

Chapter 12. Physical Health and Hygiene

Short Questions

Question 1: The principle of vaccination is producing immunity against disease. Explain.

Answer: Vaccination is the practice of artificially introducing the weak germs or germ substances into the body for developing resistance to a particular disease.

Question 2: How do vaccines protect the body ?

Answer: Vaccines act as antigens and the blood of a person who is vaccinated, is then able to produce the antibodies. Thus, he is able to fight the infection.

Question 3: What are serums ?

Answer: The biological preparation used for inoculation is called serum. The blood of a person who has recently recovered from a disease will contain antitoxins and antibodies. If the blood cells and fibrinogen are removed from a sample of the blood a serum is obtained.

Question 4: Write about the source and function of Penicillin.

Answer:

Source: Penicillin is obtained from a mould fungus *Penicillium notatum*.

Function: It is used to treat pneumonia, throat infection, syphilis and gonorrhoea.

Question 5: List four common diseases prevalent in India. What measures have been taken to eradicate them ?

Answer:

1. **Malaria:** Control of mosquitoes by spraying insecticides in their breeding places, distributing anti-malarial drugs to victims.
2. **Cholera:** Controlling the spread of cholera by improving sanitation, safe drinking water, and proper disposal of sewage and garbage.
3. **Tuberculosis:** Prevention of disease in healthy persons through B.C.G. vaccination.
4. **Leprosy:** Detection of leprosy cases, their treatment and setting rehabilitation houses for lepers provided with facility for educating and training them.

Question 6: State three bacterial diseases. For each disease mention one preventive measure.

Answer: Diphtheria and whooping cough: Prevented by vaccine.
Cholera: Proper sanitation and clean drinking water.

Question 7: How are humans protected against bacterial infection ?

Answer:

1. Vaccination to create immunity.
2. Use of antibiotics, such as penicillin and streptomycin.
3. The skin secretes serum which prevents bacterial entry.
4. Antibody formation in blood plasma.
5. W.B.C. attacks and destroys bacteria by phagocytosis, and agglutinins.

Question 8: State any four major activities of the Red Cross Society.

Answer:

1. Provides first aid to victims of war.
2. Provides first aid to victims of calamity such as flood, earthquake, famine, fire.
3. Looks after the mother and child welfare schemes.
4. Arranges ambulances and supplies blood for the needy and also arranges blood donation camps.

Give Reasons

Question 1: Abnormally a large number of WBCs in the blood is usually an indication of some infections in our body.

Answer: WBCs in our blood protect the body from infection by killing the germs. They engulf and destroy them. In case of any infection their number increases. Thus, if there is an increase in the number of WBCs, it indicates infection.

Question 2: Our skin must be kept clean.

Answer: A clean and healthy skin acts as a mechanical barrier and prevents the entry of germs. So to protect the body from infection we must keep our skin clean.

Question 3: An injection of tetanus serum is required when an injury is received by rusted iron article.

Answer: The germs of tetanus are found in rusted iron and dust and hence to avoid the infection by these germs the injection of tetanus serum is required.

Differentiate

Question 1: Antiseptic and Disinfectants.

Answer:

Antiseptic	Disinfectant
These are mild chemical substances which destroy bacteria and prevent their further growth.	These are powerful chemical substances used for destroying microbes on floors, corners, instruments.

These are used locally in contact of body tissues.
Example : Iodine, benzoic acid.

These are not applied on body as they are corrosive in nature.
Example: Formalin, DDT.

Question 2: Antibody and Antigen.

Answer:

Antibody	Antigen
These are substances produced by organisms in response to infection.	These are foreign molecules which when introduced into the body stimulate the production of antibodies.
These are plasma proteins.	These may be proteins or polysaccharides.

Question 3: Inherited immunity and Acquired immunity.

Answer:

Inherited Immunity	Acquired Immunity
It is due to antibodies which the organisms inherit from its parents.	It is acquired during the lifetime of the organisms.

Question 4: Active immunity and Passive immunity.

Answer:

Active Immunity	Passive Immunity
When a person's own cells produce antibodies in response to infection or vaccination.	When the antibodies produced in other organisms are injected into a person to counteract antigens.
It is harmless.	The foreign antibodies may be killed by the antibodies produced by the body.
It is long lasting.	It has a limited life span.

Question 5: Acquired and Congenital disease.

Answer:

Acquired Diseases	Congenital Diseases
(i) Diseases are caused after birth.	Diseases are from birth.
(ii) These may be due to germs or degeneration of organs.	These are metabolic or genetic disorders.

Question 6: Vaccination and Sterilization.

Answer:

Vaccination	Sterilization
(i) Injected into the body to prevent infection.	Germs are killed by heating or using steam on articles of different types.
(ii) Killed microbes or weakened germs or antibodies are used.	Heating or steaming methods are used.

Question 7: Antibody and Antibiotic.

Answer:

Antibody	Antibiotic
It either occurs naturally in the blood or is produced in response to the presence of an antigen.	It is a chemical substance secreted by some organism and is used in other body (host) to kill or inhibit the growth of certain pathogens there.

Explain the Terms

Question:

1. Disinfectants
2. Penicillin
3. Sulphonamides
4. Vaccines
5. Vaccination
6. Immunization
7. Antiseptics
8. Antibiotic
9. Prophylaxis

Answer:

1. **Disinfectants:** These are powerful chemical substances used for destroying microbes in spots and places for sterilizing operation theatres.
2. **Penicillin:** It is an antibiotic used to treat pneumonia, throat infection, syphilis gonorrhoea.
3. **Sulphonamides:** These are the drugs which interfere with the metabolism of bacteria which fail to grow and multiply in the body and finally disappear. These are used as bactericidal.
4. **Vaccines:** It is used to kill or weaken germs or antibodies into the body in order to develop the ability to resist infection and the disease. SALK Vaccine is used to prevent polio.
5. **Vaccination** is the practice of artificial introduction of killed or weakened germs or antibodies into the body in order to develop the ability to resist infection and the disease. Example : Vaccination for smallpox, cholera, typhoid, etc.
6. **Immunisation** is introducing any kind of dead or weakened germs into the body of a living being for the development of immunity (resistance) against the disease.
7. A medicine that kills pathogens or disease causing bacteria is known as an **antiseptic**. Example: Dettol, Savion. It can be safely applied on the wound.
8. Certain chemicals produced by micro-organisms like bacteria, yeasts and moulds which can be used to cure bacterial and fungal diseases are called **antibiotics**.
9. The method by which a disease can be prevented is called prophylactic method and the practice is called **prophylaxis**.

Name the Following

Question:

1. The ability of a body to resist or tolerate the infections from micro-organisms.
2. The inherent ability of the body to resist infection.
3. These are chemical substances that inhibit the growth of bacteria and are commonly used on the site of infection.
4. The protein molecules which shows specificity against invading germs.
5. The foreign materials which stimulate the production of antibodies.
6. What is Penicillin ?
7. A substance which when injected into our body protects us against future infection.
8. Name any three vaccines and the diseases for which they provide immunity.
9. For which disease Immunization is provided by DPT vaccine.
10. Vaccination is not available against.
11. The causative agent of AIDS.
12. Name the fly by which Typhoid germs are transmitted.
13. Give one example of a disease carrying insect which lays its eggs in water.
14. Name an insecticide ?
15. Name any three non-communicable diseases.
16. List any three common health problems in India.
17. Where is the headquarters of W.H.O. located ?
18. When was the universal immunization programme launched in India ?
19. What does the UNICEF stand for ?

Answer:

1. Immunity
2. Innate immunity
3. Antiseptic
4. Antibodies
5. Antigens
6. Antibiotic
7. Vaccine
8. (i) TAB vaccine for typhoid, (ii) SALK vaccine for poliomyelitis. (iii) BCG vaccine for tuberculosis
9. Pertusis
10. Malaria
11. HIV
12. Housefly
13. Anopheles
14. DDT
15. (i) Cancer, (ii) Heart diseases, (iii) Arthritis
16. (a) Food and waterborne diseases, (b) Insect and airborne diseases, (c) Medical facilities
17. Geneva
18. 1985
19. United Nations International Children's Emergency Fund.

Give Technical Terms

Question:

1. Introduction of weakened or dead pathogens in the body to produce resistance against diseases.
2. The category of immunity required in the treatment of snake bite.
3. Providing ready-made antibodies from outside for treating certain infectious diseases.
4. Name the category of germs which cause diseases such as typhoid, tuberculosis and tetanus.
5. The category of germs which produce disease like mumps, chickenpox and poliomyelitis.
6. The substances that are applied to the surroundings where germs thrive and multiply.
7. What does B. C. G. stand for ?
8. The vaccine that helps to produce immunity against polio.
9. Proteins produced in the blood to fight and destroy harmful microbes.
10. The antibodies which are capable of interacting with corresponding toxins and neutralizing them.
11. Name the antibiotic that was discovered first.
12. The unpleasant symptoms as a result of an excessive immune response or hypersensitivity.
13. Who is called the 'Father of Chemotherapy' ?
14. Name the scientist who gave the principle of vaccination.
15. A viral disease totally eradicated through mass immunization.
16. The drug based on arsenic compound, produced in 1910 which killed germs of syphilis.

17. Name the international organization which extends relief and help to victims of a calamity.
18. The organization that suggest quarantine measures to prevent the spread of disease.
19. The day celebrated as 'World Health Day'.
20. What does NMEP stand for ?

Answer:

1. Vaccination
2. Passive immunity
3. Passive immunity
4. Bacteria
5. Virus
6. Disinfectants
7. Bacillus Calmette Guérin
8. Salk's vaccine
9. Antibodies
10. Antitoxins
11. Penicillin
12. Allergy
13. Paul Ehrlich
14. Edward Jenner
15. Smallpox
16. Salvarsan
17. Red Cross
18. World Health Organization
19. 7th April
20. National Malaria Eradication Programme

Fill in the Blanks

Complete the following sentences with appropriate words :

1. Serum gives Passive immunity.
2. Innate diseases-are Inborn.
3. Dettol is an Antiseptic.
4. Penicillin obtained from a fungus is an Antibiotic.
5. DPT vaccine provides immunization against Pertussis.
6. Typhoid germs are transmitted by Housefly.
7. Vaccine is dead or weakened Microbe.

True & False

Mention, if the following statements are True or False. If false rewrite the wrong statement in its correct form:

1. Acquired immunity is of active and passive type. **(True)**
2. Penicillin obtained from *Penicillium* notation is an antibody. **(False, penicillin obtained**

from *Penicillium notatum* is an antibiotic.)

3. Deodorants are antiseptics. **(False, Deodorants are neither antiseptic nor disinfectants.)**

4. D. D. T. is a disinfectant. **(True)**

5. Dettol is-an antiseptic. **(True)**

6. Rabies is a viral disease caused by the bite of a mad dog. **(True)**

7. DPT is a vaccine for diphtheria, whooping cough and typhoid. **(False, DPT is a vaccine for diphtheria, whooping cough and tetanus.)**

8. Roundworms (*Ascaris*) lives in the human intestine. **(True)**

9. AIDS stands for Acquired Immune Destruction Syndrome. **(False, AIDS stands for Acquired Immune Deficiency Syndrome.)**

10. The full name of W.H.O. is—World Health Organization. **(True)**

11. W.H.O. procures and provides blood to the victims of war. **(False, The Red Cross procures and provides blood to the victims of war.)**

Choose the Odd One Out

1. AIDS, Smallpox, Diphtheria, Measles. **(Diphtheria)**

2. Diabetes, Aching joints, Rheumatic, Heart disease, Filaria. **(Filaria)**

3. Cholera, whooping cough, diphtheria, measles. **(Measles)**

Multiple Choice Questions

1. Health is defined as:

(a) A state of complete physical well-being

(b) A state of complete mental well-being

(c) A state of complete social well-being

(d) All of the above

2. Introduction of dead or weak microbes into the body is termed:

(a) Immunization (b) Vaccine (c) Sterilization **(d) Vaccination**

3. Helper T-cells:

(a) Suppress the total immune reaction

(b) Directly attack and destroy antigens

(c) Attract other T-cells

(d) Stimulate antibody production of β -cells

4. Whenever you have deep wounds or burns, it is advised to take:

(a) Anti-tetanus serum (b) Anti-wound serum

(c) DPT vaccine (d) BCG vaccine

5. Foreign substances which elicit the formation of antibodies are called:

(a) Antiseptics (b) Antibiotics **(c) Antigens** (d) Antidotes

6. At present vaccine is not available against:

(a) Typhoid **(b) Cancer** (c) Diphtheria (d) Tuberculosis

7. The cells that actually release the antibodies are:
(a) Helper T-cells (b) Cytotoxic T-cells
 (c) Plasma cells (d) None of these
8. The antibiotic penicillin is obtained.
 (a) Protozoan (b) Bacteria **(c) Virus** (d) Fungus
9. Which of the following is a viral disease?
 (a) MaLaria (b) Cholera (c) Tuberculosis **(d) Poliomyelitis**
10. Penicillin was discovered by:
 (a) S.A. Waksman **(b) Alexander Hemming** (c) Paul Ehrlich (d) Domagk
11. BCG vaccine is used to butld immunity against:
 (a) Poliomyelitis (b) Tuberculosis
 (c) Malaria **(d) Whooping cough**
12. Tobacco addiction causes:
 (a) Emphysema (b) Bronchitis
 (c) Gastric and duodenal ulcers **(d) All of the above**
13. The continuous and excessive intake of alcohol causes:
 (a) Fatty liver syndrome (b) Cirrhosis
 (c) Hypertension **(d) All of the above**
14. The diseaseè included under W.H.O.'s global immunization programme are:
(a) Diphtheria, whooping cough, tetanus, polio, tuberculosis, measles
 (b) Diphtheria, pertusis, tetanus, measles, polio, mumps
 (c) Pertusis, tuberculosis, tetanus, mumps, malaria and measles
 (d) Diphtheria, tetanus, tuberculosis, smallpox and measles
15. Which one of the following is not a function of W.H.O.?
 (a) Maintaining statistical health records for most countries
(b) Preparation and making of new medicines
 (c) Regulating international quarantine work
 (d) Playing an important role in the eradication of epidemic and endemic disease

Match the Column

Column 'II' is a list of items related to ideas in Column 'I'. Match the term in Column 'II' with the suitable idea given in Column 'I'.

Column I	Column II
(i) Edward Janner	(a) Alexander Flemming
(ii) Pathogen	(b) Pneumonia
(iii) Streptomycin	(c) Smallpox vaccine

(iv) Penicillin	(d) Diseases producing microbe
(v) Antiseptic	(e) Carbolic acid
(vi) Disinfectant	(f) Boric acid

Answer: (i) (c) (ii) (d) (iii) (b) (iv) (a) (v) (f) (vi) (e)