) Staying at home if anyone suffers from infectious diseases.
- (d) Getting vaccinated before the infection affects.
- (e) Keeping the school surroundings clean, checking for stagnant water.

Question 4. What is immunisation?

Answer: When the body attains immunity against any disease, due to vaccination. This process is called immunisation.

Question 5. What are the immunisation programmes available at the nearest health centre in your locality? Which of these diseases are the major health problems in your area?

Answer: The immunization programmes available at the nearest health care centres are:

- 1. Child immunization programme starts from 0 to 12 years.
- 2. Polio eradication programme
- 3. H₁N₁ screening programme

Age	Immunisation
Infant	Polio, B.C.G
6 weeks—9 weeks	D.P.T, tetanus
9-12 months	booster doses, chickenpox, hepatitis A, B etc.

In major areas tuberculosis cases are reported in a large number which is a major concern.

Questions From NCERT Textbook

Question 1. How many times did you fall ill in the last one year? What were the illnesses?

(a) Think of one change you could make in your habits in order to avoid any of/ most of the above illnesses.

(b) Think of one change you would wish for in your surroundings in order to avoid any of/most of the above illness.

Answer: The illness was 2-3 times, common-cold, occurred in a year.

(a) One change I would make in my habits in order to avoid the above illness is that I would take proper diet rich in vitamin C and would avoid too cold food.

(b) The surroundings should be neat, and clean,

Question 2. A doctor/nurse/health worker is exposed to more sick people than others in the community. Find out how she/he avoids getting sick herself/himself?

Answer: A doctor/nurse/health worker when exposed to sick people they keep their nose and mouth covered, take care of hygiene, wash hands with soap before drinking water or eating food. They use mask, gloves, etc to avoid the direct contact with the person suffering from infectious diseases.

Question 3. Conduct a survey in your neighbourhood to find out what the three most common diseases are. Suggest three steps that could be taken by your local authorities to . bring down the incidence of these diseases.

Answer:

Common-diseases In neighbourhood	Steps to bring down the diseases spread

1. Malaria	1. Clean surrounding
2. Typhoid	2. Clean drinking water
3. Cough and cold	3. Childhood immunisation

Question 4. A baby is not able to tell bis/her.caretakers that she/he is sick. What would help us to find out

(a) that the baby is sick?

(a) what is the sickness?

Answer:

(a) The symptoms like body temperature, fever, cough, cold, loose-motions, non-stop crying improper or no food intake etc. would help up to find that the baby is sick.

(b) The symptoms could help us to find out the sickness of the body.

Question 5. Under which of the following conditions is a person most likely to fall sick?

(a) When she is recovering from malaria.

(b) When she has recovered from malaria and is taking care of someone suffering from chicken-pox.

(c) When she is on a four-day fast after recovering from malaria and is taking care of someone suffering from chicken-pox.

Why?

Answer: (c) When she is on a four-day fast after recovering from malaria and is taking care of someone suffering from chicken-pox.

As the person is not taking proper diet which is required for her proper health and healing of body.

Her chances of getting chicken-pox also high as her body's immunity has lowered.

Question 6. Under which of the following conditions are you most likely to fall sick?

(a) When you are taking examinations.

(b) When you have travelled by bus and train for two days.

(c) When your friend is suffering from measles.

Why?

Answer: (c) When your friend is suffering from measles, as it is an infectious disease.

XXTTTRRRRAAAAAA AMMUNITION

Very Short Answer Questions

Question 1.

What is meant by symptoms of a disease?

Answer:

The conditions in which a sick person experience headache, watering of eyes, loose motions, are collectively called the symptoms of a disease.

Question 2.

Define reservoir.

Answer:

A reservoir is defined as any person, animal, arthropod, plant, soil or substance in which an infectious agent lives and multiplies for its primary survival.

Question 3.

What is a source of infection?

Answer:

Person, animal, object or substance from which an infectious agent passes or is disseminated to the host is known as the source of infection.

Question 4.

How can we diagnose a disease?

Answer:

By laboratory tests.

Question 5.

What is community health?

Answer:

It is the personal health along with the environmental services for the importance of health of the community.

Question 6.

What does WHO stand for?

Answer:

World Health Organisation.

Question 7.

How can dehydration of the body be prevented?

Answer:

Dehydration can be prevented by intake of ORS (Oral Rehydration Solution).

Question 8.

How does WHO define health?

Answer:

WHO defines health as a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity.

Question 9.

Classify diseases on the basis of their time of occurrence.

Answer:

Congenital diseases and acquired diseases.

Question 10.

What are congenital diseases?

Answer:

The diseases which are present from the time of birth and are hereditary are called congenital diseases.

Question 11.

Write the name of a disease that spreads through direct contact.

Answer:

Leprosy

Question 12.

Why is rabies also called as hydrophobia?

Answer:

Rabies is also called as hydrophobia because its main symptom is fear of water.

Question 13.

Name the disease-causing microbe that lives and remains active inside the host cell.

Answer:

Virus

Question 14.

Against what disease BCG vaccine is given?

Answer:

Tuberculosis

Question 15.

What are vectors?

Answer:

The organisms that act as intermediaries and carry the infectious agents from a sick person to a potential host are called vectors.

Question 16.

Name the vector of malaria.

Answer:

Female Anopheles mosquito.

Question 17.

What do you mean by immune system?

Answer:

The system in our body which protects us from the various disease-causing agents is called immune system.

Question 18.

Expand AIDS.

Answer:

Acquired Immuno Deficiency Syndrome

Question 19.

Expand HIV.

Answer:

Human Immunodeficiency Virus.

Question 20.

What is the incubation period of hepatitis B?

Answer:

45 to 185 days

Question 21.

How can AIDS be transmitted?

Answer:

AIDS can be transmitted through sexual intercourse, use of contaminated syringes as well as by transfusion of contaminated blood.

Question 22.

When is World AIDS Day observed?

Answer:

On 1 st December

Question 23.

What is immunity?

Answer:

Immunity is the ability of the body to defend against a disease.

Question 24.

Deficiency of which vitamin causes xerophthalmia.

Answer:

Vitamin A

Question 25.

Expand OPV.

Answer:

Oral Polio Virus vaccine

Question 26.

Give the name of two diseases which result from protein malnutrition.

Answer:

Kwashiorkor and marasmus

Question 27.

What is the cause of the disease beri-beri?

Answer:

Deficiency of water-soluble vitamin B₁ (thiamine) causes beri-beri.

Question 28.

Give the full form of PEM.

Answer:

Protein Energy Malnutrition

Question 29.

What is the function of haemoglobin?

Answer:

Transport of oxygen from lungs to all cells of the body through blood.

Question 30.

Name the mineral present in haemoglobin.

Answer:

Iron

Question 31.

Name the fat-soluble vitamins.

Answer:

Vitamin A, D, E and K are fat soluble.

Question 32.

Name the disease caused by the deficiency of iodine.

Answer:

Goitre

Question 33.

While going abroad why is it essential to get vaccinated against certain diseases?

Answer:

A person may be a carrier of a disease, such a person can carry the disease to a foreign country. To avoid this the person is vaccinated.

Question 34.

What is the method of transmission of the disease cholera?

Answer:

Contaminated water

Question 35.

Which vitamin is formed by the body with the help of sunlight?

Answer:

Vitamin D

Question 36.

Name the disease caused by the deficiency of vitamin D.

Answer:

Rickets

Question 37.

Name the disease which causes swollen and bleeding gums.

Answer:

Scurvy

Question 38.

What is the name of the disease that occurs in people who eat polished rice everyday?

Answer:

Beri-beri

Question 39.

Why should not vegetables and pulses be washed repeatedly for a long time?

Answer:

Repeated washing of vegetables and pulses results in depletion of vitamin C which is a water-soluble vitamin.

Question 40.

What is an antibiotic? Give two examples.

Answer:

Antibiotic is a chemical substance secreted by microorganisms which can kill bacteria. For example, penicillin and streptomycin.

Question 41.

Name any two groups of microorganisms from which antibiotics could be extracted.

Answer:

Bacteria and fungi

Question 42.

Who discovered 'vaccine' for the first time? Name two diseases which can be prevented by using vaccines.

Answer:

Edward Jenner discovered vaccine for the first time. Small pox and polio can be prevented by using vaccines.

Short Answer Questions-I

Question 1.

What is a balanced diet?

Answer:

A balanced diet is the one which contains a variety of foods in such quantities and proportions that the need for energy, amino acids, vitamins, minerals, water and roughage is adequately met for maintaining health, vitality and general well being.

Question 2.

Why is immune system essential for our health? [NCERT Exemplar]

Answer:

The immune system of our body is a defence mechanism to fight against pathogenic microbes. It has cells that are specialised to kill infecting microbes and keep our body healthy. If the body's immune system is strong, it can easily fight pathogens, keeping us healthy.

Question 3.

Why is mother's milk best for babies?

Answer:

Mother's milk is rich in proteins and other nutrients. It provides a complete diet to the baby. Intake of mother's milk increases body weight, body muscles and subcutaneous fat.

Question 4.

What are the two basic principles of prevention of infectious diseases?

Answer:

The two basic principles of prevention of infectious diseases are:

Prevention from exposure to infectious microbes.

Provision of proper nutrition to keep the immune system in a healthy state.

Question 5.

What is the mechanism of action of antibiotics?

Answer:

Antibiotics are chemical substances obtained from some microbes, which stop the growth of specific kind of pathogens. They block certain biochemical pathways important for the lifecycle of pathogen. For example, penicillin does not allow cell wall formation in some bacteria. It blocks chemical reaction required for cell wall formation.

Question 6.

‘Public cleanliness is important for individual health’. Comment.

Answer:

The garbage thrown in open places, overflowing drains or sewer water, stagnant water, etc. are the places where disease-causing microbes multiply and mosquitoes and flies breed. These mosquitoes and flies act as carriers of disease-causing microbes. As a result, diseases may spread in the community and affect individual health. Thus, public cleanliness is important for individual health.

Question 7.

Why is vaccination considered a prevention of diseases?

Answer:

Vaccines induce a specific immune response in the body. This response also produce memory cells which persist in the body even in the absence of pathogen. If the pathogen attacks the body again, the immune system with the help of memory cells recognise it and destroy it before it causes the disease.

Question 8.

Why is social equality necessary for individual health?

Answer:

If the mind is cheerful and happy, people are not prone to tensions. Moreover, as they are not disturbed, they will take care about doing anything which affects their health. On the other hand, if people are socially disturbed and unsafe, they cannot be happy and healthy. So, social equality is necessary for individual health.

Question 9.

Why are good economic conditions needed for individual health?

Answer:

First of all, for good health, proper and sufficient food is necessary. This food can be obtained only by spending money, for which the individual has to earned. So, opportunity to work and earn have to be made available for which there must be good economic conditions in the society.

Question 10.

Describe congenital disease.

Answer:

Congenital disease is the one that is present in an individual from birth. This may be due to genetic abnormality, metabolic disorders or malfunctioning of any body

organ. These are permanent and are generally not easily curable. These are passed to the children from parents.

Question 11.

Describe deficiency diseases.

Answer:

Deficiency diseases are caused due to deficiency of certain nutrients in our diet like proteins, minerals and vitamins. It is a type of non-communicable disease.

Examples: Kwashiorkor, marasmus, anaemia, etc.

Question 12.

Describe degenerative diseases.

Answer:

Degenerative diseases are caused due to malfunctioning of body organs or degeneration of tissues in old age. It is a type of non-communicable disease.

Example: Kidney failure is due to improper functioning of kidneys, cancer is due to uncontrolled growth of tissues in any part of the body, etc.

Question 13.

Why is it considered important to study the different categories of infectious agents?

Answer:

The infectious agents have been categorised, as these categories are important factors in deciding the kind of treatment to be used to treat the diseases caused by them.

Question 14.

Why there is no use of giving vaccine of hepatitis A virus?

Answer:

As the majority of children in many parts of India are exposed to the virus causing hepatitis A, they are already immune to hepatitis A by the time they are five years old. So, there is no use of giving vaccines.

Question 15.

Why are antibiotics not effective for viral disease?

Answer:

Antibiotics act by inhibiting the biosynthetic pathways. This way they eventually die. However, viruses do not have components for the biosynthetic pathways.

Instead, they utilise the components of the host body to complete their life cycles. Therefore, antibiotics are not effective against viruses.

Question 16.

- (i) Which bacterium causes peptic ulcers?
- (ii) Who discovered the above pathogen for the first time?

Answer:

- (i) *Helicobacter pylori*.
- (ii) Marshall and Warren.

Question 17.

What do you mean by disease symptoms? Explain giving two examples.

Answer:

When the functioning or the appearance of one or more systems of the body will change for the worse, it gives certain abnormal signs of the disease. These visual changes in human beings are called symptoms. Symptoms give indication of the presence of a particular disease.

Examples:

Cough is the symptom of lung infection.

Lesions on the skin are the symptoms of chicken pox.

Question 18.

Becoming exposed to or infected with an infectious microbe does not necessarily mean developing noticeable disease. Explain.

Answer:

Because of strong immune system, our body is normally fighting off microbes. We have cells which are specialised to kill the pathogenic microbes. These cells are active when infecting microbes enter the body and if they are successful in removing the pathogen, we remain disease-free. So even if we are exposed to infectious microbes, it is not necessary that we suffer from diseases.

Question 19.

- (i) Name two diseases caused by Protozoa.
- (ii) What are their causal organisms?]

Answer:

- (i) Sleeping sickness caused by *Trypanosoma* and malaria by *Plasmodium*.
- (ii) Kala-azar caused by *Leishmania*.

Short Answer Questions-II

Question 1.

What are the constituents of a balanced diet?

Answer:

Constituents of a balanced diet are as follows:

Carbohydrate: It provides 50-70% of total energy intake.

Fat: For an adult, fat should provide 20% of total energy intake. Children require more fat so as to suffice 50% of the total energy intake.

Proteins: Protein intake should be about 15-20% of the total daily energy intake.

Vitamins and minerals

Water

Roughage

Question 2.

Write four common symptoms of malaria.

Answer:

Sudden appearance of fever with pain and sensation of cold shivering.

Body temperature rises up to 106°F and patient becomes burning hot. He or she experiences intense headache, faster breathing rate and heart beat.

Fever later comes down with profuse sweating. This occurs either daily at a particular time or is repeated every third or fourth day depending upon the species of the parasite.

Enlargement of spleen and anaemia occurs.

Question 3.

Write the distinct species of malarial parasite in man.

Answer:

Malaria in man is caused by four distinct species of malarial parasites:

Plasmodium vivax: incubation period in human is 8-17 days.

P. falciparum: incubation period in human is 9-14 days.

P. malariae: incubation period in human is 18-40 days.

P. ovale: incubation period in human is 16-18 days.

Question 4.

What is the difference between being 'healthy' and 'disease-free'?

Answer:

A person is said to be healthy when:

All the organs and systems of the body are intact and working well.

One is mentally balanced, free from anxieties and tensions.

One is socially well-adjusted in the family, friends and society.

Whereas being 'disease-free' means absence of any body discomfort. Thus, being healthy is not just freedom from disease.

Question 5.

What are the immediate and contributory causes of diseases? Explain it with the example of a child suffering from diarrhoea.

Answer:

Immediate cause of a disease is the primary factor causing a disease. Contributory causes are factors, which do not cause the disease themselves but provide conditions for the disease to occur. Virus causing diarrhoea is the immediate cause. Contaminated drinking water and lack of resistance due to under-nourishment are the contributory causes.

Question 6.

Write the symptoms when following organs are targeted by microbes.

- (a) Lungs
- (b) Liver
- (c) Brain

Answer:

- (a) Lungs — cough, breathlessness
- (b) Liver — jaundice
- (c) Brain — headache, vomiting, fits.

Question 7.

Enlist the cause of diseases.

Answer:

Disease may be caused due to any of the following reasons:
infection

Lack of nutritive and sufficient food

Poor health

Lack of public services

Hereditary reasons.

Question 8.

Describe health care.

Answer:

Health care is provided to vast majority of poor, rural and urban people through effective health care centres. Health care services provide different types of care at primary health care centre and 'secondary health care centers.

Primary health care is provided by the primary health centres established in small towns and villages, through the agency of health workers, village health guide and trained dhayyas.

Secondary health care deals with more complex problems. It is generally provided in district hospitals and community health centers.

Question 9.

What determines the severity of disease manifestation?

Answer:

The number of disease-causing microbes in the body decide the severity of disease manifestation. If the number of microbes is very small, the disease manifestations may be minor and even go unnoticed. But if the number of microbes is large, the disease can be severe. In fact if the number of microbes is very large, the disease can even be fatal. Our immune system is a major factor that determines the number of microbes surviving in the body.

Question 10.

Differentiate between communicable and non-communicable diseases.

Answer:

Communicable Diseases	Non-communicable Diseases
1. These diseases can be transmitted from an infected person to a healthy person.	1. These diseases cannot be transmitted.
2. These are spread by microorganisms called pathogens.	2. These are caused by deficiency of nutrients or hormone, tumour formation, etc.
3. e.g., Cholera, influenza, AIDS, malaria, etc.	3. e.g., Diabetes, marasmus, goitre, cancer, etc.

Question 11.

Name the infectious disease that leads to immunodeficiency. Give the scientific name of the pathogen causing the disease and mention the body organs it primarily affects.

Answer:

AIDS is an infectious disease that leads to immune deficiency and wasting of body parts. It is caused by Human Immunodeficiency Virus (HIV). HIV attacks helper T-lymphocytes, thus causing cell-mediated immunodeficiency, which makes the body more prone to various infections.

Question 12.

Name fat-soluble vitamins and diseases caused by them.

Answer:

Fat-soluble vitamins include vitamin A, D, E and K.

Vitamin	Deficiency Diseases
A	Xerophthalmia, night-blindness, keratomalacia
D	Rickets in children, osteomalacia in adults
E	Anaemia
K	Bleeding disease

Question 13.

What are the causes and symptoms of goitre?

Answer:

Goitre is caused due to deficiency of iodine in the diet.

Symptoms of goitre are as follows:

Abnormal growth of thyroid gland situated in the front part of the neck.

Increase in body weight due to accumulation of fat and retention of water in the body.

Increased rate of spontaneous abortion and still birth.

Disorder in nervous system. Iodine deficiency in childhood causes reduced functioning of the thyroid gland resulting in retarded growth.

Question 14.

What are the sources of iodine? What are the prevention and control methods of goitre.

Answer:

Sources of iodine: The best sources of iodine are sea foods and cod liver oil. A smaller amount of iodine occurs in milk, leafy vegetables, cereals and meat, etc. Iodised salt contains sufficient amount of iodine.

Prevention and control of goitre: It can be prevented by providing iodine in the diet in the form of iodised salts, such as potassium iodate and potassium iodide. These can be added in drinking water or in common salt used daily. Intra-muscular injection of iodised oil or sodium iodide tablets developed by Indian Council of Medical Research is quite effective in curing goitre.

Question 15.

What are the indirect modes of transmission of infectious diseases?

Answer:

Indirect transmission occurs through flies, food and fluid, etc. Infectious agents are transmitted through water and food including vegetable, fruits, milk, milk products, ice, blood serum, plasma, etc. Their transmission is vehicle-borne. Some examples are as follows:

1. Hepatitis A virus	Multiplies in water
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2. Diarrhoea, typhoid fever, polio, cholera	Transmitted by water and food
3. Hepatitis B, malaria, syphilis, chagas disease	Transmitted by vectors

Question 16.

What are the common preventive measures against communicable diseases?

Answer:

The common preventive measures against communicable diseases include:

Eradication of vectors and carriers.

Immunisation (vaccination).

Proper and safe water supply.

Personal and community hygiene.

Sterilisation of articles used by the patients.

Isolation of patients from the healthy persons.

Health education.

Question 17.

Name the diseases caused by the following—

Protozoa,

Virus,

Bacteria,

Fungi. How is malaria transmitted?

Answer:

The diseases caused by various microorganisms are as follows:

Protozoa: Malaria, amoebiasis, dysentery, giardiasis, kala-azar, etc.

Virus: AIDS, polio, dengue, rabies, chicken pox, influenza, etc.

Bacteria: Pneumonia, diphtheria, tuberculosis, meningitis, leprosy, typhoid, tetanus, syphilis, etc.

Fungi: Fungi mainly causes skin diseases and food poisoning.

Malaria is caused by a parasite found in female Anopheles mosquitoes. When the mosquitoes carrying the malarial parasite bite a person, the parasite enters the blood stream and the person suffers from malaria.

Question 18.

What are the three limitations which one has to face while dealing with an infectious disease?

Answer:

The three limitations which one has to face while dealing with an infectious disease are:

The body functions are damaged drastically and may never recover completely if not cared.

The treatment will take time, which means that someone suffering from a disease is likely to be bed-ridden for sometime.

The person suffering from an infectious disease can serve as a source from where the infection may further spread to other people.

Question 19.

What is immunity? Explain natural and acquired immunity.

Answer:

Immunity means the resistance of the body to a disease. It is due to the presence of antibodies in our body against the disease-causing microorganisms known as antigens. When these antigens enter our body, antibodies are formed which prevent the disease.

Natural immunity means that a person has these antibodies since birth, e.g., whenever antigens, say of cholera enter the body, the person will not suffer from the disease.

Acquired immunity means when a person suffers from a disease once, antibodies for these particular disease-causing antigens will be formed in the body and he will not get the same disease again.

Question 20.

Give an example where tissue specificity of the infection leads to very general seeming effects.

Answer:

We can see the tissue specificity of the infection leading to very general seeming effects in case of HIV infection. The HIV attacks the immune system via the lymph nodes. From here it spreads all over the body and damages its functions. Because of this, the body becomes prone to various diseases as it cannot fight off even the minor infections which otherwise would not have lasted longer.

For example, even a small cold can become pneumonia and a minor gut infection may lead to a severe case of diarrhoea with blood loss.

In the same way, other infections kill people that are suffering from, e.g., HIV-AIDS.

The tissue specificity of the infection (HIV-AIDS) is lymph nodes. General seeming effects are loss of immunity even to minor diseases or infections that ultimately lead to the death of the patient.

Question 21.

What precautions will you take to justify “prevention is better than cure”? Answer:
Following precautions should be taken for prevention of diseases:

Maintaining hygienic conditions.

Awareness about the disease and its causal organism.

Intake of a balanced diet.

Regular medical check-up.

Question 22.

Give any four factors necessary for a healthy person.

Answer:

For a healthy person it is necessary that
the surrounding environment should be clean. Air and water-borne diseases should
not spread.

personal hygiene is maintained to prevent infectious diseases.

proper, sufficient nourishment and food is available for good immune system of
our body.

body is immunised against severe diseases.

Long Answer Questions

Question 1.

Discuss the causes, symptoms, preventive measures and treatment of AIDS.

Answer:

AIDS is caused by a retrovirus, HIV (Human Immunodeficiency Virus). It is
transmitted from an infected to a healthy person through sexual contact, blood
transfusion, use of infected needle or blade. Also, it may get transmitted from
infected mother to her foetus.

Symptoms:

Inflammation in lymph glands.

Loss of weight and sweating during night.

Bleeding and fever.

Severe damage to the brain which may even lead to loss of memory. In some cases,
the person may cease to speak and even think.

Above all, the possibility of other diseases also increases because of the damage
caused to the immune system.

Prevention:

By avoiding sexual contact with unknown persons.
By using sterilised needles, blades, etc.
By ensuring that the blood to be transfused is free from HIV.

Question 2.

What do you mean by disease? Describe the various causes of diseases.

Answer:

Disease is defined as a condition of the body or a part of it in which its normal functioning gets disturbed. The main causes of diseases are:

Biological agents which are disease-causing microorganisms or pathogens like viruses, bacteria, fungi, protozoans, etc.

Physical agents like heat, cold, radiation, humidity, pressure, electricity, sound, etc.

Mechanical agents such as chronic friction as well as other mechanical forces that cause injuries, trauma and fractures, etc.

Chemical agents which are of two types:

Endogenous chemical agents which are formed in the body, like urea, uric acid, etc.

Exogenous chemical agents which enter the body of the individual from outside, like metals, spores and pollens, etc.

Inherited diseases: Some diseases are because of the hereditary reasons, disturbance in chromosomes or genes.

Social agents which may cause mental disorders.

Deficiency diseases are caused by insufficiency, absence or excess of a nutrient necessary for health.

Question 3.

Discuss types of anaemia with their symptoms.

Answer:

Iron deficiency in the body results in anaemia. Nutritional anaemia is a disease syndrome caused by malnutrition. It is of two types:

Microcytic anaemia

Pernicious anaemia

Microcytic anaemia: It occurs due to deficiency of iron in human diet.

Symptoms:

An anaemic person:

becomes pale, weak and tired.

loses appetite.

loses body weight.

Pernicious anaemia: It is caused due to deficiency of vitamin B₁₂.

Symptoms: Patient becomes paler, shortness of breath after slight exertion, loss of weight, weakness, etc. It may be fatal.

Question 4.

Why is AIDS considered to be a 'syndrome' and not a disease?

Answer:

AIDS causing virus—HIV that comes into the body via the sexual organs or blood transfusion will spread all over the body through lymph nodes. The virus damages the immune system of the body and due to this the body can no longer fight off many minor infections. Instead, every small disease like cold can become severe pneumonia or minor gut infection can become severe diarrhoea with blood loss. The effect of disease becomes very severe and complex, at times killing the person suffering from AIDS. Hence, there is no specific disease symptom for AIDS but it results in a complex disease. Therefore, it is known as a syndrome.

Question 5.

What are the essential components of primary health care?

Answer:

Primary health care includes the following essential components:

Providing education concerning prevailing health problems and methods of preventing and controlling them.

Provision of food supply and proper nutrition.

Adequate supply of safe and clean drinking water and basic sanitation.

Provision of maternal and child health care.

Immunisation against major infectious diseases.

Prevention and control of local epidemic diseases.

Appropriate treatment of common diseases and injuries.

Provision of essential drugs.

Promoting health education in schools and colleges.

Question 6.

Describe influenza with its symptoms and prevention.

Answer:

Influenza or flu is an acute respiratory tract infection caused by influenza virus. It is of three types— A, B and C. Influenza virus A and B have caused epidemics throughout the world. Influenza virus C occurs sporadically in the form of small outbreak. Major reservoirs of influenza virus are animals and wild birds. Influenza is spread mainly from person to person by droplet infection created by sneezing, coughing or talking and enters the respiratory tract. Its incubation period is 18 to

72 hours.

Symptoms: Fever, chills, aches and pain, coughing and weakness.

Prevention: Sufferers should cover their faces with handkerchief while coughing and sneezing. Healthy persons should remain away from such patients.

Question 7.

Distinguish between acute diseases and chronic diseases.

Answer:

Acute Diseases	Chronic Diseases
1. Last for short periods of time, <i>e.g.</i> , common cold.	1. Last for a long time, even life-time, <i>e.g.</i> , elephantiasis.
2. Cause major effects on general health in a very short time.	2. It takes a long time to cause major effects on general health.
3. Feeling of tiredness does not occur all the time.	3. In case of chronic disease, one feels tired all the time.
4. Weight-loss does not occur and one does not become short of breath.	4. Weight-loss occurs and one becomes short of breath.
5. Acute diseases do not have long-term effects.	5. Chronic disease have long-term effects.

Question 8.

Differentiate between kwashiorkor and marasmus.

Answer:

Kwashiorkor	Marasmus
1. Occurs due to deficiency of protein in the diet.	1. Occurs due to deficiency of protein, carbohydrate and fat in the diet.
2. Child shows oedema in lower legs, lower arms and usually in face.	2. No swelling.
3. Appetite is poor. Skin shows no change.	3. Appetite is usually good. Skin is flaky with diffused pigmentation.
4. Irritable, moaning and apathetic.	4. Quiet and apathetic.
5. It occurs in children from one to five years of age.	5. It occurs in infants up to one year of age.

Question 9.

Explain giving reasons:

- Balanced diet is necessary for maintaining healthy body.
- Health of an organism depends upon the surrounding environmental conditions.
- Our surrounding area should be free of stagnant water.
- Social harmony and good economic conditions are necessary for good health.

Answer:

- (a) Food is necessary for the growth and development of the body. Balanced diet provides raw materials and required energy in appropriate amount through nutrients like proteins, carbohydrates, fats, minerals, etc. which in turn are essential for the proper growth and functioning of a healthy body.
- (b) Health is a state of being well enough to function physically, mentally and socially and these conditions in turn depend upon the surrounding environmental conditions, e.g., if there are unhygienic conditions in surrounding area, it is likely that we might get infected or diseased.
- (c) This is so because many water-borne diseases and insect vectors flourish in stagnant water which cause diseases in human beings.
- (d) Human beings live in societies and different localities like villages or cities, which determine the social and physical environment and hence both are to be kept in harmony. Public cleanliness is important for individual health. For better living conditions money is required. We need good food for healthy body and for this we have to earn. For the treatment of diseases also, one has to be in good economic condition.

(Higher Order Thinking Skills)

Question 1.

Why is making anti-viral drugs more difficult than making anti-bacterial medicines?

Answer:

Because viruses have very few biochemical mechanisms of their own.

Question 2.

If you live in an overcrowded and poorly ventilated house, you may suffer from which of the following diseases?

- (a) Cancer
- (b) AIDS
- (c) Air-borne diseases
- (d) Cholera

Answer:

- (c) Air-borne diseases

Question 3.

Name the target organs for the following diseases

- (a) Hepatitis targets _____.
- (b) Fits or unconsciousness targets _____.
- (c) Pneumonia targets _____.
- (d) Fungal disease targets _____.

Answer:

- (a) Liver
- (b) Brain
- (c) Lungs
- (d) Skin

Question 4.

Classify the following diseases as infectious or non-infectious.

- (a) AIDS
- (b) Tuberculosis
- (c) Cholera
- (d) High blood pressure
- (e) Heart disease
- (f) Pneumonia
- (g) Cancer

Answer:

- (a) Infectious
- (b) Infectious
- (c) Infectious
- (d) Non-infectious
- (e) Non-infectious
- (f) Infectious
- (g) Non-infectious

Question 5.

Why do some children fall ill more frequently than others living in the same locality? Answer:

Frequency of falling ill depends on the strength of the body's immune system to fight common pathogens. Due to poor immune system, some children fall ill frequently. Balanced diet and proper nutrition for healthy body is required to have a strong immune system.

Question 6.

Why should we always cover our nose while sneezing?

Answer:

Microbes present in our lungs and respiratory tracts can spread through tiny droplets thrown out during sneezing. Anyone standing close-by can inhale air containing these droplets and get infection. Therefore, we should always cover our nose while sneezing.

Question 7.

If you go to hospital to meet your friend suffering from malaria, what are the chances of malaria spreading to you and your friends?

Answer:

Malaria is an infectious disease caused by a protozoan and is spread by Anopheles mosquito vector. It cannot spread by simply being with the patient or by contact.

VERY SHORT ANSWER QUESTIONS

Question 1.

Name the disease that can be caused by UV radiations.

Answer:

Skin cancer.

Question 2.

Why does intake of penicillin not affect human cells. ?

(CCE 2014)

Answer:

Penicillin inhibits the formation of cell wall which is present in bacteria but is absent around human cells.

Question 3.

What is symptom of a disease ?

Answer:

Symptom of a disease is manifestation of a structural or functional change in the body, e.g., cough, fever, diarrhoea.

Question 4.

You have suffered from chicken pox when you were in class three. Why will you not suffer from it again ?

Answer:

A single chicken pox infection gives life long immunity as the memory cells and specific antibodies remain active throughout the life of a person.

Question 5.

How does infection spread from an unhealthy person to a healthy person ?

Answer:

Direct contact, air, fomite or vector.

Question 6.

The immediate causes of many diseases are not infectious.

Name any two such diseases.

Answer:

Diabetes, hypertension, cancer.

Question 7.

Which type of disease causes more damage to our body — acute or chronic and why ?

Answer:

Chronic disease causes more harm to the body as it is of longer duration and damages the affected organs.

Question 8.

Name one organ each affected by :

1. Malaria
2. Tuberculosis.

Answer:

1. Malaria Liver, RBCs, Spleen.
2. Tuberculosis Lungs.

Question 9.

Why do female mosquitoes need highly nutrition's food in the form of human blood ?

Answer:

Blood provides nutrients required for egg laying by the female mosquito.

Question 10.

Name the disease caused by Trypanosoma.

Answer:

Sleeping sickness.

Question 11.

Name any two diseases caused by protozoa.

Answer:

Sleeping sickness (Trypanosoma), Malaria (Plasmodium).

SHORT ANSWER QUESTIONS (2 MARKS)

Question 1.

(a) What is an epidemic disease ?

(b) Which organ is affected if a person is suffering from jaundice ?

Answer:

(a) An epidemic disease is the one which spreads rapidly and extensively affecting many individuals simultaneously in a particular area. It is usually an infectious disease, e.g., encephalitis, malaria, dengue,

(b) Liver.

Question 2.

State two consequences which one has to face while dealing with an infectious disease.

Answer:

1. Tissue damage and deranged body functions requiring rest and care to recover.
2. A person suffering from an infectious disease can be a source for spread of disease to other persons.

Question 3.

If your friend is suffering from malaria, what are your chances of catching malaria ?

Answer:

Little chance. Malaria is an infectious disease which is spread by the bite of an infected female Anopheles mosquito. The vector is mostly active during night, that also if it is present in the room of your friend when you are visiting him.

Question 4.

(a) What are vectors ?

(b) In many species of mosquitoes, the males do not prefer blood, but females do. State why ?

Answer:

(a) **Vectors:** They are organisms which spread the pathogens from an infected person to a healthy person, e.g., sandfly, female mosquitoes.

(b) The female mosquitoes of many species require human/ animal blood meal in order to obtain nutrients for laying eggs.

Question 5.

(a) Write any biochemical pathway in bacteria that is blocked by antibiotics like penicillin.

(b) Why is it difficult to make antiviral drugs ?

Answer:

(a) Penicillin blocks cell wall formation in bacteria.

(b) Viruses have very few biochemical pathways of their own so that drugs for their disruption are not easy to manufacture.

Question 6.

What causes encephalitis ? How does it enter the body. Which organ does it infect ?

What are the symptoms, if this organ is infected ?

Answer:

Cause. Encephalitis is generally caused by virus, e.g., JEV in case of Japanese encephalitis.

Entrance. The virus enters the body through the bite of infected mosquito like female Culex.

Organ Infected. Brain.

Symptoms. Inflammation of brain and its membrane causing severe rigors, altered

mental status, seizures, severe headache, stiff neck and bulgings in fontanelles of skull. A vaccine is available against the disease.

Question 7.

Which of the following diseases will cause major ill effects on general health—elephantiasis, cough and cold, tuberculosis, diarrhoea ?

Answer:

Encephalitis and tuberculosis cause major ill effects on health because they are chronic diseases.

Question 8.

Name two bacterial disease that spread through contaminated water.

Answer:

Cholera, typhoid.

Question 9.

Apart from sexual contact, AIDS virus can be spread by which other means ?

Answer:

1. Contaminated needles, syringes and tatooing.
2. Blood transfusion from infected person.

Question 10.

A person is suffering from chest pain, breathlessness, loss of body weight, persistent cough and produces stained sputum. Name the disease.

Answer:

Tuberculosis.

Question 11.

- (a) Name a worm which is found in our small intestine.
- (b) Name the bacteria which can cause acne.
- (c) Which protozoan is responsible for sleeping sickness.
- (d) Which disease is caused by protozoan Leishmania.

Answer:

- (a) Worm. *Ascaris lumbricoides*.
- (b) Acne. *Staphylococcus*. Ans.
- (c) Sleeping Sickness. *Trypanosoma gambiense*.
- (d) *Leishmania donovani*. Kala-azar or black fever.

Question 12.

- (a) List the causative organisms for AIDS.
- (b) Name two fungal diseases.

Answer:

- (a) HIV or human immunodeficiency virus.
- (b) Ringworm, athlete's foot, barber's itch.

Question 13.

What is parasite ? Give two examples.

Answer:

Parasite. It is an organism that obtains its food from a living organism of another species for a part or whole of its life, e.g., Plasmodium (malaria parasite). Vibrio cholerae (cholera causing bacterium).

Question 14.

Write two examples each of

- (a) Viral diseases
- (b) Bacterial diseases.

Answer:

- (a) Viral Diseases: Common cold, Influenza, AIDS.
- (b) Bacterial Diseases: Typhoid, Cholera, Acne.

Question 15.

What are infectious diseases ? Write two ways by which they can be controlled. (CCE 2012, 2013)

Answer:

Infectious diseases are those diseases which are caused by pathogens that can pass from an infected person to a healthy one.

Control,

1. Symptomatic treatment.
2. Killing the infectious agent.

Question 16.

"Community health is essential for good individual health".

Justify this statement by giving examples.

Answer:

Community health is helpful in maintaining good individual health by

1. Proper removal of garbage.
2. Drainage and sewage services.
3. Proper drinking water.
4. Vector and pest control.
5. Unadulterated food articles.
6. Vaccination and other health services.
7. Harmonious social interactions.

Question 17.

List any two ways of preventing the spread of air borne diseases.

Answer:

1. Avoiding visiting over-crowded places.
2. Avoiding coming close to a person suffering from an air borne disease.

Question 18.

Chances of spreading cholera are higher in a village. reason.

Answer:

Cholera spreads through contaminated food and water. In villages, the drinking water is seldom treated. The village ponds are likely to become contaminated as it is used for washing, bathing of animals as well as humans. In some areas pond water is used for drinking as well.

Question 19.

AIDS is a fatal disease. Explain why ?

Answer:

In AIDS, the immune system of the patient becomes weak because HIV destroys helper T-cells of the body. The patient loses the power to fight minor infections with common cold becoming pneumonia or a minor gut infection causes diarrhoea with blood loss. These opportunistic infections kill the patient.

Question 20.

Influenza or common cold spreads faster and is difficult to control. Explain.

Answer:

Influenza or common cold spreads as droplets through air infecting nearly every body coming in near contact with the patient. All the latter will spread the disease to many more persons and so on.

The disease is difficult to control as antibiotics are infective because the disease is viral in nature.

Question 21.

“Being disease free is not the same as being healthy.” Explain the above statement giving an example.

Answer:

Disease free person is the one who does not have any discomfort or derangement in any part of the body. A healthy person is one who is in a state of complete, physical, mental and social well being. For example, a dancer may be disease free but in poor health if one is unable to perform as per requirement.

Question 22.

Explain why some children fall ill more frequently than others living in the same locality.

Answer:

The children who fall ill more frequently might be having

1. Poor health due to undernourishment
2. Unhygienic conditions around them
3. Poor heredity.

Question 23.

Explain how individual health depends upon social and mental well being.

Answer:

Disease is related to individual sufferers but health includes not only disease free but also social and mental well being. Social well being includes good public health services, proper earning and social harmony. Any insufficiency leads to defective health. Similarly, mental health like freedom from depression and anxiety are essential for our optimum and joyful life at work, studies, home and social gatherings.

Question 24.

Although Archana has been suffering from cold and cough, she decided to appear for her class test. Classmates seated close to her had an exposure to the infection being carried by Archana. However, only one of them actually suffered from cold and cough. Explain what prevented rest of her classmates catching cold and cough.

Answer:

For catching a disease a person should

1. Receive an infective dose of pathogen
2. Have lower immunity. Every body sitting near Archana did not receive equal infective dose nor their immunity was weak.

Question 25.

State mode of transmission of

- (a) Syphilis
- (b) Tuberculosis
- (c) Jaundice
- (d) Japanese encephalitis.

Answer:

- (a) Syphilis. Sexual contact.
- (b) Tuberculosis. Droplets through air.
- (c) Jaundice. Contaminated water.
- (d) Japanese Encephalitis. Bite of infected female mosquito Culex.

Question 26.

State any four ways by which AIDS virus spreads from an infected person to a healthy person.

Answer:

1. Unprotected sexual contact with an infected person,
2. Common needles and syringes.
3. Transfusion of infected blood.
4. Transplacental transmission.

Question 27.

Name the triple vaccine which saves the life of babies from three diseases.

Answer:

DPT or vaccine against Diphtheria, Pertussis (Whooping Cough) and Tetanus.

Question 28.

State the method of transmission of each of the following diseases :

- (a) Tuberculosis
- (b) Cholera
- (c) Malaria
- (d) AIDS.

Answer:

- (a) Tuberculosis—Droplets through air.
- (b) Cholera—Contaminated food and water.
- (c) Malaria—Female Anopheles.
- (d) AIDS—Sexual and blood contact.

Question 29.

What causes Japanese encephalitis ? How it can be prevented ?

Answer:

It is caused by JEV or Japanese Encephalitis Virus through bite of infected Culex mosquito.

Prevention,

1. Vaccination,
2. Protection from mosquito bite like gauze wire double doors and windows, mosquito repellents, mosquito nets and elimination of nearby breeding places of mosquitoes.

Question 30.

State two principles of treatments.

Answer:

1. Reduce the effect of disease by giving symptomatic treatment and bed rest.
2. Killing of infectious agents through drugs.

Question 31.

Explain what is organ specific manifestation.

Answer:

It is adaptation of pathogens to infect particular organs of the body. Organ specific manifestation is of two types, portal related. (e.g., lungs for nasal entry in case of pneumonia and tuberculosis) and nonportal organs {e.g., Plasmodium passing into liver and then erythrocytes in blood}.

SHORT ANSWER QUESTIONS (3 MARKS)

Question 1.

1. Differentiate between acute and chronic diseases.
2. Give one example each of acute and chronic diseases,
3. Mention any two causes of baby's disease.

Answer:

1. An acute disease is of shorter duration which causes little damage to the body. A chronic disease is of longer duration which damages the body system affected by it.
2. Example. Acute Disease. Diarrhoea, Typhoid. Chronic Disease. Tuberculosis, Diabetes.
3. Baby's Disease,
 1. Poor improper nourishment.
 2. Contaminated air, water, food.

Question 2.

(i) Match the columns with correct options

(ii) Name any one disease when the microbes target

(a) Liver

I	II
(a) Fungal disease	Dengue fever
(b) Viral disease	Cholera
(c) Protozoan disease	Skin disease
(d) Bacterial disease	Malaria

(b) Lungs. (Answer:

- (i) (a) Fungal disease— Skin disease,
- (b) Viral disease— Dengue fever
- (c) Protozoan disease— Malaria
- (d) Bacterial disease— Cholera.

- (ii) (a) Liver—Jaundice,
(b) Lungs—Pneumonia.

Question 3.

- (i) Give definition of 'health'.
(ii) State and explain in brief the four major factors which are the causes of disease.

Answer:

(i) **Health** is a state of complete physical, mental and social well being that enables one to lead a socially and economically productive life (WHO, 1978).

(ii) **Causes of Disease:**

1. Pathogens: Many bacteria, viruses, fungi, protozoans and worms produce diseases, spreading from an infected person to healthy one through various means of transport, e.g., Malaria, Diarrhoea, TB.
2. Deficiency: Nutrient deficiency including that of minerals and vitamins, leads to several diseases like marasmas, kwashiorkor, pellagra, goitre, anaemia.
3. Genetic Disorders: Caused by defective heredity, e.g., haemophilia.
4. Degenerative Disorders: Natural defects appearing due to senescence, e.g., hypertension, atherosclerosis, arthritis.

Question 4.

- (i) Match the following columns with correct answers

Pathogen	Disease
(a) Leishmania	Worm
(b) Staphylococcus	Kala-azar
(c) Trypanosoma	Acne
(d) Ascaris lumbricoides	Sleeping sickness.

- (ii) "High blood pressure can be caused by excessive weight and lack of exercise".
Justify the statement.

Answer:

- (i) (a) Leishmanh— Kala-azar
(b) Staphylococcus— Acne,

- (c) Trypanosoma— Sleeping sickness
- (d) Ascaris lumbricoides— Worm.
- (ii) Excessive weight and lack of exercise results in development of more body mass that will cause the formation of more blood vessels and hence more blood supply. It will put pressure on heart to pump more blood.

Question 5.

- (a) Which of the following diseases are protozoan in origin : Dengue, Malaria, Kala-azar, HIV-AIDS.
- (b) Suggest any two ways to prevent being infected by protozoa.

Answer:

- (a) Malaria, Kala-azar.
- (b)

1. Protection from vectors (mosquito and sand fly in the above two cases).
2. Proper waste disposal and non-accumulation of stagnant water.

Question 6.

- (a) Write a few common signs and symptoms of the disease if brain is affected.
- (b) Give one local and one general effect of inflammation process.

Answer:

- (a) Headache, vomiting or fits and unconsciousness.
- (b) Local Effect. Pain, redness, swelling. General Effect. Fever.

Question 7.

- (a) Which part of the body is infected by malaria causing microbe ?
- (b) What are the two ways to treat an infectious disease ?

Answer:

- (a) Liver, followed by red blood corpuscles.
- (b)

1. Reduce the effect of disease by symptomatic treatment and rest.
2. Killing the pathogen by medicine.

Question 8.

- (a) Doctors diagnosed that Radha was suffering from HIV-AIDS. List any two methods by which she might have contacted the disease. Name the organ affected by this disease.
- (b) Why antibiotics cannot be used for its treatment ? Justify your answer.

Answer:

- (a)

1. Transfusion of infected blood.
2. Use of infected syringe, blade, razor or tattooing. Organ Affected. Lymph nodes.

(b) HIV-AIDS is a viral disease. Antibiotics have no role in treating viral diseases because viruses have no metabolic machinery of their own (which can be disrupted by an antibiotic).

Question 9.

Ravi suffered from tuberculosis while Rehman suffered from typhoid. Which disease caused more damage and why ?

Answer:

1. Tuberculosis is a chronic disease while typhoid is an acute disease.
2. Chronic disease takes a long time to get cured. It causes damage to the affected organ and other parts of the body. Acute disease of typhoid lasts for a shorter duration and causes little damage to the body.

Question 10.

(a) If a person is suffering from jaundice, name the mode of its transmission and the organ affected by this disease.

(b) List one general mode of prevention of jaundice.

(c) It has been observed that despite the availability of vaccine for hepatitis A in the market, it may not be necessary to be given to children by the time they are 5 years old. Why ?

Answer:

(a) Jaundice (yellowness of sclera of eyes and skin) is commonly spread by contaminated water and food in case of hepatitis A. The organ affected is liver.

(b) Mode of Prevention. Eating hygienic food and drinking disinfected water (by chlorination, boiling or ozonisation)

(c) Hepatitis being a viral infection, is self limited by the body defences. Commonly the children have suffered a bout of hepatitis A by the time they reach the age of 5. Therefore, they have become immune to this hepatitis and do not need vaccine for the same.

Question 11.

What is human immune system ? What is a vaccine ? How immunisation can be achieved ?

Answer:

1. Human immune system is made of two types of lymphocytes, T-lymphocytes and B-lymphocytes. They kill the invading microbes. The killed microbes are removed by phagocytes.
2. Vaccine: It is preparation containing heat killed or chemically weakened pathogen or its surface coating that functions as antigen.
3. Achievement/Basis of Immunisation: Development of immunity or resistance against a pathogen is called immunisation. It develops when a pathogen or its antigen comes in contact with the immune system of the body. The immune system develops specific T-lymphocytes and B-lymphocytes to immobilise and kill the pathogen. Certain T-lymphocytes called memory cells also remain in the body for a long time. Whenever, the

same pathogen enters the body later on, the memory cells help to quickly produce T and B-lymphocytes specific for that pathogen and eliminate the same vigorously.

Question 12.

List any two differences between infectious and non- infectious diseases. Write any one example of each disease.

Answer:

Differences Between Infectious and Non-infectious Diseases

Infectious or Communicable Diseases	Non-infectious or Non-communicable Diseases
<p>1. Cause. They are caused by attack of pathogen.</p> <p>2. Nature. The diseases are brought about by extrinsic or external factors.</p> <p>3. Communicability. Infectious diseases can pass from diseased person to healthy person.</p> <p>4. Transmission. Transmission of infection occurs through direct contact or some agent.</p> <p>5. Community Hygiene. It can reduce the incidence of infectious diseases.</p>	<p>They are caused by factors other than living pathogen.</p> <p>The diseases are mostly brought about by intrinsic or internal factors.</p> <p>Non-infectious diseases cannot pass from one person to another.</p> <p>Transmission is absent except for hereditary diseases where it occurs from parent to offspring.</p> <p>It is ineffective in reducing the incidence of non-infectious diseases.</p> <p>Examples : Diabetes, Hypertension, Goitre.</p>

Examples : Malaria, Cholera, Pneumonia, Tuberculosis.	
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Question 13.

- (a) Which system of our body is activated in response to infection and how it responds ?
(b) Explain how HIV-AIDS virus affects and damages our body.

Answer:

- (a) The body system activated in response to an infection is immune system. It responds to an infection by producing T-lymphocytes and B-lymphocytes that immobilise and kill the pathogen.
(b) HIV-AIDS virus attacks and multiplies inside T- lymphocytes of the immune system. With the reduction in the number of T-lymphocytes the immune system of the body becomes so weak that the body is unable to fight off even minor infections. Common cold can become pneumonia or minor intestinal infection can turn into prolonged diarrhoea with blood loss. These minor infections become so strong as to kill the HIV-AIDS infected person.

Question 14.

What are the principles of treatment of a disease ?

Answer:

There are two ways to treat an infectious disease. They are

1. Reduce the Effect of Disease by
 1. Symptomatic treatment like use of antipyretic, analgesic, antidiarrhoeal or antiallergic medicine,
 2. Bed rest.
2. Killing the Infectious Agent. After proper diagnosis of the pathogen, pathogen specific medicine is given to kill the same. Antibiotic medicines are available for killing bacterial pathogens. Similarly anti-fungal anthelmintic and antiprotozoan medicines are also available. However, very few antiviral medicines are available as viruses do not have any metabolic machinery of their own (which can be attacked by any medicine).

Question 15.

(a) Name two diseases for which the children below the age of one year should be vaccinated.

(b) What are symptoms shown by a person if

1. Lungs get infected
2. Stomach is infected ?

Answer:

(a) DTP-Hib. Against diphtheria, tetanus, pertussis and influenza type B.

(b)

1. Lungs: Cough, breathlessness due to blocking of alveoli and bronchioles.
2. Stomach: Stomach-ache, vomiting, nausea, loss of appetite as stomach is the organ where sensation of hunger starts.

Question 16.

(a) A hefty boy of 12 years often picks up fight with others. Do you think he is in good health ? If so, then explain your answer.

(b) Give an example of the disease caused by

1. Protozoa
2. Bacterium
3. Virus
4. Worm.

Answer:

(a) The hefty boy is neither physically nor mentally healthy. He is over weight due to excessive eating habit. May be he is also not doing exercise. Picking up quarrels indicates his mental sickness.

(b)

1. Protozoan: Malaria,
2. Bacterial: Typhoid.
3. Viral: HIV-AIDS.
4. Worm: Ascariasis.

Question 17.

(a) Mention two factors on which severity of disease manifestation depends.

(b) Once you have been infected by small pox, there is no chance of suffering from it again. Give reason.

(c) Mention two ways of preventing disease.

Answer:

(a) Severity of disease manifestation depends upon two factors :

1. Number of microbes over and above the ineffective dose.
2. Health status of the person.

(b) Certain viral diseases are one time affair, e.g., small pox, hepatitis A. The single infection activates the immune system, producing pathogen specific T-lymphocytes, B-lymphocytes and memory T-lymphocytes. After the recovery from the disease the memory lymphocytes persist in the body for life. In case of a second infection, the memory lymphocytes produce a large number of immune cells to immediately kill and

dispose off the pathogen.

(c)

1. Sanitation and disinfected drinking water.
2. Hygiene.
3. Vaccination where available.

Question 18.

Mention the symptoms because of which you will visit the doctor and why ?

Answer:

Cough, cold, loose motions, pain in abdomen, headache, wound with pus, continuous pain in some body part, breathlessness, loss of body weight, feeling of tiredness. Each symptom can be due to many reasons. Only a doctor can diagnose the ailment and prescribe proper treatment.

Question 19.

Identify the diseases which spread through the following means ? Also name the target organs,

- (a) Sexual contact
- (b) Mosquitoes
- (c) Air.

Answer:

- (a) Sexual Contact: HIV-AIDS. Immune system (T- lymphocytes).
- (b) Mosquitoes: Malaria. Liver, RBCs.
- (c) From Air Via Nose: Tuberculosis. Lungs.

Question 20.

What would be the symptoms if the microbes infect the following targets :

- (a) Lungs
- (b) Liver
- (c) Brain ?

Answer:

- (a) Lungs: Cough, breathlessness
- (b) Liver: Jaundice
- (c) Brain: Headache, vomiting, fits or unconsciousness.

Question 21.

Suggest three ways to prevent spreading of infectious communicable diseases.

Answer:

1. Public Health Measures: Prevention of overcrowding, sanitation and disinfected drinking water.
2. Personal Health Measures: Personal and domestic hygiene, proper nutrition, rest and exercise.
3. Immunisation: Vaccination wherever available.

4. Nutrition: A proper balanced diet keeps a person in good health.

Question 22.

How principle of immunisation is being implemented for eliminating polio ?

Answer:

Children are prone to catching the infection of polio. If every child in the world is vaccinated against polio, the virus of polio will be naturally eradicated as has been done in case of small pox. Therefore, bivalent oral polio vaccine has been given twice a year to all children below the age of five. The programme has made India polio free in 2012. It will, however, continue for some time in four states.

Question 23.

What are vectors ? Name the vectors of malaria and kala- azar.

Answer:

Vectors are living organisms which spread the pathogens from infected persons to healthy persons.

Vector of Malaria. Female Anopheles (mosquito).

Vector of Kala-azar. Phlebotomus (Blood sucking Sandfly)

Question 24.

(a) What are communicable diseases ?

(b) What are the common methods of transmission of disease ?

Answer:

(a) Communicable diseases are those diseases which can spread from an infected person to healthy person. They are usually infectious diseases,

(b) Methods of Transmission.

1. Direct or physical,
2. Contact with soil.
3. Animal bites,
4. Transplacental transmission,
5. Air.
6. Water.
7. Contaminated food,
8. Vectors,
9. Fomites.

Question 25.

(a) Why a person suffering from AIDS cannot fight even very small infections ?

(b) In slum area many people are suffering from malaria. Mention any two unhygienic conditions that must be prevailing in that locality.

(c) Why female Anopheles mosquito feeds on human blood ?

Answer:

(a) By decreasing the number of T-lymphocytes, HIV weakens the body's immune system so that even minor infections like common cold become serious diseases like

pneumonia.

(b)

1. Stagnant water that becomes breeding place for mosquitoes.
2. Littering of garbage.

(c) Female Anopheles requires proteins from human blood for maturation of its eggs.

Question 26.

(a) List two causes of spread of typhoid.

(b) Mention two ways by which we can prevent the spread of this disease.

Answer:

(a) Spread of Typhoid,

1. Contaminated food and water
2. Houseflies.

(b)

1. Underground disposal of human faeces.
2. Disinfection of water and proper cooking of food.

Question 27.

(a) Mohan suffered from chicken pox in his childhood. He would not suffer from this disease again. Mention reason for this.

(b) On which factor the severity of disease manifestation depends ? Explain with an example.

Answer:

(a) One time infection of chicken pox gives a life long immunity against the disease due to development of long- lived memory cells for the same.

(b) Number of microbes above the infective dose and decreased immunity. A class fellow of yours suffering from common cold is sitting by the side of a few students. Some will catch the disease while the others will not have the same.

Question 28.

(a) Giving any four reasons, justify that it is difficult to prepare antiviral medicines than antibiotics.

(b) Name two diseases caused by viruses.

(c) Name the target organ of malaria.

Answer:

(a)

1. Virus does not have its own metabolic machinery. It uses the metabolic pathways of the host,

2. Viruses are highly mutable.
3. Viruses do not live independently. They live and multiply in living cells.
4. Viruses cannot be cultured on artificial medium.

- (b) Polio, AIDS,
(c) Liver, RBCs.

Question 29.

Answer the following questions :

- (a) Write the expanded form of AIDS.
- (b) Name the pathogen of this disease.
- (c) List any two modes by which this disease is transmitted.

Answer:

- (a) AIDS. Acquired Immune-Deficiency Syndrome.
- (b) HIV or Human Immunodeficiency virus.
- (c)

1. Unprotected sexual contact with an infected person,
2. Common needles and syringes.
3. Transfusion of infected blood.
4. Transplacental transmission.

Question 30.

A person was bitten by a stray dog. After some days he becomes irritated. He started fearing water.

- (a) Name the disease,
- (b) Is there any vaccine available.
- (c) Is there any plan of your locality for control of this disease.

Answer:

- (a) Hydrophobia/rabies
- (b) Antirabies vaccine is available but is effective only when it is taken in doses soon after biting of a rabid dog.
- (c) No, But all stray dogs as well as pet dogs must be compulsory vaccinated against the disease.

Question 31.

Categorise the following into acute/chronic/infectious/non-infectious diseases : Typhoid, TB, Goitre, Elephantiasis.

Answer:

- Typhoid— Infectious, Acute.
TB— Infectious, chronic.
Goitre— Non-infectious, chronic.
Elephantiasis— Infectious, chronic.

Question 32.

Give cause and remedy of

- (a) Hepatitis
- (b) AIDS
- (c) Malaria.

Answer:

- (a) Hepatitis (Jaundice). Hepatitis virus (A, B, C, D, E or G). Self limited by body defences. Interferon, proper rest and carbohydrate rich food.
- (b) AIDS. HIV. ART or antiretroviral treatment.
- (c) Malaria. Plasmodium (protozoan). Quinine and its derivatives.

Question 33.

“In our country, majority of children are already immune to hepatitis A without giving its vaccine to them.” Justify this statement giving three reasons.

Answer:

1. Hepatitis A spreads through contaminated water.
2. Poor hygienic conditions prevail in many areas of country. Moreover, young children cannot differentiate between hygienic and non-hygienic conditions.
3. Hepatitis A is one time infection that provides immunity for rest of life.

Question 34.

- (a) Ajit is suffering from malaria. Which part of his body will be affected ?
- (b) Name the vector for this disease.
- (c) Write any one way to prevent the disease.

Answer:

- (a) Liver followed by RBCs.
- (b) Female Anopheles (mosquito)
- (c)

1. Using mosquito net while sleeping.
2. Not allowing stagnant water to collect near your residence.

Question 35.

- (a) Name the organisms causing the following diseases :

1. Kala-azar
2. (ii) Sleeping sickness.

- (b) Given one example each of acute and chronic disease.

Answer:

- (a)

1. Kala-azar. Leishmania donovani
2. Sleeping sickness. Trypanosoma gambiense.

(b)

1. Acute Disease: Typhoid,
2. Chronic Disease: Tuberculosis.

Question 36.

What are antibiotics ? How do they work ?

Answer:

Antibiotics are drugs obtained from microbes or prepared synthetically that kill or prevent the growth of pathogenic microbes without harming hosts/human beings. They do so by blocking the biochemical life process of the microbes, without harming human cells, e.g., penicillin prevents cell wall synthesis while human cells are without cell walls.

Question 37.

(a) Immune system is essential for our health. Comment on the statement.

(b) How can we acquire immunity ?

Answer:

(a) Exemplar Problem 15.

(b) Acquiring immunity is the strengthening of body's immune system against particular pathogens through stimulating or acquiring the antibodies for their elimination. A previous infection (e.g., Chicken Pox) or vaccination provides active immunity.

Antiserum (e.g., antivenin against snake bite) provides passive immunity.

Question 38.

It is diagnosed that Seema suffers from Malaria. Which organ of Seema is affected ?

(a) Which microbe is responsible for this disease ?

(b) What is the symptom of this disease ?

Answer:

Organ Affected. Liver followed by RBCs and spleen.

(a) Plasmodium. A protozoan

(b) Symptoms. Malaria attack of 6-10 hours duration is preceded by headache, nausea and muscular pain. Malaria attack begins with chill and shivering (cold stage) followed by high fever (upto 106° F, hot stage) and perspiration (sweating stage).

Question 39.

How do diseases spread through air ? Name two such diseases.

Answer:

Pathogens spread through air over dust and as droplets (emitted by sneezing, coughing and spitting of an infected person). Any body standing or sitting close to the patient will directly inhale these droplets, dust particles and air carrying the infectious agent.

Common Cold, Pneumonia.

Question 40.

What is immunisation ? Name any four diseases which can be prevented by

immunisation.

Answer:

Immunisation is the process of developing immunity against infectious diseases generally through the agency of vaccination.

Four Diseases that can be prevented through immunisation. Diphtheria, Pertussis (Whooping Cough). Tetanus, Influenza type B, Tuberculosis, Measles.

Question 41.

Differentiate between

- (a) Acute and chronic diseases
- (b) Congenital and acquired diseases
- (c) Infectious and non-infectious diseases.

Answer:

(a) **Acute disease** is of shorter duration which does not cause much harm to the body and from which the patient recovers completely without any loss of weight or feeling of weakness. Chronic disease is of longer duration which does harm the affected organ and from which recovery is seldom complete as there is loss of weight and feeling of tiredness.

(b) **Congenital disease** is the one which is present since birth due to defective development of body (e.g, harelip) or defective heredity (e.g., haemophilia). Acquired disease is the one which develops after birth either due to infection (e.g, malaria) or defective metabolic activity (e.g., hypertension).

(c) **Infectious (Communicable) Diseases:** These diseases are caused by microbes and other pathogens such as bacteria, viruses, fungi, protozoans, worms, etc. They are called infectious or communicable diseases because the pathogens or infectious agents can spread from diseased person to healthy person by means of air (droplet method), water, food, insects, physical contact, etc., g., tuberculosis, malaria, diarrhoea, etc.

Non-infectious (Non-communicable) Diseases: They are diseases which are not caused by any pathogen or living organism. They are mostly due to internal or intrinsic non-infectious causes. High blood pressure is often caused by excessive weight and lack of exercise.

Question 42.

In a slum area, many people are reported to be suffering from malaria. Mention the unhygienic conditions that must be prevailing there. Name the causative organism. List various preventive measures.

Answer:

Unhygienic Condition. Littering of garbage, collection of stagnant water in small and large pits.

Causative Organism. Plasmodium (a protozoan). Preventive Measures,

1. Filling of pits containing stagnant water,
2. Gauze wire on doors and windows.
3. Spray of insecticides in the locality,
4. Use of mosquito net or mosquito repellent,
5. Prophylactic use of antimalarial drugs. Observe the example and complete the rest :

Question 43.

Diabetes : Non-communicable : : Chicken Pox : Communicable.

- (a) Malaria : Acute : : Tuberculosis :
- (b) Anthrax : Bacteria : : Elephantiasis :
- (c) AIDS : Encephalitis : Brain.

Answer:

- (a) Chronic
- (b) Worm (Filaria)
- (c) Lymph nodes.

Question 44.

Define immunity. Explain natural and acquired immunity.

Answer:

Immunity is the resistance of the body to a microbial infection even when the microbe is present in infective dose. Immunity is of two types, natural and acquired. Natural Immunity (Innate Immunity). It is a non-specific immunity which either does not allow the pathogen to enter the body (due to physical barriers) or immobilise it with the help of chemicals in body secretions and kill the same by means of phagocytes and other cells. Acquired Immunity. It is specific immunity which develops during the life time of an individual against specific pathogens either due to their infection or by vaccination. In both the cases the body develops antibodies and lymphocytes specific to the pathogens (antigens).

Question 45.

- (a) Who discovered vaccine for the first time ?
- (b)

1. Name two viral diseases which can be prevented by using vaccines,
2. What is immunity

Answer:

- (a) Dr Edward Jenner (1876). Vaccine against small pox.
- (b)

1. Influenza-B, Polio,
2. Immunity is the resistance of the body to a microbial infection even when the microbe is present in infective dose. Immunity is of two types, natural and acquired. Natural Immunity (Innate Immunity).

Question 46.

Write the cause, symptoms and prevention of AIDS.

Answer:

Cause. Infection of HIV or human immunodeficiency virus. Symptoms,

1. Swollen lymph nodes,

2. Low grade fever with cough, nausea and repeated diarrhoea.
3. Skin rashes developing into ulcers,
4. Sweating at night and weight loss (hence slim disease),
5. Brain damage causing loss of memory, ability to speak and think.
6. Opportunistic infections (due to damage to immune system).

Prevention:

1. Prevention of Overcrowding. Overcrowding leads to spread of infection, especially contagious and air borne. Therefore, proper spacing at home, schools and other public places should be ensured.
2. Sanitation. There should be proper garbage disposal, sewage disposal, covering and cleaning of drains and occasional spraying of insecticides. They keep the environment clean. It reduces the chances of vector borne infections.
3. Drinking Water. Drinking water must be free from all types of germs. It should, therefore, be treated to kill every type of microbial contamination.

Question 47.

- (a) What are infectious diseases ? Give two examples.
 (b) Name two infectious agents.

Answer:

- (a) Infectious Diseases. They are diseases that develop in response to attack by pathogens. Infectious diseases are also communicable, i.e., capable of passing from one individual to another, e.g., Malaria, Typhoid, AIDS.
 (b) Infectious Agents. Bacteria (e.g., typhoid, cholera), viruses (e.g, AIDS, Chicken Pox, Polio).

Question 48.

Same drug does not work against the microbes belonging to different groups. Why ? State the mechanism of antibiotics in killing bacteria.

Answer:

Drugs are used to kill pathogens by blocking their metabolic pathways. Different groups of pathogens have different metabolic systems. Therefore, different sets of medicines are used for treating different types of diseases, e.g., bacterial, fungal, viral, protozoan, helminthic.

Antibiotic kill bacteria by inhibiting their wall synthesis (e.g., penicillin), ribosome functions (e.g., erythromycin, streptomycin) or DNA replication (e.g., ciprofloxacin).

Question 49.

List the names of three diseases caused by virus stating their mode of communication in each case.

Answer:

1. Dengue – Aedes mosquito.
2. Influenza-Droplets (air).
3. AIDS-Sexual and blood contact.

Question 50.

(a) For most microbes the organ they target is related to their portal of entry. Furnish details of your answer under the following headings.

Portal of Entry	Kind of Microbe	Target Organ	Disease Caused
(i) Mouth	Bacteria	—	—
(ii) Mouth	Virus	—	—

(b) Pick up chronic diseases from the list : Japanese encephalitis, Viral fever, Common cold, Tuberculosis.

Answer:

(a)

1. Digestive tract, typhoid
2. Liver, jaundice/hepatitis.

(b) Japanese encephalitis, Tuberculosis.

Question 51.

(a) Which of these is an acute ailment and why ? Tuberculosis, Cancer, Diarrhoea, Elephantiasis.

(b) State two internal, non-infectious causes of disease.

(c) Name the organ that is targeted by the virus which causes jaundice.

Answer:

(a) Diarrhea is an acute ailment which is of shorter duration and does not cause much harm to the body.

(b) Hypertension, Diabetes,

(c) Liver.

Question 52.

The general way of preventing infections mostly relate to preventing exposure to the disease agent. Explain the statement with three examples.

Answer:

1. Air Borne Microbes. Overcrowding causes rapid spread of air borne and contagious diseases, e.g, common cold. Therefore, proper spacing should be ensured at home, schools and public places.
2. Water Borne Microbes. Safe drinking and bathing water ensures protection against water borne diseases like cholera.
3. (Hi) Vector Borne Microbes. Protection from vector borne microbes (e.g., dengue, malaria) can be obtained by proper garbage disposal, sewage disposal, covering and cleaning of drains and occasional spraying of insecticides.

Question 53.

(a) Why taking an antibiotic is not effective in common cold ?

- (b) Name two diseases against which infants below one year are vaccinated.
(c) List two symptoms of any one of these diseases.

Answer:

- (a) Antibiotics (e.g, penicillin) are not effective in common cold because common cold is mostly a viral infection while antibiotics are useful in treating only bacterial infections.
(b) Diphtheria, pertussis, tetanus (DPT).
(c) Symptoms of Pertussis

1. Inspiratory whoop
2. Cough.

Question 54.

State the method of transmission of each of the following diseases :

1. Cholera
2. Malaria
3. Pneumonia.

Answer:

1. Cholera: Contaminated food and water.
2. Malaria: Female Anopheles.
3. Pneumonia: Through droplets

Question 55.

- (a) If penicillin is given to a patient suffering from jaundice, it does not have any effect on the infection. Why ?
(b) Name a disease which has been eradicated from the world.
(c) State the principle behind its eradication.

Answer:

- (a) Penicillin is an antibiotic which is effective only against bacterial pathogens while jaundice is a viral infection.
(b) Small pox
(c) Universal vaccination.

Question 56.

State reason for the following statements :

- (a) Children at the time of birth must be given proper vaccination.
(b) A person suffering from diseases like tuberculosis and flu should be advised to avoid close public contact.
(c) Personal hygiene is very essential for good health.

Answer:

- (a) Vaccination protects the neonates from microbial infections.
(b) Tuberculosis and flu are air transmitted diseases.
(c) Personal hygiene or cleanliness keeps one free from contaminations.

Question 57.

(a) Explain when a disease is categorised as a communicable disease. Give two examples each of diseases communicated through

1. Air and
2. Water.

(b) Write one point of difference between communicable and non-communicable diseases.

Answer:

(a) Communicable diseases are infectious diseases that can pass from a diseased person to a healthy person by means of transfer like physical contact, air, water, food, vector.

1. Air Transmission: Common cold, pneumonia
2. Water Transmission: Cholera, Hepatitis B, diarrhoea.

(b) A communicable disease can pass from a diseased person to a healthy person. A non-communicable disease cannot pass from a patient to a healthy person.

Question 58.

(a) Which among acute and chronic diseases has adverse effect on health of a person ? Explain giving suitable example.

(b) What is inflammation ? Write the symptoms of this in human body.

Answer:

(a) Chronic disease. It lasts for a long time and causes damage to the infected organ, e.g., tuberculosis.

(b) Inflammation is swelling of the area of injury or bite. It is caused by accumulation of tissue fluid (for diluting toxins) and rush of various defence systems to the area causing redness, pain and even fever.

Question 59.

(a) Which disease is more harmful, acute or chronic ? Why ?

(b) Why are we advised to take light and nourishing food when we are sick ?

Answer:

(a) Chronic disease. It lasts for a long time and causes damage to the infected organ, e.g., tuberculosis.

(b) Light and nourishing food is easily digestible and provides all the nutrients required for good health.

Question 60.

Sara could not attend the school for a week and her mother did not go to office for six months due to different ailments.

Which category of diseases are they suffering from ? Give an example of each of the above categories.

Answer:

Sara is suffering from an acute infectious disease. Her mother is suffering from a chronic disease. Acute disease lasts for a shorter duration and does not cause any damaging effect. Example. Malaria. Chronic disease lasts for a long duration and causes damage to the affected organs. Example. Tuberculosis.

Question 61.

According to a newspaper report, some areas in Delhi received grey coloured water in their taps. It was reportedly due to mixing of contents at some points due to leakage in sewer and water supply pipes. Which kind of diseases are likely to spread due to such problems and why ? Give two specific names of diseases that can thus be spread.

Answer:

Water borne diseases spread due to use of contaminated water. Examples include hepatitis B, diarrhoea and cholera.

Differentiate between acute and chronic diseases.

Question 62.

Classify the following diseases into two : elephantiasis, dysentery, measles, tuberculosis.

Answer:

Acute disease is of shorter duration which does not cause much harm to the body and from which the patient recovers completely without any loss of weight or feeling of weakness. Chronic disease is of longer duration which does harm the affected organ and from which recovery is seldom complete as there is loss of weight and feeling of tiredness.

Congenital disease is the one which is present since birth due to defective development of body (e.g, harelip) or defective heredity (e.g., haemophilia). Acquired disease is the one which develops after birth either due to infection (e.g, malaria) or defective metabolic activity (e.g., hypertension).

Elephantiasis : Chronic disease. Dysentery. Acute disease.

Measles. Acute disease. Tuberculosis. Chronic diseases.

Question 63.

With diagram only depict the common methods of transmission of diseases.

Answer:

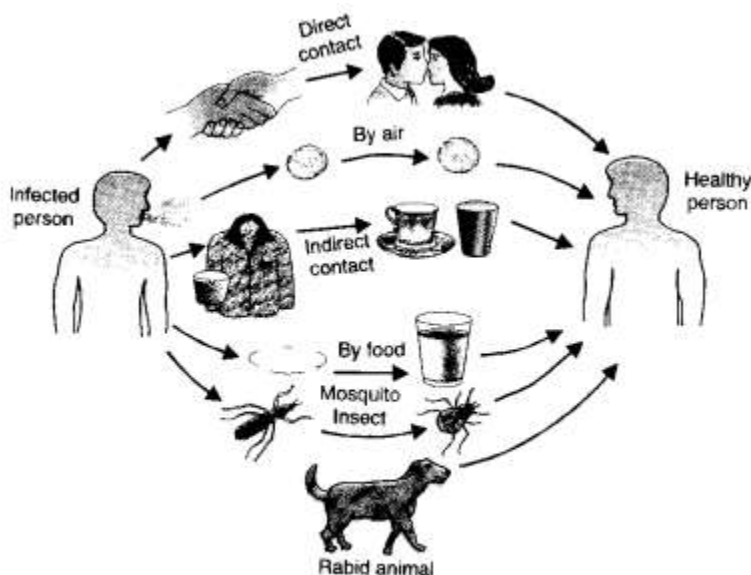


Fig. 5.9. Common methods of transmission of diseases.

Ranjan was suffering from severe cold and cough. Still he decided to appear in unit test. Seban seated next to Ranjan was not affected but Robin seated behind got infected and suffered a lot. The teacher advised Ranjan to use clean handkerchief during coughing and sneezing.

Question 64.

Answer the following questions :

1. Why did Seban not get infected ?
2. Which type of disease is cold and cough ?
3. What values are shown by the teacher ?

Answer:

1. Seban did not get infection due to either having received the pathogen in subinfective dose or possesses higher immunity.
2. Cold and cough is an acute disease.
3. By asking Ranjan to put a clean handkerchief during coughing and sneezing, the teacher has shown his responsibility as a counselor and guide to the student. Use of hand-kerchief will prevent the spread of infection to other students.

Question 65.

An infant was taken to a doctor for vaccination and a card of the schedule of immunisation was issued to him. Why is he being vaccinated ? Name any three diseases for which he would be vaccinated.

Answer:

Vaccination is a method of developing immunisation against some common microbes.

An infant is first of all vaccinated with DPT-Hib combined vaccine. It will protect the infant against diphtheria, pertussis (whooping cough), tetanus and influenza type B.

Question 66.

Differentiate between communicable and non-communicable disease in two points. Give one example of each.

Answer:

Infectious or Communicable Diseases	Non-infectious or Non-communicable Diseases
<p>1. Cause. They are caused by attack of pathogen.</p> <p>2. Nature. The diseases are brought about by extrinsic or external factors.</p> <p>3. Communicability. Infectious diseases can pass from diseased person to healthy person.</p> <p>4. Transmission. Transmission of infection occurs through direct contact or some agent.</p> <p>5. Community Hygiene. It can reduce the incidence of infectious diseases.</p> <p>Examples : Malaria, Cholera, Pneumonia, Tuberculosis.</p>	<p>They are caused by factors other than living pathogen.</p> <p>The diseases are mostly brought about by intrinsic or internal factors.</p> <p>Non-infectious diseases cannot pass from one person to another.</p> <p>Transmission is absent except for hereditary diseases where it occurs from parent to offspring.</p> <p>It is ineffective in reducing the incidence of non-infectious diseases.</p> <p>Examples : Diabetes, Hypertension, Goitre.</p>

Question 67.

(a) For the prevention of infectious diseases, some public health programs of childhood immunisation are conducted in the country. Name four such diseases which are covered under this programme.

(b) Name a disease which has been eradicated from the world. State the principle behind this eradication.

Answer:

(a) General Ways of Preventing Infection:

There are two types of general ways of preventing infection, public health measures and personal health measures.

1. Public Health Measures
2. Personal Health Measures.

(b) Small pox

Question 68.

Classify the following diseases as infectious or non-infectious and also mention the cause of non-infectious disease.

1. AIDS
2. Cholera
3. Tuberculosis
4. Pneumonia
5. Colour blindness
6. Diabetes.

Answer:

1. AIDS: Infectious,
2. Cholera: Infectious,
3. Tuberculosis: Infectious,
4. Pneumonia: Infectious,
5. Colour blindness: Non-infectious, defective heredity.
6. Diabetes: Non-infectious, hormonal (deficiency of insulin).

Question 69.

Construct a table showing category of agents and one disease / infection caused by each. Why is categorisation required ?

Answer:

1. Virus: HIV, Polio
2. Fungus: Ringworm, Athletes foot.
3. Bacteria: Cholera, T.B.
4. Protozoa: Malaria, Sleeping sickness.
5. Wnm: Ascariasis, Filariasis.

Categorisation of infection causing agents is important as it helps in quicker searching of drugs against them. For example, bacterial infections can be treated with the help of antibiotics. In each category, the metabolic pathways of the pathogens will be nearly same. Drugs disrupt these metabolic pathways and kill the pathogens.

Question 70.

A baby is suffering from loose motions. Which factors may be responsible for his condition ?

Answer:

Loose motions or diarrhoea is caused by viral (e.g. Rotavirus) or bacterial (e.g. Salmonella, Shigella) infection. The disease is contracted by contamination of food, milk or water through unhygienic handling by the keeper, soiled utensils or infected caretaker.

Question 71.

Describe in detail the concept of vaccines ? Name four diseases for which vaccines are available in the market ?

Answer:

Vaccines are preparations containing heat killed or chemically weakened pathogen, or its surface coating which functions as antigens without causing the actual disease. The antigen induces the immune system of the body to develop specific T-lymphocytes and B – lymphocytes against it.

Certain T-lymphocytes function as memory cells. They are long lived. Whenever, the actual pathogen enters the body of immunised person, the memory T-lymphocytes quickly induce the formation of T-lymphocytes and B-lymphocytes to immobilize the pathogen and help in its elimination.

A combined vaccine given to infants against four diseases is DPT-Hib against diphtheria, pertussis, tetanus and Influenza-B.

Question 72.

Given below are two situations :

1. Geeta of class IX was having common cold. She sits with Sarika who also develops the disease
2. Animesh of class IX shifted to a new residence with his family where water purification system has not been installed yet. He develops cholera and dysentery. Associate these situations with their mode of transmission and assign appropriate category to them. (CCE 2015)

Answer:

1. Common cold is infectious disease which spreads through droplet method. Sarika must have inhaled the infectious droplets and developed the disease.
2. Cholera and dysentery are water (and food) borne diseases which developed in Animesh due to impure contaminated water.

Question 73.

Explain the process of inflammation. Mention the local effects and general effects of inflammation.

Answer:

Inflammation: It is swelling in the region of injury or infection where certain cells are damaged. The damaged cells release histamine which causes dilation of capillaries and small blood vessels around the area of injury. Many white blood corpuscles come out of the capillaries to kill the pathogens. Cells and antibodies of immune system also become active. The inflamed area becomes painful and red.

Local Effects. The inflamed area becomes red and painful. General Effects. Fever, weakness.

Question 74.

How can you justify the statement 'prevention of diseases is better than cure' ?

Answer:

Prevention is always better than cure as a disease always causes some damage to the body, loss of working days, besides expenditure on medication. The important precautions for preventing diseases are

1. Hygienic environment
2. Personal hygiene
3. Proper nutrition
4. Clean food
5. Clean water
6. Regular exercise and
7. Relaxation: Every body should also be aware of diseases and their spread. A regular medical check up is also required.
8. Immunisation programme should be followed.

Question 75.

Tabulate three differences between acute and chronic diseases.

Answer:

Acute Disease	Chronic Disease
1. Duration. It is of shorter duration.	It is longer duration disease. Only some persons suffer from chronic diseases.

2. Persons. Every person suffers from an acute disease at one time or the other.	It does damage the affected organ due to prolonged duration.
3. Body Damage. Being of shorter duration, it does not damage any organ:	The recovery is seldom complete even after treatment.
4. Recovery. The recovery is generally complete after the treatment.	There is often a loss of weight accompanied by feeling of tiredness.
5. Effect. There is neither loss of weight nor feeling of weakness.6. Loss. Interruption of work and loss of efficiency are of shorter duration.	Interruption of work and loss of efficiency are prolonged.
Examples. Diarrhoea, Typhoid.	Examples. Tuberculosis, Diabetes.

Question 76.

State giving reasons whether the following statements are correct or not

1. Our surrounding area should be free from stagnant water,
2. Staying clean is not necessary as long as you eat a balanced diet,
3. Social equality and harmony are necessary for good health.

Answer:

1. Yes, stagnant water becomes breeding place for mosquitoes which are vectors for many diseases (e.g. Malaria, Dengue, Encephalitis).
2. No, both the aspects, staying clean and balanced diet are important for remaining healthy. Only balanced food will not be sufficient to protect the individual if personal hygiene is lacking.
3. Yes, Social Harmony and Economic Conditions. Social equality, harmony or good relations with neighbours and others in the society are important in sharing joys and sorrows with others, receiving and giving help at the time of need. This gives a sense of belonging that is required for mental health of an individual.

Question 77.

Give the infectious agents in the case of the following diseases :

- (a) Kala-azar,
- (b) Dengue
- (c) Sleeping Sickness.

Answer:

- (a) Kala-azar. Leishmania donovani, a protozoan.
- (b) Dengue. DEN, a virus
- (c) Sleeping Sickness. Trypanosoma gambiense.

Question 78.

Classify the following diseases as infectious and non-infectious : AIDS, Tuberculosis, Cholera, High blood pressure, Pneumonia, Cancer.

Answer:

Infectious. AIDS, Tuberculosis, Cholera, Pneumonia. Non-infectious. High blood pressure, Cancer.

Question 79.

From where does the term disease originate ?

Answer:

- (a) The word disease originated from dis without and ease comfort or discomfort in the functioning of the body or its part.

Question 80.

- (a) Antibiotics are successful in curing bacterial infections but do not cure viral infections. Why ?
- (b) Which system of the body is activated in response to infection and how it responds ?
- (c) Name any two organisms from which antibiotics are extracted.

Answer:

- (a) Antibiotics are effective against bacterial infections because they disrupt the metabolic machinery of bacteria. Viruses do not have their own metabolic machinery. Therefore, antibiotics are unable to control viral infections.
- (b) The body system activated in response to an infection is immune system. It responds to an infection by producing T-lymphocytes and B-lymphocytes that immobilise and kill the pathogen.
- (c) Antibiotic Producing Organisms. *Penicillium*, *Streptomyces*.

Question 81.

Raju of class DC was suffering from chicken pox. His friends Priya and Shaurya wanted to visit him. Shaurya's parents did not allow him to go. Priya had already suffered from chicken pox a few months before. Priya's parents allowed her to visit him. What could be the reason behind their parents' decision ?

Answer:

Chicken pox is an infectious/contagious disease. Shaurya's parents did not allow him to visit Raju because he could catch chicken pox from him. Priya's parents allowed her as

she had developed immunity against the disease after suffering from it a few months ago. This immunity persists for life. Basis of Immunisation. Development of pathogen specific T-lymphocytes and B-lymphocytes so as to kill the same if it enters the body. This is done through administration of antigen or immobilised pathogen. Duration of immunity depends upon the memory cells.

Question 82.

Explain any three means by which infectious diseases are spread.

Answer:

By sexual and blood contact in case of AIDS, syphilis and some other diseases.

By vectors and carriers, e.g., malaria by female Anopheles.

Question 83.

(a) Differentiate between acute and chronic diseases (give two points).

(b) Give one example each of acute and chronic disease.

Answer:

Acute Disease	Chronic Disease
<p>1. Duration. It is of shorter duration.</p> <p>2. Persons. Every person suffers from an acute disease at one time or the other.</p> <p>3. Body Damage. Being of shorter duration, it does not damage any organ:</p> <p>4. Recovery. The recovery is generally complete after the treatment.</p>	<p>It is longer duration disease.</p> <p>Only some persons suffer from chronic diseases.</p> <p>It does damage the affected organ due to prolonged duration.</p> <p>The recovery is seldom complete even after treatment.</p> <p>There is often a loss of weight accompanied by feeling of tiredness.</p>

5. Effect. There is neither loss of weight nor feeling of weakness.6. Loss. Interruption of work and loss of efficiency are of shorter duration. Examples. Diarrhoea, Typhoid.	Interruption of work and loss of efficiency are prolonged. Examples. Tuberculosis, Diabetes.
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Question 84.

(a) What are antibiotics ?

(b) Penicillin is not effective against common cold. Justify the statement by giving appropriate reason.

Answer:

(a) Antibiotics are drugs obtained from microbes or prepared synthetically that kill or prevent the growth of pathogenic microbes without harming hosts/human beings. They do so by blocking the biochemical life process of the microbes, without harming human cells, e.g., penicillin prevents cell wall synthesis while human cells are without cells walls.

(b) Diphtheria, pertussis, tetanus (DPT).

Question 85.

(a) What is immunisation ? How does it help people ?

(b) List two diseases for which vaccines are provided under Public Health Programme.

Answer:

(a) Immunisation is the process of developing immunity against infectious diseases generally through the agency of vaccination.

Immunisation protects people from the disease against which vaccination has been provided.

(b) Four Diseases that can be prevented through immunisation. Diphtheria, Pertussis (Whooping Cough). Tetanus, Influenza type B, Tuberculosis, Measles.

Question 86.

Mention any three factors necessary for a person to live healthy life.

Answer:

1. Environment

1. A clean physical environment with the help of public health services,

2. A congenial social environment.

2. Personal Hygiene: Personal cleanliness prevents catching up of infectious diseases.

3. Nourishment: A proper balanced diet keeps the immune system strong.

4. Vaccination: Timely vaccination against major diseases protects oneself from catching those diseases.

5. Avoiding overcrowded areas

6. Regular exercise and relaxation.

Question 87.

Which part of the body is attacked by the bacteria causing tuberculosis if they enter through

- (a) Nose
- (b) Mouth.

Answer:

- (a) Through Nose: Pulmonary tuberculosis,
- (b) Through Mouth: Intestinal tuberculosis,

Question 88.

Differentiate between infectious and non-infectious diseases (any three differences).

Answer:

Infectious or Communicable Diseases	Non-infectious or Non-communicable Diseases
<p>1. Cause. They are caused by attack of pathogen.</p>	<p>They are caused by factors other than living pathogen.</p>
<p>2. Nature. The diseases are brought about by extrinsic or external factors.</p>	<p>The diseases are mostly brought about by intrinsic or internal factors.</p>
<p>3. Communicability. Infectious diseases can pass from diseased person to healthy person.</p>	<p>Non-infectious diseases cannot pass from one person to another.</p>
<p>4. Transmission. Transmission of infection occurs through direct contact or some agent.</p>	<p>Transmission is absent except for hereditary diseases where it occurs from parent to offspring.</p>
<p>5. Community Hygiene. It can reduce the incidence of infectious diseases.</p>	<p>It is ineffective in reducing the incidence of non-infectious diseases.</p>

Examples : Malaria, Cholera, Pneumonia, Tuberculosis.	Examples : Diabetes, Hypertension, Goitre.
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LONG ANSWER QUESTIONS

Question 1.

- (a) Write two differences between communicable and non communicable diseases,
(b) Mention any three methods that can cause spreading of AIDS.

Answer:

(a)

Infectious or Communicable Diseases	Non-infectious or Non-communicable Diseases
1. Cause. They are caused by attack of pathogen.	They are caused by factors other than living pathogen. The diseases are mostly brought about by intrinsic or internal factors.

<p>2. Nature. The diseases are brought about by extrinsic or external factors.</p>	<p>Non-infectious diseases cannot pass from one person to another.</p>
<p>3. Communicability. Infectious diseases can pass from diseased person to healthy person.</p>	<p>Transmission is absent except for hereditary diseases where it occurs from parent to offspring.</p>
<p>4. Transmission. Transmission of infection occurs through direct contact or some agent.</p>	<p>It is ineffective in reducing the incidence of non-infectious diseases.</p>
<p>5. Community Hygiene. It can reduce the incidence of infectious diseases.</p> <p>Examples : Malaria, Cholera, Pneumonia, Tuberculosis.</p>	<p>Examples : Diabetes, Hypertension, Goitre.</p>

(b) Methods of Spreading AIDS:

1. Unprotected sexual contact with an infected person,
2. Common needles and syringes.
3. Transfusion of infected blood.
4. Transplacental transmission.

Question 2.

- (a) What do you mean by inflammation ? What are its common effects ?
- (b) Name the organ affected in a patient showing the symptoms of persistent cough and breathlessness,
- (c) Which group of microbes cause diseases like malaria and kala-azar ?

Answer:

(a) Inflammation: It is swelling in the region of injury or infection where certain cells are damaged. The damaged cells release histamine which causes dilation of capillaries and small blood vessels around the area of injury. Many white blood corpuscles come out of the capillaries to kill the pathogens. Cells and antibodies of immune system also become active. The inflamed area becomes painful and red.

- (b) Lung,
- (c) Protozoans (Plasmodium in malaria and Leishmania in kala-azar).

Question 3.

List the following diseases into communicable and noncommunicable diseases :

1. Cancer
2. High blood pressure
3. Common cold
4. Diabetes
5. Tuberculosis
6. Night blindness
7. SARS
8. Typhoid
9. Cholera
10. Dengue.

Answer:

1. Cancer: Noncommunicable.
2. High Blood Pressure: Noncommunicable.
3. Common Cold: Communicable.
4. Diabetes: Noncommunicable.
5. Tuberculosis: Communicable,
6. Night Blindness: Noncommunicable.
7. SARS: Communicable,
8. Typhoid: Communicable,
9. Cholera: Communicable,
10. Dengue: Communicable.

Question 4.

Mr. Iyer had cold and throat infection. Doctor prescribed an antibiotic,

- (a) Which pathogens could have caused the infection ?
- (b) What is the mode of action of antibiotics ? Mr. Iyer recovered from cold but he still had throat infection. Would the doctor continue the antibiotic further ? State yes or no giving reason .

Answer:

(a) Cold is commonly caused by virus while soar throat can be due to bacterial infection or allergy.

(b) Antibiotics act on bacteria and kill them by inhibiting their metabolic reactions (e.g., cell wall formation , ribosome functioning).

Since soar throat continues, the doctor can continue to prescribe antibiotic for 3-4 days because bacterial soar throat takes about 10 days to heal.

A person is suffering from breathlessness, loss of body weight, persistent cough, feels tired and produces blood stained sputum.

Question 5.

- (a) Name the type/category of disease based on duration.
- (b) Name the disease and its causative agent
- (c) How this disease is transmitted ?
- (d) Which body part is attacked by the causative agent/pathogen ?

Answer:

- (a) Chronic disease.
- (b) Tuberculosis, *Mycobacterium tuberculosis*,
- (c) Through droplet method and sputum (infected).
- (d) Lung.

Question 6.

- (a) What do signs and symptoms indicate if a person is suffering from any disease ?
- (b) Based on the duration of disease, what are the different categories of diseases ? Differentiate between them with one example each.

Answer:

(a) Symptoms indicate presence of disease due to structural and functional changes in the body due to it, e.g., fever, loose motion. Signs are definite indications of particular diseases based on symptoms, e.g., intermittent fever in malaria. The same are confirmed by tests.

(b) Based on duration, diseases are of two types, acute and chronic.

Acute disease is of shorter duration which does not cause much harm to the body and from which the patient recovers completely without any loss of weight or feeling of weakness. Chronic disease is of longer duration which does harm the affected organ and from which recovery is seldom complete as there is loss of weight and feeling of tiredness.

Question 7.

- (a) Identify the organism shown in the picture and write the common name and scientific name of the organism.



- (b) Name the phylum and kingdom.
- (c) Which organ of digestive system normally harbours this organism ?

Answer:

- (a) Common Roundworm, *Ascaris lumbricoides*

- (b) Nematelminthes (Phylum), animalia (kingdom),
(c) Intestine.

Question 8.

Health is not merely absence of diseases. How can we define health ? Classify diseases on the basis of

- (i) Duration of diseases
(ii) Cause of diseases. Give one example of each type.

Answer:

Definition Disease: It is a condition of the body or a part of it in which functions are disturbed or damaged.

(i) Classification Based on Duration of Disease.

(i) Acute disease is of shorter duration which does not cause much harm to the body and from which the patient recovers completely without any loss of weight or feeling of weakness. Chronic disease is of longer duration which does harm the affected organ and from which recovery is seldom complete as there is loss of weight and feeling of tiredness.

(ii) Classification Based on Cause of Disease:

1. Pathogens. Many bacteria, viruses, fungi, protozoans and worms produce diseases, spreading from an infected person to healthy one through various means of transport, e.g., Malaria, Diarrhoea, TB.
2. Deficiency. Nutrient deficiency including that of minerals and vitamins, leads to several diseases like marasmas, kwashiorkor, pellagra, goitre, anaemia.
3. Genetic Disorders. Caused by defective heredity, e.g., haemophilia.
4. Degenerative Disorders. Natural defects appearing due to senescence, e.g., hypertension, atherosclerosis, arthritis.

Question 9.

State four differences between infectious and noninfectious diseases giving one example of each.

Answer:

Infectious or Communicable Diseases	Non-infectious or Non-communicable Diseases
1. Cause. They are caused by attack of pathogen.	They are caused by factors other than living pathogen.
2. Nature. The diseases are brought about by extrinsic or external factors.	The diseases are mostly brought about by intrinsic or internal factors.

3. Communicability. Infectious diseases can pass from diseased person to healthy person.	Non-infectious diseases cannot pass from one person to another.
4. Transmission. Transmission of infection occurs through direct contact or some agent.	Transmission is absent except for hereditary diseases where it occurs from parent to offspring.
5. Community Hygiene. It can reduce the incidence of infectious diseases.	It is ineffective in reducing the incidence of non-infectious diseases.
Examples : Malaria, Cholera, Pneumonia, Tuberculosis.	Examples : Diabetes, Hypertension, Goitre.

Mrs. Chaturvedi had just recovered from tuberculosis. She still felt weak and tired all the time.

Question 10.

What do you infer about the type of disease ? Write three characteristics of such diseases. Name two other diseases belonging to this category

Answer:

Tuberculosis is a chronic disease of lungs. Despite her recovery, Mrs. Chaturvedi is unable to obtain required oxygen and hence energy due to permanent damage to lungs and some other parts of the body.

Characteristics of Chronic Diseases:

1. Duration: Chronic diseases are long duration diseases,
 2. Build up: The disease begins with milder course but builds up with time.
 3. Fatigue: The patient feels tired with shortness of breath, poor appetite and loss of weight.
- Other Examples. Diabetes, Hypertension.

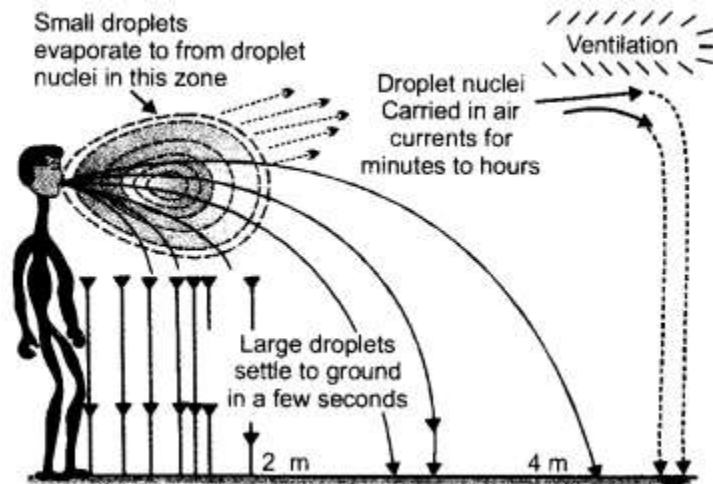
Question 11.

“Over crowded and poorly ventilated housing is a major factor in the spread of air-borne diseases. Explain the statement and support your answer with diagram also.

Answer:

Air borne diseases are mostly the ones which infect nose, throat and lungs (cold, flu, pneumonia, tuberculosis), as they lie in the passage way of breathed air. A patient suffering from such a disease will send out the pathogens in droplets during coughing

and sneezing. Any body present within 2 metre distance of the patient will inhale the same and get infected. As the liquid in the droplets evaporates, droplet nuclei are formed which continue to circulate and re-circulate in the air. In poorly ventilated and over-crowded accommodation, the droplet nuclei will be inhaled by every body and infect the same.



Question 12.

Give the ways by which microbial agents can commonly move from infectious person to someone else for the following diseases.

- (a) Cholera
- (b) Pneumonia
- (c) Common cold
- (d) Malaria
- (e) Fungal infection.

Answer:

- (a) Cholera. Contaminated water and food, directly or through flies.
- (b) Pneumonia. Droplet transmission.
- (c) Common Cold. Droplet transmission,
- (d) Malaria. By female Anopheles (mosquito).
- (e) Fungal Infection. Direct or indirect contact.

Question 13.

Justify the statement,

- (a) Availability of proper and sufficient food would protect from infectious diseases,
- (b) The general ways of preventing infection mostly relate to preventing exposure. List three points of prevention of exposure.

Answer:

- (a) Proper and sufficient food means that the person develops a good health so that all body systems function optimally. The immune system becomes strong. A strong immune system protects the body from many infectious diseases if the infective dose is not very large.
- (b)

1. Air Borne Microbes. Overcrowding causes rapid spread of air borne and contagious diseases, e.g, common cold. Therefore, proper spacing should be ensured at home, schools and public places.
2. Water Borne Microbes. Safe drinking and bathing water ensures protection against water borne diseases like cholera.
3. Vector Borne Microbes. Protection from vector borne microbes (e.g., dengue, malaria) can be obtained by proper garbage disposal, sewage disposal, covering and cleaning of drains and occasional spraying of insecticides.

Question 14.

Explain giving reasons :

- (a) Balanced diet is necessary for maintaining healthy body,
- (b) Health of an individual depends upon the surrounding environmental conditions.
- (c) Our surrounding areas should be free from stagnant water.
- (d) Social harmony and good economic conditions are necessary for good health.

Answer:

(a) Proper and sufficient food means that the person develops a good health so that all body systems function optimally. The immune system becomes strong. A strong immune system protects the body from many infectious diseases if the infective dose is not very large.

(b) Environmental Conditions. A clean environment with regular disposal of garbage, drainage and sewage services prevents growth of vectors and pests. Fewer diseases occur in such an area. On the other hand, a filthy environment with poor drainage and sewage services will cause increased number of infections.

(c) Stagnant Water. It is source of mosquito breeding, stink and other unhygienic conditions. It promotes vector borne diseases.

(d) Social Harmony and Economic Conditions. Social equality, harmony or good relations with neighbours and others in the society are important in sharing joys and sorrows with others, receiving and giving help at the time of need. This gives a sense of belonging that is required for mental health of an individual.

Good economic conditions provide proper nutrition, clothing, education, health care, outings and other facilities in the family that are helpful to maintain physical and mental health of all the members.

Question 15.

“Educating parents would help a lot in reducing incidences of diseases in children”.

Justify the statement with five reasons.

Answer:

Children are dependent upon their parents for their nutrition, hygiene, upkeep and protection from diseases. It is, therefore, important to educate the parents about the same.

1. Balanced Diet: A child should be given proper diet that is balanced, nutritive and having ingredients required for growth.
2. (it) Clean Food and Water: The food and water given to the children should be free from all contaminants. The food should be prepared fresh while water should be properly filtered or preboiled and cooled.

3. Proper Hygiene: Children should have a daily bath, cleaning of teeth, hand washing, clean clothes and taken care while crawling or playing so that they do not catch up any pathogen.
4. Regularity: A child requires a regular routine which should involve proper rest, proper exercise, timing of feeding, bathing, sleeping and recreation.
5. Vaccination: Sticking to vaccination schedule for children is a must for avoiding many diseases.

Question 16.

(a) "An exposure with an infectious microbe does not necessarily mean developing noticeable disease." Do you agree ? Explain with reason.

(b) If yes, how severe infections occur in our body ?

Answer:

(a) An infectious microbe is able to cause a disease only if the immune system of the person is unable to put proper defence against it. Many persons have strong immune system or have acquired immunity against the pathogen or the pathogen attack is less than the infective dose. In such cases, despite exposure to infective microbe, the person will not catch the disease.

(b) Severe Infections. They occur when the immune system of the body has become weak or the person has suffered from a previous infection and is just recovering or the person is suffering from dietary deficiencies, or is surrounded by unhygienic environment.

Question 17.

(a)

1. Why an antibiotic is not effective in the common cold ?
2. Name two diseases against which infants below one year are vaccinated,
3. List two symptoms of any one of these diseases.

(b) The general way of preventing infections mostly relate to preventing exposure to the disease agent. Explain the statement with examples.

Answer:

(a)

1. Antibiotics (e.g, penicillin) are not effective in common cold because common cold is mostly a viral infection while antibiotics are useful in treating only bacterial infections.
2. Diphtheria, pertussis, tetanus (DPT).
3. Symptoms of Pertussis
 1. Inspiratory whoop
 2. Cough.

(b)

1. Air Borne Microbes. Overcrowding causes rapid spread of air borne and contagious diseases, e.g, common cold. Therefore, proper spacing should be ensured at home, schools and public places.
2. Water Borne Microbes. Safe drinking and bathing water ensures protection against water borne diseases like cholera.
3. Vector Borne Microbes. Protection from vector borne microbes (e.g., dengue, malaria) can be obtained by proper garbage disposal, sewage disposal, covering and cleaning of drains and occasional spraying of insecticides.

Question 18.

- (a) What kind of food is advised when we fall sick and why ?
(b) Mention any three basic conditions required for good health.

Answer:

- (a) Bland, easily digestible and balanced food that provides all the ingredients for proper functioning and recovery of the body.
(b) Good Health. The three basic conditions required for good health are :

1. Freedom from disease and infirmity.
2. Social well being.
3. Absence of mental problems.

Question 19.

- (a) (i) Write the principles of treatment that are generally followed by a doctor to treat infectious diseases.
(ii) Write any two ways by which HIV (AIDS virus) may get transmitted from one person to another.
(b) Antibiotics can control bacterial infections but not viral infections. Why ?

Answer:

- (a)
(i) There are two ways to treat an infectious disease. They are

1. Reduce the Effect of Disease by
 1. Symptomatic treatment like use of antipyretic, analgesic, antidiarrhoeal or antiallergic medicine,
 2. Bed rest.
2. Killing the Infectious Agent. After proper diagnosis of the pathogen, pathogen specific medicine is given to kill the same. Antibiotic medicines are available for killing bacterial pathogens. Similarly anti-fungal anthelmintic and antiprotozoan medicines are also available. However, very few antiviral medicines are available as viruses do not have any metabolic machinery of their own (which can be attacked by any medicine).

- (ii)

1. Unprotected sexual contact with an infected person,
2. Common needles and syringes.
3. Transfusion of infected blood.

4. Transplacental transmission.

(b) Antibiotics are effective against bacterial infections because they disrupt the metabolic machinery of bacteria. Viruses do not have their own metabolic machinery. Therefore, antibiotics are unable to control viral infections. Differentiate between

Question 20.

1. Acute disease and chronic disease
2. Infectious disease and noninfectious disease
3. Symptom based treatment and microbe based treatment
4. Antibiotics and vaccines
5. Congenital disease and acquired disease.

Answer:

1. Acute and Chronic Disease.
An acute disease is of shorter duration which causes little damage to the body.
A chronic disease is of longer duration which damages the body system affected by it.
2. Infectious and Noninfectious Diseases.
Infectious or Communicable Diseases. The diseases are caused by pathogens like :
Bacterial, e.g., typhoid, tuberculosis,
Non-infectious or Non-communicable Diseases. The diseases are caused by metabolic disorders, hormonal imbalance and degenerative changes, e.g., diabetes, hypertension.
3. Symptoms Based Treatment and Microbe Based Treatment. Symptom based treatment is meant for giving immediate relief to the body from effect of the disease while microbe based treatment is meant for eliminating the disease causing microbe.
4. Antibiotics and Vaccines. Antibiotics are drugs (basically produced by microbes) which are used to eliminate disease causing bacteria. Vaccines are preparations containing heat killed or chemically weakened pathogens or their coating which are used to develop immunity against the disease.
5. Congenital Disease and Acquired Disease.
Congenital Disease is present from birth, e.g., hare-lip, haemophilia.
Acquired Disease is the disease is picked up after birth. Acquired diseases are of two types, infectious and non-infectious.

Question 21.

1. (i) List two conditions essential for health,
(ii) Healthy balanced diet helps in preventing diseases. How ?
2. State in tabular form the method of transmission of each of the following diseases :
(i) Cholera
(ii) HIV—AIDS
(iii) Malaria
(iv) Pneumonia.
(CCE 2016)

Answer:

1. (i) Absence of disease, physical, mental and social well being,
(ii) Proper balanced nourishment maintains the health of all body systems including the immune system.
2. Cholera— Contaminated food and water HIV-AIDS— Sexual contact, Blood contact.
Malaria — Female Anopheles Pneumonia— Air transmission.

Question 22.

1. Name any one disease caused by each of the following :
 1. Protozoa
 2. Virus
 3. Bacteria
 4. Fungi.
2. How is malaria disease transmitted ?
3. What are the common preventive measures taken against communicable diseases ?

Answer:

1.
 1. Protozoa. Malaria
 2. Virus. Chicken pox
 3. Bacteria. Typhoid
 4. Fungi. Ringworm.
2. Female Anopheles. While sucking blood from a sick person to healthy person.
 1. Vaccination
 2. Protection from mosquitoes
 3. Protection from contaminated food and water
 4. Hygienic living.

Question 23.

Associate the following diseases/infections with their causative agents :

1. Sleeping sickness
2. SARS
3. Kala- azar
4. Acne
5. AIDS
6. Dengue fever
7. Malaria
8. Brain fever
9. Chicken pox
10. Polio.

Answer:

1. Sleeping Sickness. Trypanosoma gambiense (a protozoan)
2. SARS (Severe Acute Respiratory syndrome). Virus, SARS-coV.
3. Kala-azar. Leishmania donovani (a protozoan).
4. Acne. Staphylococcus (a bacterium).

5. AIDS. HIV (Human Immuno deficiency Virus)
6. Dengue Fever. Virus (DENV).
7. Malaria. Plasmodium (a protozoan).
8. Brain Fever. Virus (Flavi Virus)
9. Chicken pox. Virus (Varicella zoster)
10. Polio. Polio Virus.

WHY DO WE FALL ILL?

- Health is a state of complete physical , mental and social wellbeing
- Health is considered to be the state of perfect functioning of body and mind.
- Term Disease means Dis – ease i.e. without ease or comfort.
- Disease is the malfunctioning of the organism or a part of it due to infection, inherent weakness or environmental stress that upsets the normal physiological functioning of the organism.
- A disease can be caused by intrinsic or extrinsic factors.
- Intrinsic factors include improper functioning of organs, hormonal imbalance, genetic disorders, allergies etc.
- Extrinsic factors include dietary deficiencies, pollutants, pathogens(disease causing organisms like bacteria and viruses), tobacco, alcohol etc.

Types of Diseases

- Acute diseases
 - The symptoms appear suddenly.
 - These diseases are short term ie the symptoms last for short period of time.
 - Eg. Influenza (Flu) , Common cold.
- Chronic diseases
 - These diseases long term diseases.
 - Their symptoms develop gradually and are long lasting.
 - Eg. TB, Cancer etc
- Congenital diseases
 - These are inborn diseases i.e. present from birth.
 - Most of the diseases are permanent and generally not easily curable.
 - They could be due to genetic abnormality or metabolic disorder.
 - Eg. Down syndrome, Hemophilia, colour blindness, Sickle cell anaemia etc
- Acquired diseases
 - The diseases which a person gets in his or her life time (i.e. after birth) are called acquired diseases.
 - Acquired diseases are classified in to two categories
 - 1) Communicable diseases (Infectious diseases)
 - 2) Non-communicable diseases (Non-infectious diseases)

1) Communicable Diseases

- Communicable diseases are caused by pathogens such as virus, bacteria, protozoan, worms or fungi.
- The organism causing the disease may be transmitted from an infected person to another by means of air, water, food, physical contact or insects (vectors).

- Communicable diseases can be further classified on the basis of the causative agents like Bacterial diseases, Viral diseases, Helminth diseases, Fungal diseases etc.

2) Non-Communicable Diseases

- These are non infectious diseases ie do not spread from an infected person to other healthy person
- These diseases include deficiency diseases, degenerative diseases, cancer etc.

Means of spread of Diseases

- Means of spread of diseases is known as Epidemiology.
- Infectious diseases can spread from an infected person to the healthy by various means.

1) Air-borne diseases

- These diseases spread through air in the form of droplet infection.
- While sneezing or coughing, the droplets released in the air are inhaled by healthy people and the infection spreads.
- Eg. TB, Common cold, Pneumonia etc

2) Water-borne diseases

- These diseases spread through contaminated water.
- The pathogens causing cholera and amoebiasis are found in the fecal matter of infected person, if such infection containing sewage water gets mixed with drinking water, the infection spreads to many healthy people.

3) Sexually transmitted diseases (STDs)

- These diseases spread by sexual contact from infected partner to the healthy.
- These diseases **do not spread** by casual physical contact like hand shake, hugs, eating together or by sports like wrestling.
- Eg. AIDS. Syphilis, Gonorrhea etc.

4) Vector-borne diseases (Spread of disease through vectors)

- Vectors are intermediate hosts or carriers of pathogens or infections.
- Eg. Female Anopheles mosquito is a vector for malarial parasite, *Plasmodium*.
- Tse-Tse fly is a carrier for the pathogen of African sleeping sickness.

Symptoms or signs of diseases

- Symptoms or signs of diseases can be general or specific.
- General signs include fever, running nose, head ache, body ache, nausea, vomiting, inflammation etc.
- Specific symptoms depend on the organ affected, like in TB the pathogen infects lungs and respiratory tract, so the symptoms are persistent coughing, breathing trouble, blood in sputum due to continuous coughing etc
- In case of jaundice, the affected organ is liver, so the symptoms include accumulation of yellow pigments under the skin which are removed by liver,

difficulty in digesting fatty food as liver produces bile which helps in emulsification of fats.

Principle of Treatment of diseases

- There are two ways a disease can be treated.

- 1) By reducing the effect of the disease

- 2) By killing the pathogen.

- The drugs used to bring down fever or to reduce pain are reducing the effect of the disease.

- Antibiotics are used to kill the pathogens like bacteria.

Principle of prevention of diseases

- The basic principles of prevention include 1) Personal and public hygiene.

- 2) Availability of proper balanced diet.

- 3) Immunization

• General ways of prevention

- Public hygiene is an important way to prevent diseases.

- Air-borne diseases can be prevented by avoiding going to crowded places, covering mouth and nose while sneezing and coughing.

- Water-borne diseases can be prevented by using safe and clean drinking water and by avoiding contaminated and exposed food.

- Vector-borne diseases can be prevented by maintaining clean surroundings, by avoiding collecting of stagnant water which is the breeding ground for mosquitoes etc.

• Specific ways of prevention

- Our immune system works in a very specific manner by producing specific “Antibodies” against specific antigen.

- Special WBCs called “B” and “T” lymphocytes are responsible for the immunity.

- These cells when come in contact with a disease causing agent (pathogen or antigen) trigger the formation of antibodies and Memory cells.

- So when the infection occurs next time, the memory cells of the immune system trigger a more vigorous response against the infection.

- Immunity can be attained actively as well as passively.

- Active immunity can be natural ie by getting the disease and artificial by vaccination (injecting killed or weakened pathogens)

- Passive immunity means taking ready made antibodies (in the form of antiserum)

- Edward Jenner observed that a milkmaid boy who had suffered with cowpox did not suffer with smallpox during the epidemic.

- He injected cowpox virus in to people and found that they were resistant to smallpox.

- This is because the cowpox virus is very similar to smallpox virus and when the cowpox virus enters the body, it triggers the immune response by producing the antibodies and the memory cells.
- So when the smallpox virus enters the body, the memory cells are ready to destroy them by producing more and more antibodies.
- A vaccine can be of following types
 - a) Killed pathogen eg. Vaccine for Whooping cough
 - b) Live but weakened pathogen. Eg – BCG vaccine, Polio vaccine.
 - c) Modified toxins. Eg -Tetanus
 - d) Isolated antigens Eg – Flu vaccine
 - e) Genetically engineered antigens. Eg – Hepatitis B vaccine.

Important Communicable Diseases

Malaria

- This insect-borne disease is caused by a parasitic protozoan, *Plasmodium*.
- *Plasmodium* completes its life cycle in two hosts, man and female *Anopheles* mosquito
- It is transmitted from person to person by the bite of the insect vector, the female *Anopheles* mosquito.
- When a mosquito bites an infected person, the protozoa are sucked into the stomach of insect along with the blood and breed there.
- These parasites complete their life-cycle when they enter the red blood corpuscles in man and destroy them.

Symptoms

- High fever, headache, body ache, nausea and shivering are some of the symptoms of malaria.
- Each malarial attack lasts for 6-10 hours and consists of the cold stage (shivering), hot stage (fever) and sweating stage (temperature goes down to normal).

Prevention

- Efforts must be made to prevent mosquitoes from biting and also prevent them from Breeding
- Following are some such methods:
- Use wire mesh on doors and windows to prevent entry of mosquitoes into the house
- Use mosquito repellents to prevent mosquito bites
- Spray kerosene on stagnant water bodies or introduce fishes that feed on mosquito larva into the water bodies, so that the larvae are killed
- Example of larvae eating fishes: *Gambusia*, Minnows, Trouts
- Spray insecticides like Malathion, BHC

- Clean tanks and sumps regularly
- Do not allow rain water to collect and stagnate in the garden

Control

- Quinine - which is an extract from the cinchona tree is used to manufacture chloroquine. This drug kills the malarial parasite.

Influenza (flu)

- This is an air borne disease caused by a virus called *Myxovirus influenzae*.
- It spreads through droplet infection.
- The virus attacks the mucous membrane of the nose.

Symptoms

- Running nose, sneezing, coughing, body ache and fever are some of the symptoms of this disease.

Prevention

- Avoid physical contact with patients suffering with flu.

Control

- Being viral there is no known control for influenza.
- Drugs like Rimantidine, Paracetamol (like crocin) are used.
- Rest helps in speedy recovery.

Jaundice (Hepatitis)

- Jaundice is the disease that affects the liver which is caused by viral infection.
- The types of hepatitis are A, B, C, D, E and G.
- Out of all these, Hepatitis B is most dangerous.
- Hepatitis A infection spreads through contaminated food and water.
- Hepatitis B infection spreads through infected blood, contaminated needles, from mother to babies and it is also a STD.

Symptoms of Hepatitis A

- There is loss of appetite.
- Body ache, nausea, vomiting, weakness.
- Eyes and skin turn yellow.
- Urine is dark yellow and stools are light yellow.
- The other symptoms are headache, temperature and pain in the joints.

Prevention

- Use potable water that is chlorinated, boiled, filtered and ozonised
- Prevent infection through physical contact by washing hands thoroughly after handling any article used by the patient
- Hepatitis-B vaccine should be taken to prevent the disease

Control

- Interferon injection are effective to control the disease
- Adequate rest is required for the patient to recover fast
- Sugarcane juice, radish with jaggery are recommended

- Fats should be avoided and protein taken within limits

Rabies (Hydrophobia)

- This is a canine disease which is transmitted to man through the bite of a rabid dog or other rabid mammals such as monkeys, cats or rabbits.
- This is a viral disease caused by a rabies virus, which is present in the saliva of the infected animal.

Symptoms

- The patient develops severe headache, high fever, painful contractions of the throat muscles and chest.
- Patient feels restless, shows excessive salivation and difficulty in swallowing
- Hydrophobia (fear of water) sets in as the virus selectively attacks the brain i.e., the nervous system.
- Damage to the central nervous system causes paralysis and painful death.

Prevention

- Wash the wound with antiseptic soap, and clean water.
- Apply an antiseptic and consult the doctor for anti rabies vaccine
- Pet dogs or cats should be immunized by getting them vaccinated with anti-rabies vaccine
- A rabid dog can be easily identified because it will show excessive salivation and try to seek isolation after biting.
- To prevent further transmission of the disease the dog should be killed.

Control

- Rabies can be treated by Pasteur's treatment (A course of 14 vaccines was given)
- Advanced treatment- Five anti rabies vaccines are prescribed at an interval 0-3-7-14-30 days of the bite.

AIDS

- AIDS stands for “Acquired Immuno Deficiency Syndrome” (as the virus affects the immune system of the body)
- AIDS was first detected in June 1981 in USA.
- The disease is caused by a virus - HIV (Human Immuno Deficiency Virus).
- The HIV attacks the “T” lymphocytes and uses the genetic material to produce more virus particles which are released into the blood to attack more lymphocytes (WBC).
- This leads to destruction of the white blood corpuscles and reduces the body's defense against infections like pneumonia and also some kinds of cancer.
- HIV is transmitted when there is an exchange of body fluids from an infected person to a healthy one.
- The common modes of transmission are:

- Sexual intercourse
- Sharing needles to inject drugs
- Blood transfusion
- From HIV positive mother to unborn child
- Razor at the hair dressing saloon

Symptoms

- The incubation period (period between infection and the first appearance of symptoms) is 1-10 years.
- The important symptoms of AIDS are: Swollen lymph nodes
- Low blood platelet count, causing hemorrhage and fever, weight loss and sweating at night
- Severe damage to brain which may lead to loss of memory, ability to speak and think clearly
- Due to the breakdown of the immune system the patient becomes susceptible to other infections

Prevention

- The public must be educated to take the preventive measures against AIDS.
 - A disposable or new razor should be used by the hair dresser's • Blood donors must be screened for HIV before they donate blood.
 - Only disposable needles and syringes should be used.
 - Contraceptives like Condom must be used and Safe sex must be practiced
- Control
- No effective vaccine for AIDS has been developed so far.

Tuberculosis (TB)

- The bacterium that causes this disease is Mycobacterium tuberculosis
- It is a rod shaped bacteria spread by air, dust, sputum of infected person or even from animals.
- The bacterium releases a toxin called tuberculin.
- The disease generally affects lung tissue but may spread to any other part of the body like the brain, stomach or intestine.
- TB is completely curable

Symptoms

- The first symptoms observed are persistent coughing and weight loss.
- The patient feels sick and weak.
- There is loss of appetite.
- There is low grade fever which may rise in the afternoon.
- Depending on the affected organ TB can be of different types-

1. Pulmonary T.B.

- The affected organ is lung
- The patient has persistent cough and produces blood containing sputum.

- There is weight loss and a feeling of weakness.
- Pain in the chest and breathlessness may also occur.

2. Lymph Gland T.B.

- Swelling of lymph glands

Prevention

- Public awareness of health and hygiene is essential

BCG (Bacillus-Calmette-Guerin) vaccination which contains weakened Tuberculosis bacillus is injected into the system to produce antibodies that will fight the disease

Cows that are milked should be immunized with tuberculin vaccine

Spitting in public places must be banned

Control

ATT (Anti-tubercular therapy) should be administered.

Streptomycin (antibiotic) is an effective drug.

- Cholera

This is water borne disease which is transmitted by flies.

The infection can occur in a large area especially during flood and other natural calamities.

The bacterium that causes the disease is Vibrio cholerae.

Symptoms

There is severe gastro intestinal infection (infection of digestive system) which leads to vomiting, watery motions, reduced urination and dehydration.

Eyes become sunken and the patient gets muscle cramps.

Prevention

Immunization with anti cholera vaccine. The immunization lasts for 6 months

When the disease spreads precautions like boiled water, properly cooked food must be consumed.

Exposed food should be avoided.

Proper sanitation and good personal hygiene in the community will prevent the spreading of the disease

To prevent dehydration ORS (Oral Rehydration Solution) should be given to the infected person to make up for the loss of water and salts.

ORS can be prepared by mixing - Sodium chloride 3.5 g + sodium bicarbonate 2.5 g,+ Potassium chloride

1.5 g + Glucose 20.0 g + Sucrose 40 gm + Water 1 L.

- Control

Immediate medical help is required to control the disease.
Tetracycline (antibiotic) is effective in controlling cholera.

Typhoid

This is the most communicable disease in our country and effects mainly children in the age group 0-15 years.

Caused by bacterium *Salmonella typhi*, it passes out through the excreta of the infected person.

Typhoid is spread by houseflies or directly through contaminated food especially milk and eggs.

Symptoms

Headache and high fever for three to four weeks.

The temperature reaches its peak in the afternoon

If care is not taken, relapse(recurrence) is common

Prevention

Proper sanitation

Control of flies

Anti typhoid vaccines.

Control

Ciproflox Is the the most drug used.

Diarrhoea

Bacteria such as *E.coli*, *Shigella*, some types of protozoa (*Entamoeba*) and viruses cause this disease.

The most common symptom of Diarrhoea is frequent loose motions accompanied with abdominal pain.

Symptoms

Frequent loose motion and vomiting leading to dehydration

If neglected can result in dehydration.

The patient becomes irritable, eyes look sunken, mouth gets dry.

There is sudden weight loss.

Pulse is weak accompanied with deep breathing and convulsions

Prevention

Eatables should be kept covered to prevent contamination through dust and flies

Fruits and vegetables should be washed with potassium permanganate, before use

Water should be boiled before drinking. Filtered water and mineral water are also safe

Proper sanitation and toilet facilities are essential

Proper personal hygiene, like washing hands before eating or handling food is important

Food that is stale or has got rancid should not be consumed

Public should be educated about community hygiene

Control

Total bed rest is advised for the patient till the illness is fully controlled

Sufficient fluids must be taken.

ORS should be given regularly at short intervals.

Antimicrobial drugs and anti-diarrhoeal drugs are prescribed by the doctors.

A good home remedy is to take the pulp of boiled raw banana, turmeric, salt and lime

Polio

Poliomyelitis or polio is caused by Polio virus (smallest virus).

The virus enters the body through food and water.

The virus is excreted out in the faecal matter of the infected person, the virus can enter through faeco-oral route.

The virus first reaches the intestine and finally to the Nervous system.

Polio is the disease of nervous system, the virus destroys the motor nerves which are responsible for muscular control

It affects children between the ages of 3 months to 6 years.

Symptoms

Early symptoms are sore throat, head ache, muscle pain,.

Later symptoms are stiffness in the neck region, tingling sensation in the limbs.

Finally the muscles lose the power and the limb gets thinner and deformed.

Prevention

Proper hygiene should be maintained.

Proper disposal of sewage.

OPV (oral Polio Vaccine) must be given to children.

OPV contains killed or weakened virus.

As per National Immunization Schedule, a dose of polio drops is given orally to the child at 1 ½, 2 ½ and 3 ½ months age and finally a booster dose is given at the age of 1 ½ years.

Pulse Polio Program is a largest single day public health project.

- Pulse polio program is an attempt to eradicate polio from our country.

Important Non-communicable Diseases

Under this category are diseases which do not spread from an infectious person to a healthy person.

These are non-infectious diseases e.g., diabetes, arthritis, heart disease and cancer.

Many non-communicable diseases are caused by nutritional deficiency.

Nutritional Disorders

For the normal growth of the body, well balanced diet is required.

A balanced diet has nutrients in the right proportion for proper growth and development of both body and mind.

Some diet deficiency diseases are

1. Protein Energy Malnutrition (PEM)

• Protein energy malnutrition leads to two types of diseases.

a) Marasmus (b) Kwashiorkor

a) Marasmus

This is due to protein deficiency.

The causal factor may be due to early replacement of mother's milk by other foods of low protein and calorific value.

Symptoms

As the stored fats and tissue proteins are used up for the production of energy, the infant develops a shriveled look

Ribs become prominent and limbs become very thin as the fat layer beneath the skin disappears

Physical and mental growth retardation.

Severe diarrhoea and other digestive disorders

Prevention / Control

A protein rich diet such as a combination of wheat, gram, peanut, soyabean and jaggery or a diet with animal protein like mutton, chicken and fish, will help the patient to return back to health. **b) Kwashiorkor**

Caused due to protein deficiency.

Children between 1-3 years of age must consume 1g protein/kg body weight.

Symptoms

Growth is stunted, appetite is poor

Stomach gets distended (bulging)

The eyes are bulging

The patient develops match stick legs (legs become thin, long and curved)

Skin may become dark and start peeling off and hair may become dull and loose its luster

Prevention / Control

By including food rich in protein into the diet, the disease can be cured.

Gram, peanut, soyabean, milk, eggs and jaggery are good sources of protein, which must be included in the diet

2. Anaemia

Iron deficiency causes Anaemia.

Iron is required by the body to form the respiratory pigment haemoglobin present in the red blood cells in our body.

The main function of haemoglobin is to transport oxygen.

Symptoms

Patients suffering from anaemia become pale, lose appetite and feel weak and exhausted.

Prevention / Control

The diet should be supplemented with liver, egg, molasses, cereal, pulses, leafy vegetables, brinjal, apple, banana, and guava which are rich in iron. .

3. Goitre

Iodine deficiency leads to this disease.

Iodine is essential for the body in very small quantities for the preparation of thyroid hormone, Thyroxine.

Symptoms

Iodine deficiency causes abnormal enlargement of the thyroid gland (situated in the neck region).

In childhood, iodine deficiency causes reduced thyroid functioning which results in retarded physical and mental growth.

Prevention / Control

The government has made it mandatory to iodize the salt (Iodized salt) consumed by the public.

Sea food is a good source of Iodine

4. Vitamin Deficiency

Vitamins are organic compounds which are taken along with food in small quantities.

They are essential for life as they are responsible for certain metabolic activities in the body.

Vitamins are of two kinds: Water Soluble and Fat soluble

Xerophthalmia - This disease is caused by vitamin A deficiency.

Rickets - This disease is caused by vitamin D deficiency. Vitamin D is synthesized naturally in the presence of sunlight.

Beri – Beri - Vitamin B1 deficiency causes this disease. This water soluble vitamin is also called Thiamine or anti beri beri or antineuritic factor. Beri beri is common in areas where polished rice is the major food item.

Pellagra - This disease is caused by the deficiency of vitamin B5. The vitamin is also referred to as Niacin or Nicotinic acid or Pellagra preventing factor. Pellagra is prevalent in areas where maize is the staple food.

Maize inhibits the absorption of vitamin B5 into the system and thus, this deficiency leads on to Beri Beri.

Scurvy- Vitamin C (ascorbic acid) deficiency causes Scurvy.

Why Do We Fall Ill?

Health: It is a state of being well enough to properly function physically, mentally and socially. In other words, health is a state of physical, mental and social well being.

Community Issues Which Affect Our Health:

Public Cleanliness: Public cleanliness is important for our health. If someone is living in a filthy neighborhood, he has a greater risk of being affected by some or the other epidemic.

Economic Condition: Economic condition of the country and society is important for our health. A sound economy ensures that a person gets a job befitting his/her skills. This ensures adequate earning to make his life comfortable. Lack of earning can have negative effect on health.

Social Equality and Harmony: If a person lives in a climate of mutual distrust among the members of society, it can have negative effect on health. On the other hand, living in a harmonious society has positive effect on someone's health.

Disease

The term 'disease' literally means disturbed ease. A condition in which the affected person is unable to carry out normal activities is termed as disease. This condition can depend a person's age and many other factors. For example; if an old woman is just able to walk comfortably in the market or garden, she can be termed a healthy person.

Symptoms: Apparent signs which give a clue about an underlying disease are called symptoms. For example; headache, fever, abdominal cramps, etc.

Types of Disease

Acute Disease: A disease which appears for a short duration is called acute disease. In most of the cases, an acute disease does not result in debility. Example: cholera, diarrhea, flu, common cold, etc.

Chronic Disease: A disease which lasts for many years is called chronic disease. Some of the chronic diseases may last for the entire life. A chronic disease often results in debility. Example: arthritis, tuberculosis, diabetes, hypertension, etc.

Infectious Disease: When a disease happens because of a microorganism, it is called infectious disease. Bacteria, protozoa, virus and fungi are the causes of diseases in this case. Example: diarrhea, tuberculosis, dengue, malaria, hepatitis, etc.

Non-infectious Disease: When a disease happens because of some malfunctioning in any organ and it is not because of any microorganism, it is called non-infectious disease. A non-infectious disease may happen because of a wrong lifestyle. Some non-infectious diseases may happen because of genetic factor, i.e. they are right

from the birth. Example: diabetes, hypertension, heart disease, arthritis, hemophilia, etc.

Infectious Diseases

Microbe	Disease
Bacteria	Diarrhea, tuberculosis, tetanus, whooping cough
Virus	Common cold, jaundice, hepatitis, flu, dengue
Fungi	Ring worm, dandruff
Protozoa	Malaria, amoebic dysentery

Types of Antimicrobials

Antibiotic: A substance which stops the growth of bacteria or kills the bacteria is called antibiotic. Antibiotic is given to treat or prevent bacterial infection. Some antibiotics damage the cell wall of bacteria and thus kill the bacteria. Example: streptomycin, tetracycline, amoxicillin, etc.

Antiviral: A substance which stops the growth of virus is called antiviral. Viral diseases are very difficult to treat. Very few effective antiviral medicines are available in market.

Antifungal: A substance which stops the growth of fungi or kills the fungi is called antifungal.

Means of Spreading the Infection:

By Air: Some of the pathogens (harmful and disease causing microbes) spread through air. For example; when a person suffering from common cold sneezes or coughs, viruses come out along with fine droplets of mucus. The virus then easily enters another person's body. Thus common cold is spread from one person to another. Flu also spreads through air.

By Water: Some of the pathogens spread through contaminated food and water. Diarrhea and jaundice spread from one person to another through contaminated food and water.

By Sharing of Clothes: Ringworm spreads by sharing towels or clothes of the infected person.

Through Blood or Body Fluid: Some diseases spread from one person to another through blood or body fluid. AIDS and Hepatitis B come under this category. These diseases can spread if infected blood is used in blood transfusion. They can spread from an infected mother to the unborn child. They can spread through unprotected sex.

By Vectors: Some animals work as vehicles to transfer infection from one person to another. Such animals are called vectors. Malaria spreads in this way and mosquito plays the role of vector. The female anopheles mosquito spreads the malaria parasite from an infected person to a healthy person. Dengue is also spread by mosquito. When a mosquito bites an infected person, parasite enters the mosquito's body along with blood. When the same mosquito bites a healthy person, parasite enters the body of the healthy person. Dogs are the vectors for rabies virus.

Affected Organs

Mode of infection often determines the infected organs. When a disease is spread through air then it is the respiratory system which gets infected. When a disease is spread through contaminated food or water then the digestive system gets infected. Jaundice and hepatitis B affect the liver. Tuberculosis usually affects the lungs. But some diseases end up affecting the whole body.

Treatment or Prevention

Prevention is Better Than Cure

Whenever a person suffers from infection, doctor gives suitable medicines to get rid of infection. But treating the infection has certain limitations which are as follows:

An infection hampers the routine activity of a person for a few or many days. This often results in loss of work for that person. This can also result in loss of earning for the person.

An infection may result in short term or long term debility.

Treating a disease involves many costs; like cost of medicine, fees of doctor, cost of hospital stay, etc.

An infected person may become a source of infection for many other persons.

Hence, prevention is always better than cure. Prevention can help in ruling out most of the above costs which are associated with a disease.

How to Prevent Infections:

By Preventing Exposure: Many diseases can be prevented by preventing the exposure against microbes.

Air borne disease can be prevented by some simple measures. If you are suffering from common cold then you should cover your face while sneezing or coughing. In case of a flu scare in the city, you should wear a face mask while going to a public place or traveling by public transport.

Water borne disease can be prevented by avoiding the use of contaminated water. You should always carry drinking water from home. If that is not possible then you

should buy bottled water for drinking. Never buy food from those vendors who do not keep their food items covered. Don't eat stale or spoiled food items.

Vector borne diseases can be prevented by preventing the breeding of vectors. If we can prevent mosquitoes from breeding around us, we can easily prevent malaria and dengue. Additionally, we should use mosquito repellants to prevent mosquito bite. Pet dogs should be vaccinated against rabies. We should be careful of stray dogs as some of them may be infected with rabies.

We should not share clothes with a person who may be suffering from skin disease. For preventing AIDS and hepatitis B, we should always use disposable syringe.

By boosting the immune system: Whenever a pathogen enters our body, our immune system fights against that. We suffer from an infectious disease only when the microbes overpower our immune system. So, strengthening the immune system can help in preventing many diseases. This can be achieved by eating well balanced and nutritious diet. Our food should include all the necessary nutrients as well as vitamins and minerals.

The above methods of prevention are called general ways of prevention because they are not directed against any particular disease. But when a prevention method is directed against a particular disease, it is called the specific way of prevention. Vaccination comes under this category.

Vaccination: Vaccination is based on the principle that our body learns to fight against a certain microbe when the microbe attacks our body for the first time. Vaccines are made from dead or weak strains of a microbe. Vaccine is inoculated in the body in appropriate dose. After vaccination, the body learns to fight with that microbe. As a result, our body easily wards off any future onslaught of that microbe. Many diseases can be prevented by vaccines.

Small Pox: Small pox was a deadly disease in the nineteenth century. Edward Jenner was the scientist who developed vaccine against small pox.

Now-a-days, vaccines are available for many diseases. Example: Small pox, polio, whooping cough, tuberculosis, diphtheria, tetanus, Hepatitis B, rabies, etc.

Question 1: How many times did you fall ill in the last one year? What were the illnesses?

Answer: Last year, I suffered once from fever and twice from diarrhea.

Think of one change you could make in your habits in order to avoid any of/most of the above illnesses.

Answer: I will stop buying food items from roadside vendor.

Think of one change you would wish for in your surroundings in order to avoid any of/most of the above illnesses.

Answer: My neighborhood needs to be cleaner and drainage needs to be properly covered.

Question 2: A doctor/nurse/health-worker is exposed to more sick people than others in the community. Find out how she/he avoids getting sick herself/himself.

Answer: A doctor/nurse/health-worker takes good care of cleanliness. These people maintain a high level of personal hygiene. They also maintain cleanliness at their workplace. They usually wash hands after examining or attending to a patient.

Question 3: Conduct a survey in your neighbourhood to find out what the three most common diseases are. Suggest three steps that could be taken by your local authorities to bring down the incidence of these diseases.

Answer: Malaria, dengue and cholera are the most common diseases in my neighborhood.

Following steps should be taken by local authorities to bring down the incidence of these diseases:

Drinking water supply should be improved in the nearby slum.

Ditches should be filled and drains should be covered.

There should be regular inspection to check for mosquito breeding.

Question 4: A baby is not able to tell her/his caretakers that she/he is sick. What would help us to find out

That the baby is sick?

Answer: If the baby is crying too much and is restless, then baby's caretakers get a clue about the baby being sick.

What is the sickness?

Answer: A doctor is the best person to tell about the specific disease the baby may be suffering from.

Question 5: Under which of the following conditions is a person most likely to fall sick?

When she is recovering from malaria.

When she has recovered from malaria and is taking care of someone suffering from chicken-pox.

When she is on a four-day fast after recovering from malaria and is taking care of someone suffering from chicken-pox. Why?

Answer: She is most likely to fall sick in the third condition, i.e. when she is on a four day fast after recovering from malaria and is taking care of someone suffering from chicken pox. This situation presents many risk factors. Her immunity is weak because she was suffering from malaria. She is not getting proper nutrition because of her four-day fast. Proximity to a patient of chicken pox presents further risk to her.

Question 6: Under which of the following conditions are you most likely to fall sick?

When you are taking examinations.

When you have travelled by bus and train for two days.

When your friend is suffering from measles. Why?

Answer: The third condition presents the biggest risk. Measles is an infectious disease. So, going near that person increases the chances of getting infected.

Extra Questions & Answers

What do you understand by health?

Answer: It is a state of being well enough to properly function physically, mentally and socially. In other words, health is a state of physical, mental and social well being.

How does public cleanliness affect our health?

Answer: Public cleanliness is important for our health. If someone is living in a filthy neighborhood, he has a greater risk of being affected by some or the other epidemic.

What do you understand by disease?

Answer: A condition in which the affected person is unable to carry out normal activities is termed as disease.

What do you understand by symptoms?

Answer: Apparent signs which give a clue about an underlying disease are called symptoms. For example; headache, fever, abdominal cramps, etc.

What is an acute disease?

Answer: A disease which appears for a short duration is called acute disease. In most of the cases, an acute disease does not result in debility. Example: cholera, diarrhea, flu, common cold, etc.

What do you understand by non-infectious disease?

Answer: When a disease happens because of some malfunctioning in any organ and it is not because of any microorganism, it is called non-infectious disease. A non-infectious disease may happen because of a wrong lifestyle. Some non-infectious diseases may happen because of genetic factor, i.e. they are right from the birth. Example: diabetes, hypertension, heart disease, arthritis, hemophilia, etc.

What is a chronic disease?

Answer: A disease which lasts for many years is called chronic disease. Some of the chronic diseases may last for the entire life. A chronic disease often results in debility. Example: arthritis, tuberculosis, diabetes, hypertension, etc.

What is an infectious disease?

Answer: When a disease happens because of a microorganism, it is called infectious disease. Bacteria, protozoa, virus and fungi are the causes of diseases in this case. Example: diarrhea, tuberculosis, dengue, malaria, hepatitis, etc.

What is an antibiotic?

Answer: A substance which stops the growth of bacteria or kills the bacteria is called antibiotic. Antibiotic is given to treat or prevent bacterial infection.

What are vectors for a disease?

Answer: Some animals work as vehicles to transfer infection from one person to another. Such animals are called vectors.

Which animal plays the role of vector for malaria?

Answer: Female Anopheles mosquito

Which animal plays the role of vector for rabies?

Answer: Dogs, cats, mongoose, monkey

What are the limitations of treating an infection?

Answer: Treating an infection has following limitations:

An infection hampers the routine activity of a person for a few or many days. This often results in loss of work for that person. This can also result in loss of earning for the person.

An infection may result in short term or long term debility.

Treating a disease involves many costs; like cost of medicine, fees of doctor, cost of hospital stay, etc.

An infected person may become a source of infection for many other persons.

How can we prevent air borne diseases?

Answer: Air borne disease can be prevented by some simple measures. If you are suffering from common cold then you should cover your face while sneezing or coughing. In case of a flu scare in the city, you should wear a face mask while going to a public place or traveling by public transport.

How can we prevent water borne diseases?

Answer: Water borne disease can be prevented by avoiding the use of contaminated water. You should always carry drinking water from home. If that is not possible then you should buy bottled water for drinking. Never buy food from those vendors who do not keep their food items covered. Don't eat stale or spoiled food items.

Write a short note on vaccination.

Answer: Vaccination is based on the principle that our body learns to fight against a certain microbe when the microbe attacks our body for the first time. Vaccines are made from dead or weak strains of a microbe. Vaccine is inoculated in the body in appropriate dose. After vaccination, the body learns to fight with that microbe. As a result, our body easily wards off any future onslaught of that microbe. Many diseases can be prevented by vaccines.