Why Do We Fall Ill

Periodic Test

Q.1. What is immunization?

Answer: Immunization is the process by which a person is made immune or resistant to an infectious disease, by the administration of a vaccine.

The basic principle of immunization is that the human immune system when attacked by a foreign microbe remembers it specifically and responds against it. So, the next time the microbe or its related organism attacks the body it is being resisted with greater vigor. Using this property vaccines are developed to mimic the original disease-causing organism against which vaccination is to be done. This will not result in disease but will prepare the body to fight against the actual pathogen.

Q.2. What are the two conditions which are essential for being free of disease?

Answer: There are many conditions essential for being disease free. The two most important being:

(a) Eating nutritious and balanced diet:

Nutritious and balanced diet will keep our body in perfect order and as such will help in the proper coordination and functioning of the body.

(b) Personal and community health issues:

Health implies state of physical, mental and social well-being. It depends on the surrounding we live in and as such living in a clean environment can have a positive impact on our life.

Q.3. What determines the severity of disease manifestation?

Answer: The severity of disease manifestation is determined by several factors. One of the most important factors is the duration of the disease. Some disease last only for a few days. Eg: Common cold. They are referred to as acute infections. Others may even last for a life time referred to as chronic infection. Eg: Elephantiasis.

Q.4. What are the basic principles of preventing an infectious disease?

Answer: There are two basic ways of preventing a disease:

1. General way of preventing an infectious disease is preventing exposure to the pathogens. There are several means by which exposure can be prevented and it depends on the type of microbes.

2. Specific way of preventing a disease is by immunization. Several vaccines have been developed prevent diseases. Eg: Small pox, polio, tetanus.

Q.5. Why there is no use of giving vaccine of hepatitis A virus?

Answer: Hepatitis A causes Jaundice and is transmitted by water. In India majority of children gains immunity against this virus by the time they are 5 years old due to exposure through water. So, they already have antibodies against Hepatitis A and as such there is no need of the vaccine.

Q.6. Give Reasons for the following:

We are normally advised to take bland and nourishing food when we are stick. Why is it so?

Answer: Diseases occur when our immune system is not working properly. The proper functioning of the immune system depends on the food we eat and thus when we are sick, we are advised to take in nutritious food.

It is also a principle of prevention of disease to ensure availability of proper and nutritious food for everyone.

Q.7. Give Reasons for the following:

It is said that, "if you had smallpox once, there was no chance of suffering from it again." Why is it so?

Answer: The reason is that when a person suffers from small pox for the first time the body responds against it and remembers it. So, the next time the virus attacks the body responds with more vigour and eliminates the infection even faster than it was originally eliminated.

Q.8. Give Reasons for the following:

It is a known fact that, "milkmaids who had cowpox did not catch smallpox even during epidemics". Why is it so?

Answer: The reason behind is that the structure of cowpox is quite similar to that of smallpox and as such the antibodies developed during the infection of cowpox is able to fight against smallpox. This in turn prevents the occurrence of the disease.

Q.9. Give Reasons for the following:

Why HIV infection is considered very fatal?

Answer: HIV attacks the immune system and destroys its function. It weakens it to such an extent that the host immune system is unable to fight even the minor infections such as common cold caused by the influenza virus. Small cold can also lead to pneumonia and minor gut infections can result into diarrhea leading to blood loss. Finally, these secondary infections kill the people suffering from HIV infections.

Q.10. Give Reasons for the following:

How antibiotics work against bacteria? Do they have any effect on human cells also? Explain.

Answer: Antibiotics blocks the biochemical pathways which are responsible for the functioning of the bacteria. For example, penicillin blocks the pathway responsible for the making of the cell wall. As a result, the growing bacterial cell is not able to make cell wall and dies off easily.

The human cell on the other hand is devoid of cell wall and as such is not affected by penicillin.

Q.11. Differentiate between communicable and non-communicable diseases.

Answer:

Communicable diseases	Non-Communicable diseases
1. The microbial agents can move from one infected individual to another.	1. The microbial agents are not able to move from one infected person to another.
2. They can be transmitted by air (Eg. Common cold, pneumonia), water (Eg: cholera) and through vectors such as mosquitoes (Eg: Dengue)	2. They are not communicated by such means.
3. Person to person transmission is possible	4. Person to person transmission is not possible.

Q.12. Differentiate between acute and chronic diseases.

Answer:

Acute Disease	Chronic Disease
1. The duration of acute infections are very short. They last for only a few days.	1. The duration of chronic infection is long. They may last even for a lifetime.
2. It does not have a permanent effect on the body.	3. It has a permanent effect on the body.
Examples include common cold	Examples include tuberculosis

Q.13. What are the different means by which infectious diseases are spread?

Answer: Infectious disease can spread in several ways. They are as follows:

1. Through Air: The infected particles spread by means of sneeze or cough of the infected person which releases little droplets containing the microbes. These droplets when inhaled by another person can get infected by the disease. Eg: Common cold, pneumonia.

2. Through water: The excreta of person suffering from the infectious disease get mixed with the drinking water supply. Then these diseases can spread. Eg: Cholera

3. Physical Contact: Infectious diseases such as AIDS, syphilis etc can spread by means of sexual contact. AIDS can even be infected by blood to blood contact and even through breastfeeding from mother to child.

4. Through vectors: Mosquitoes and the insects serve as vectors for the transmission of different disease. Eg: Malaria

Q.14. What are the common preventive measures against communicable diseases?

Answer:

The following preventive measures can be used:

1. General: The general way of preventing disease is by preventing exposure.

For airborne diseases the disease can be prevented by maintain living conditions that are not overcrowded.

For water borne diseases the water supplies can be treated to kill any infectious microbes.

For vector borne diseases cleaning the environment can provide an answer.

2. Specific: Specific way of preventing the disease is by the vaccinating the individuals against the virus to which prevention is sought. Various vaccines have been developed against small pox, polio, rubella, mumps etc. These diseases can now be prevented by proper vaccination campaigns.

Q.15. It is said that, “all diseases have immediate and contributory causes”. Explain giving suitable example.

Answer: There are two level of cause of the disease. They are immediate cause and contributory cause. For example, in the case of a baby suffering from loose motion we can infer that it is due to a virus or a bacteria (immediate cause) and the contributory cause in this case is the lack of proper nutritious food.

Q.16. The disease-causing microbes enter the body through different means. Do all microbes go to the same tissue or organ, or do they go to different ones?

Answer: The tissue or organ the microbes enter depends on the point of entry. For examples the microbes of tuberculosis enter through the nose and infect the lungs. If

they enter through the mouth, they stay in the gut lining or enter the liver like viruses that cause jaundice.

Exceptions to this case is also seen where the microbes no matter the site of entry reaches the tissue targeted for infection. For example, the malaria causing microbe enters the liver and then goes to the red blood cells.

Q.17 A. What are the conditions which are important for individual health?

Answer: Health implies a state of physical, mental and social well-being. For a person to be healthy several conditions are to be fulfilled. Some of them are listed below:

1. The health of the individual depend on the surroundings that on live. The surrounding or our environment refers to the physical environment.

2. Human beings are social animals. The well-being of individual is as such heavily dependent on the society that one resides.

3. Public cleanliness also plays a role on individual health.

4. Good economic condition is directly related to the availability of proper food and as such is an important factor for individual health.

Q.17 B. What are the possibilities that can increase the possibility of poor health at our living place?

Answer: Several factors can come into play to increase the possibility of poor health. Some are listed below:

1. Improper garbage management: Improper garbage management will give rise to dirty surroundings which will give a proper environment for the breeding of vectors. These in turn will increase the number of infectious diseases.

2. Lack of proper food: Proper food is one of the basic requirement for a healthy life. Lack of it will drastically affect the health of individuals.

3. Pollution of air, water and land: Pollution of air, water and has posed a serious threat for the wellbeing of the individuals.

4. Unhealthy social environment: We live in a society and as such the environment of the society has a major role in our life.

Q.18. Diagrammatically show, how infectious diseases spread?

Answer: Infectious disease can spread by several means:

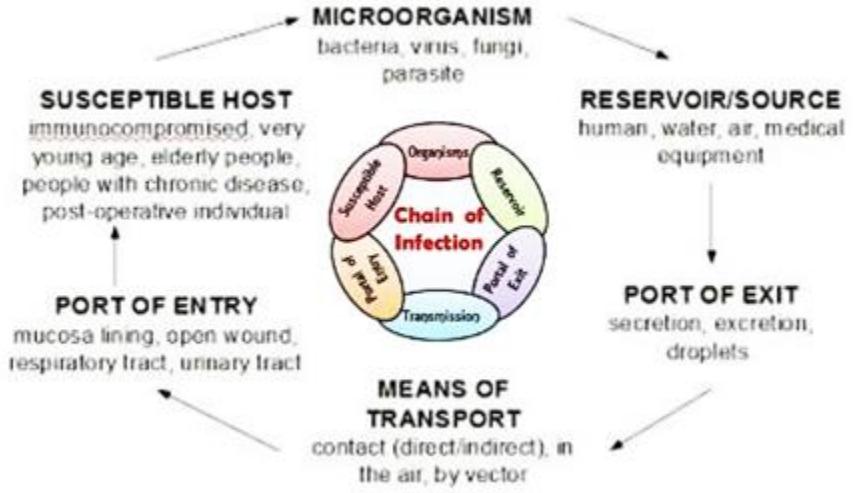
1. Through Air: The infected particles spread by means of sneeze or cough of the infected person which releases little droplets containing the microbes. These droplets when inhaled by another person can get infected by the disease.

Eg: Common cold, pneumonia.

2. Through water: The excreta of person suffering from the infectious disease gets mixed with the drinking water supply. Then these diseases can spread. Eg: Cholera

3. Physical Contact: Infectious diseases such as AIDS, syphilis etc can spread by means of sexual contact. AIDS can even be infected by blood to blood contact and even through breastfeeding from mother to child.

4. Through vectors: Mosquitoes and the insects serve as vectors for the transmission of different disease. Eg: Malaria



Q.19. What precautions can you take in your school to reduce the incidence of infectious diseases?

Answer: Precautions that can be taken to reduce infectious diseases are:

1. Keeping the surrounding clean: Clean surroundings will prevent the growth of microbial pathogens.

2. Safe drinking water: Water source should be kept clean for prevention of the spread of water borne diseases.

3. Clean environment also prevents the breeding of vector mosquitoes.

Q.20. Suppose you have seen three different patients, one suffering from tuberculosis, second from jaundice and third from acute diarrhea. What visible symptoms you can see in these patients? You can consult these patients or any doctor. Give your opinion about, how to control these diseases.

Answer: For persons suffering from tuberculosis he/she suffers from persistent cough which does not go away.

Tuberculosis can be prevented by preventing exposure/ contact with the infected individual.

For persons suffering from jaundice he/she has pale urine, pale skin and eyes.

In case of acute diarrhea, the patient suffers from enormous fluid loss and as such the patient becomes weak.

Proper diet can help in the prevention of these diseases as it will make one's immune system strong and as such help in fighting the disease.

Q.21. 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 program available includes

1. Routine immunisation for infants,

2. Tetanus, polio, measles rubella, mumps, Japanese encephalitis etc for children and adults

Japanese encephalitis, measles, mumps etc are major health problems of the locality.

Comprehensive Exercises (MCQ)

Q.1. Which disease is not transmitted by mosquitoes?

A. Dengue

B. Malaria

C. Brain fever or encephalitis

D. Pneumonia

Answer: Dengue is transmitted by Aedes mosquitoes, Malaria by Anopheles mosquito and Brain Fever or encephalitis is transmitted by means of Culex mosquitoes.

Q.2. Which one of the following is not important for individual health?

A. Living in clean space

B. Good economic condition

C. Social equality and harmony

D. Living in a large and well-furnished house

Answer: Living in a large and well-furnished house is not important for individual health as what matters is cleanliness, good economic condition and social harmony.

Q.3. Bacterial diseases are:

A. Typhoid fever and cholera

B. Tuberculosis and anthrax

C. Only (A) is correct

D. Both (A) and (B) are correct

Answer: Typhoid fever is caused by Salmonella, cholera is caused by Vibrio cholerae, tuberculosis by Mycobacterium tuberculosis and anthrax by Bacillus anthracies.

Q.4. Identify the diseases caused by protozoan:

A. Malaria and kala-azar

B. Allergy and Skin infections

C. Cancer and AIDS

D. Syphilis and Gonorrhoea

Answer: Malaria is caused by protozoan parasite Plasmodium vivax and Kala azar is caused by leishmania.

Q.5. Which one of the following is not a viral disease?

A. Dengue

B. AIDS

C. Typhoid

D. Influenza

Answer: Typhoid is a bacterial disease caused by the bacteria Salmonella.

Q.6. Which one of the following is not a bacterial disease?

A. Cholera

B. Tuberculosis

C. Anthrax

D. Influenza

Answer: Cholera, tuberculosis and antrax are bacterial diseases whereas Influenza virus.

Q.7. AIDS cannot be transmitted by:

A. Sexual contact

B. Hugs

C. Breast feeding

D. Blood transfusion

Answer: Casual physical contact such as hugs cannot transmit AIDS.

Q.8. Making anti-viral drugs is more difficult than making anti-bacterial medicines because:

A. Viruses make use of host machinery

B. Viruses are on the border line of living and non-living

C. Viruses have very few biochemical mechanisms of their own

D. Viruses have a protein coat

Answer: The basis of antibacterial drugs is that it attacks the biochemical mechanisms of the bacteria but in case of viruses such mechanisms are absent.

Q.9. Which one of the following diseases is not transmitted by mosquito?

A. Brain fever

B. Malaria

C. Typhoid

D. Dengue

Answer: Typhoid is transmitted by the food and water contaminated with the faces of infected individual.

Q.10. Which one of the following diseases is not caused by bacteria?

A. Typhoid

B. Anthrax

C. Tuberculosis

D. Malaria

Answer: Malaria is caused by a protozoan parasite plasmodim vivax.

Q.11. The role of an active immune system is:

A. It recruits many cells to the affected tissue to kill off the disease-causing microbes

B. It leads to swelling and pain

C. It causes fever

D. It interferes with the functioning of body systems

Answer: It is the function of the immune system to prevent the immune system from different diseases. Thus, it is the role of the healthy immune system to ward of disease.

Q.12. Microbes are classified as:

A. Viruses or bacteria

B. Fungi or protozoa

C. Both (A) and (B) are correct

D. Only (A) is correct

Answer: Microbes are classified as virus, bacteria, fungi and protozoa.

Q.13. You are aware of Polio Eradication Programme in your city. Children are vaccinated because:

A. Vaccination kills the polio causing microorganisms

B. Prevents the entry of polio-causing organism

C. It creates immunity in the body

D. All the above

Answer: Vaccination against polio produces antibodies and as such the body becomes immune against further infections.

Q.14. Viruses, which cause hepatitis, are transmitted through:

A. Air

B. Water

C. Food

D. Personal contact

Answer: Viruses causing hepatitis is transmitted through water as it is water borne virus.

Q.15. Which one of the following causes kala-azar?

A. Ascaris

B. Trypanosoma

C. Leishmania

D. Bacteria

Answer: Kala-azar is caused by Leishmania. The vector of the disease is sand flies.

Q.16. If you live in a overcrowded and poorly ventilated house, it is possible that you may suffer from which of the following diseases:

A. Cancer

B. AIDS

C. Air-borne diseases

D. Cholera

Answer: Air-borne diseases can be transmitted easily in a overcrowded room. Thus, overcrowding should be avoided to prevent air-borne diseases.

Q.17. Disease caused by different species of worms includes:

A. Elephantiasis

B. Ascariasis

C. Intestinal infections

D. All of these

Answer: Elephantiasis is caused by Wuchereria bancrofti, ascaris is caused by Ascaris lumbricoides and intestinal infections are caused by helminthes.

Q.18. The vaccination given for preventing tuberculosis is:

A. BCG

B. DPT

C. MMR

D. ATS

Answer: Bacillus Calmette–Guerin (BCG) is used against Tuberculosis.

Q.19. Which one of the following has a long-term effect on the health of an individual?

A. Common cold

B. Chickenpox

C. Chewing tobacco

D. Stress

Answer: Chewing tobacco can cause cancer and mouth ulcers. Thus, it has a long-term effect on the heath of the individual.

Q.20. Vectors can be defined as;

A. Animals carry the infecting agents from sick person to another healthy person

B. Microorganisms which cause many diseases

C. Infected person

D. Diseased plants

Answer: Vectors are carriers of the disease between individuals. Mosquitoes act as vectors for transmission of dengue, malaria etc.

Q.21. During a disease:

A. Changes occur which give rise to signs and symptoms of disease

B. Either the functioning or the appearance of one or more systems of the body will change for the worse

C. Only (B) is correct

D. Both (A) and (B) are correct

Answer: Diseases causes imbalance and as such functioning of the system is rendered and the symptoms appear.

Q.22. Choose the wrong statement:

A. High blood pressure is caused by excessive weight and lack of exercise

B. Cancers can be caused by genetic abnormalities

C. Peptic ulcers are caused by eating acidic food

D. Acne in not caused by staphylococci

Answer: Peptic ulcers are caused by the infection of the bacteria Helicobacter pylori.

Q.23. We should not allow mosquitoes to breed in our surroundings because they:

A. Multiply very fast and cause pollution

B. Are vectors for many diseases

C. Bite and cause skin diseases

D. are not important insects

Answer: Mosquitoes are vectors of diseases such as malaria, dengue, encephalitis etc. They breed in stagnant water and as such the surroundings should be cleaned to prevent their breeding.

Q.24. Which of the following is not an infectious disease?

A. Anaemia

B. Common cold

C. Malaria

D. Chickenpox

Answer: Common cold, Malaria and chicken pox can be transmitted from individual to individual. Anaemia is not transmitted as such and is mainly caused by blood loss.

Q.25. Which of the following can make you ill if you come in contact with an infected person?

A. High blood pressure

B. Genertic abnormalities

C. Sneezing

D. Blood cancer

Answer: Sneezing can transmit the infectious particles by means of small droplets.

These droplets can infect the healthy persons.

Comprehensive Exercises (T/F)

Q.1. Write true or false for the following statements:

Social equality and harmony are, therefore, necessary for individual health.

Answer: True

Humans are social animals and as such the society we live in plays an important role in our health. The physical environment is dependent on the social environment.

Q.2. Write true or false for the following statements:

The tissues make up physiological systems or organ systems that carry out body functions.

Answer: True

The individual units of organs are tissues which work together to perform similar functions. The tissues themselves are made of cells, the functional unit of life.

Q.3. Write true or false for the following statements:

The diseases which last for only short periods of time are called chronic diseases.

Answer: False

The diseases that last fr a very short period of time is called acute diseases. Chronic diseases last for a very long time.

Q.4. Write true or false for the following statements:

Any disease that causes poor functioning of some part of the body will not affect our general health.

Answer: False

Our body is connected and as such imbalance in any part of the body will impact the other.

Q.5. Write true or false for the following statements:

Chronic diseases have very drastic long-term effects on people's health as compared to acute diseases.

Answer: True

Chronic diseases last for a long time (Eg; Elephantiasis) or may even last for an entire lifetime. Thus, they have drastic effect on people's health as compared to acute infections which are short term.

Q.6. Write true or false for the following statements:

All diseases have immediate and contributory causes. Most of the diseases will have many causes, rather than one single cause.

Answer: True

All diseases have a immediate cause and a contributory cause. In the case of a baby suffering from loose motion we can infer that it is due to a virus or a bacteria (immediate cause) and the contributory cause in this case is the lack of proper nutritious food, impure drinking water. Thus, in this case there is more than one contributory cause.

Q.7. Write true or false for the following statements:

High blood pressure and cancer have mostly external causes and are generally caused by infectious agents.

Answer: False

High blood pressure can occur due to excessive weight and lack of exercise whereas cancer may occur due to genetic defects.

Q.8. Write true or false for the following statements:

All viruses live outside host cells whereas bacteria very rarely do.

Answer: False

Viruses need a host body to replicate and as such it is impossible for viruses to live without a host.

Q.9. Write true or false for the following statements:

Antibiotics commonly block biochemical pathways important for bacteria. But viruses do not use these pathways at all, and that is the reason why antibiotics do not work against viral infections.

Answer: True

Viruses do not use biochemical pathways and as such it is no possible for antibiotics to act against viruses.

Q.10. Write true or false for the following statements:

Syphilis and AIDS are transmitted by casual physical contacts.

Answer: False

Syphilis is transmitted by sexual contact. Whereas AIDS is transmitted by sexual contact, blood to blood contact and also by breastfeeding from mother to child.