Why do We Fall Ill

This set of questions contains all the possible concepts which could be asked in the examination

Health and its failure

Q.1 Define ‘Health’.

It is a state of being well enough to function physically, mentally and socially.

Q.2 State three conditions essential for being free of diseases.

Conditions essential for being free of diseases-

(i) Personal hygiene

(ii) Community hygiene

(iii) Balanced diet

Q.3 What do you interpret when you say a person is in good health?

When we say a person is in good health, it implies that the different body systems and organs of that person functions well and as a whole, the body is able to strike a balance with the physical, mental and social environment.

Q.4 List any two practices you would like to follow in order to maintain good health

Or

List any four essential factors that must be taken care of by an individual for keeping good health.

(i) Balance diet.

(ii) Disease free environment.

(iii) Proper sanitation.

(iv) Mental and social stability.

Q.5 What are the various factors that affect health?

The health of all organisms depends on their surroundings or their environment. The environment includes the physical environment and social environment.

(a) Personal- Which we can do as an individual.

(b) Community- which we can do as a society.

Q.6 Explain how individual health depends on social and mental well-being.

Social well-being: Cleanliness around the place where we live. No throwing of garbages on roads, not leaving open drain- water lying stagnant etc.

Mental well-being: For good health we have to be happy, social equality and harmony are essential.

Q.7 Define diseases and state the major factors which are the causes of disease.

The condition of malfunctioning of organ system or systems is called disease. In layman's language, disease means 'without ease'. Disease leads to an abnormal condition in which our body or body organs does not work properly.

The major factors for the cause of disease are-

(i) Pathogens(e.g., Virus, bacteria, worms etc)

(ii) Environmental factors (e.g., Pollutants)

(iii) Nutritional factors(e.g., malnutrition)

(iv) Genetic factors (e.g., gene defects)

(v) Hormonal imbalances(e.g., thyroid associated problems, diabetes)

(vi) Metabolic factors(organ failure)

Q.8 Is there any difference between 'being healthy' and 'disease-free'

Healthy	Disease free
It is a state of physical, mental and social well being.	It is a state of absence from diseases.
It refers to the individual, physical and social environment.	It refers only to the individual.
The individual has good health. No illness or disease is seen	The individual may or may not be suffering from any disease

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Q.9 (i) What is balanced diet?

(ii) What problems will you face if you do not eat a balanced diet?

(i) A diet that contains adequate amounts of fibre (roughage), water and all other necessary nutrients (protein, fat, carbohydrate, vitamins and minerals) required for healthy growth and activity is called balanced diet.

(ii) Lack of balanced diet will lead to the following problems:

(a) Poor maintenance of body tissues and organs.

(b) Lack of proper growth and development of the body.

(c) Lack of energy.

(d) Improper functioning of the various systems of the body.

All this will ultimately lead to some illness.

Disease and its causes

Q.10 What are first-level causes of the disease?

Causes of diseases may be immediate (first level cause) or contributory. The first level cause of a disease is the primary reason behind the development of a symptom for a disease. For e.g. – The immediate cause of a person suffering from diarrhoea is the causative agent.

Q.11 What are the body's defenses against diseases?

The body has three lines of defence namely-

(i) Skin,

(ii) White blood cells,

(iii) Antibodies (antigens and lymphocytes)

Q.12 Name the disease that can be caused by certain types of bacteria, protozoa and viruses.

Diarrhoea is the disease that can be caused by certain types of bacteria, protozoa and viruses.

Q.13 What are congenital diseases? Give two examples.

Congenital diseases refer to diseases or abnormalities present since birth. It may be due to gene mutations or environmental factors. Ex. Colour blindness, Down's syndrome, cleft lip etc

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Q.14 Why are signs of a disease more important than its symptoms?

Signs of a disease are more important than symptoms because signs provide information's about the possibility of the disease while symptoms are just indicators that there is some abnormality in the body.

Q.15 What were considered to be the primary cause of peptic ulcer initially? Who were awarded Nobel Prize for the discovery of treatment of peptic ulcer?

The lifestyle of a person was primarily considered to be the causative agent or reason behind this disease. Barry Marshall and Robin Warren discovered that the area of peptic ulcer contained many small curved Bacteria called Helicobacter pylori

Q.16 How can we prevent diseases?

There are two ways, one general and one specific to each disease.The general ways of preventing infections mostly relate to preventing exposure to microbes. Specific ways of prevention deals specifically with each type of diseases. Vaccination is the most common element these types of preventive measures.

Q.17 Which amongst the two diseases: Acute or chronic, has adverse effect on the health of a person? Explain giving a suitable example

Chronic disease lasts for long period of time so it is more harmful than acute disease.

For example: Cough and cold are acute diseases while tuberculosis is chronic and affects health badly.

Q.18 How does our body carry out various functions?

All the cells in our body are grouped separately into tissues. These tissues make up into physiological systems or organ systems that carry out various body functions. Each of the organ systems has specific organs as its parts and each has a particular function.

Q.19 Mention two factors on which severity of disease manifestation depends.

Severity of disease manifestation depends upon the following factors:

(a) Number of microbes attached to the body.

(b) Immune system of the individual.

Q.20 State any two ways by which infectious diseases can be controlled.

Infectious diseases can be controlled by:

(i) By maintaining proper hygiene like washing hands before every meal.

(ii) Avoid going to overcrowded places

(iii) By use of vaccination

Q.21 Why is prevention better than cure?

Or

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

The first is that once someone has a disease, their body functions are damaged and may never recover completely. The second is that treatment will take time, which means that someone suffering

from a disease is likely to be bedridden for some time even if we give them proper treatment. The third is that the person suffering from an infectious disease can serve as the source from where the infection may spread to other people

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Q.22 Differentiate Congenital Diseases from Acquired ones.

Congenital :

a) These occur since from birth.

b) These are inherited from the parents to the offspring.

Acquired :

a) It occurs during the lifetime of the person and not from the birth.

b) It does not get inherited. It occurs due to pathogens or due to deficiency of nutrients, hormonal imbalance or due to degeneration of the tissues.

Q.23 What are infectious agents? What are the different infectious agents?

The microorganisms which spread the disease from one person to another is called infectious agents

The different infectious agents are-

(a) Viruses

(b) Bacteria

(c) Fungi

(d) Protozoans

(e) Multicellular worms.

Q.24 Differentiate between Infectious and non-infectious diseases.

Infectious Diseases	Non-Infectious Diseases
Infectious diseases are also called communicable diseases or transmissible diseases as they can spread from infected person to healthy person(s).	Non-infectious diseases are also called non-communicable diseases as they do not pass on from one person to another.
Caused by pathogens (viruses, bacteria, fungi, protozoans, worms).	Caused by factors such as genetics, environment, and lifestyle
Infection is transmitted through direct contact or through medium	Infection is not transmitted through direct contact or medium
Examples of infectious diseases are colds, influenza, chicken pox,	Examples of non-infectious diseases are

herpes and measles.	Down syndrome, hemophilia, skin cancer, cardiovascular disease etc

Q.25 Difference between Acute diseases and chronic diseases:

ACUTE DISEASES	CHRONIC DISEASES
Symptoms last for a short period of time	Symptoms persist for a longer duration and may last lifetime
Generally sudden onset of disease or injury	Disease develop slowly and gradually
Patient may recover fast and is free from symptoms	Patient does not recover completely. It takes a longer time to get relief.
May not require hospitalization	May require hospitalization and longer treatment
Eg., Cold, sore throat, influenza etc	E.g., TB, Diabetes, heart diseases, Arthritis etc

Q.26 Broadly classify diseases into two groups giving two examples for each of them.

Or

Difference between communicable and non-communicable disease.

COMMUNICABLE DISEASES	NON COMMUNICABLE DISEASES
Communicable disease refers to diseases that can pass from one person to another.	Non-communicable diseases occur in one person and cannot be passed on to another person.
Communicable diseases are also known as infectious diseases	Non-communicable diseases are referred to as chronic
Communicable diseases are more likely to be acute, which means the disease develops quickly.	Non-communicable diseases tend to be chronic, which means they last a long time and progress slowly.
Generally involves the lower socioeconomic group	Involves generally affluent class
Vehicles of transmission and the vectors play a major role in the spread of disease.	Dietary habits, environment and lifestyle play a role in the causation of these diseases.
Ex. common cold, pneumonia and tuberculosis	Ex. Diabetes, Arthritis, High blood pressure, Scurvy

Q.27 What are the immediate and contributory causes of diseases? Explain it with the example of a child suffering from diarrhoea.

There can be a number of causes for a disease, they can be broadly divided into immediate causes and contributory causes.

The external causes like micro-organisms constitute the **immediate causes**. Organisms like virus, bacteria, and other micro-organisms can cause diseases in a person. For example, diarrhoea is caused

by viral or bacterial infection. Even though a virus can be the immediate cause of a disease, other associated causes might allow the entry of the virus into the body. These causes are known as **contributory causes**.

Contributory causes: These include the following conditions:

(i) *Unhealthy condition*: Infectious agents like virus and bacteria enter the body through contaminated food or water. Thus, the consumption of contaminated food or water can be another cause of disease.

(ii) *Improper public service*: The lack of proper public service is the main reason for the lack of clean drinking water and food.

(iii) *Poverty:* Lack of proper nourishment can also lead to the occurrence of diseases in a person

Infectious Diseases

Q.28 T.B. is a common abbreviation used for which disease? Who discovered T.B and name the disease causing micro-organism.

The full form of T.B. is Tuberculosis. Robert Koch discovered T.B. in 1982. It is caused by the bacterium: 'Mycobacterium tuberculosis'.

Q.29 Name any 3 diseases that are caused by virus.

Common cold, influenza, dengue fever, and AIDS

Q.30 Name any 3 diseases that are caused by bacteria

Typhoid, fever, cholera, tuberculosis, anthrax

Q.31 Name any 2 diseases that are caused by protozoan

Malaria, Kala-azar, Sleeping Sickness and Amoebiasis

Q.32 Name the diseases that are caused by helminthes

Intestinal worm infection, elephantiasis

Q.33 Name the diseases which are caused by fungi.

Ring worm, Skin infections and Athlete's foot

Q.34 Name any diseases that can be prevented by using vaccines.

Diphtheria, Pertussis, Tetanus, Measles, Typhoid, Tuberculosis

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Q.35 How do microbes enter our body?

Microbes enter our body through air, water, physical contact and vectors.

Q.36 Name the drug used to cure a person suffering from malaria. Name the source of the drug.

Quinine, a drug extracted from the bark of the cinchona tree is used to cure a person suffering from malaria.

Q.37 Why are we advised to take bland and nourishing food when we are sick?

We are advised to take bland and nourishing food so that scarcity (loss) of nutrients caused during sickness may be fulfilled.

Q.38 Ravi suffered from tuberculosis, while Rehman suffered from typhoid. Which disease caused more damage and why?

Tuberculosis caused more damage. It is a chronic disease. It lasts for a long time and has drastic long term effects on people's health. Typhoid is an acute disease which lasts for a short duration of time.

Q.39 What are symptoms?

Symptoms are the indicators that there is some abnormality in the body. In general, symptoms are the problems which a patient feels or notices. For example, cough and breathlessness are symptoms of lung infections.

Q.40 What precautions can you take in your school to reduce the incidence of infectious diseases?

To reduce the incidence of infectious diseases at our school, we can take the following precautions:

(i) Clean, treated and potable drinking water must be consumed.

(ii) School must have clean environment, so that mosquito breeding cannot take place.

(iii) Vaccination programme for particular diseases can also be started at the school level

Q.41 What is the scientific name of the common worm found in the small intestines of humans?

What is the origin of the term 'vaccination'?

(i) *Ascaris lumbricoides*

(ii) 'Cow' is 'vacca' in Latin, and cowpox is 'vaccinia'. From these roots, the word'vaccination' has come into our usage

Q.42 'Influenza or common cold spreads faster and is difficult to control. Explain.

Influenza and common cold are both communicable viral infections which are spread through air, physical contact, by touching of contaminated surfaces etc. Therefore, the infection spreads very easily from an infected person to a healthy person and the disease develops at a very fast rate. These infections are difficult to control as they are not easily diagnosed so that anti- viral can be administered or given.

Q.43 How does an antibody destroy a bacterium?

The antibiotics like penicillin commonly block biochemical pathways important for bacteria. Many bacteria make a cell-wall to protect themselves. The antibiotic penicillin blocks the bacterial processes that build the cell- wall. As a result, the growing bacteria become unable to make cell-walls, and die easily.

Q.44 Match the following columns with correct answers :

Organism	Bacteria Diseases
(a) Leishmania	Worm
(b) Staphylococci	Kala-azar
(c) Trypanosoma	Acne
(d) Ascaris Lumbricoides	Sleeping sickness

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(a) Leishmania	Kala-azar
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(d) Ascaris Lumbricoides	Worm

Q.45 Why are human cells not affected by penicillin?

Pencillin blocks the formation of the bacterial cell wall. Animal cells including those of human cells do not have cell-wall such as those found in bacteria. Hence, the antibiotic penicillin would not have a significant effect on human cells.

Q.46 Identify the diseases which spread through the following means. Also name the target organs:

(i) Sexual contact

(ii) Mosquitoes

(iii) From air via nose

Means of spread	Disease	Target organs
(i) Sexual contact	AIDS	Immune system
(ii) Mosquitoes	Malaria	Liver
(iii) From air via nose	Tuberculosis	lungs

Q.47 What is an inflammation?

Inflammation is one of the responses of organism towards pathogen. Inflammation is the process by which the active immune system recruits some cells to the infected tissue to kill off the disease causing microbes. This recruitment process is called inflammation.As a part of this process, there are local effects such as swelling and pain, and general effects such as fever

Q.48 In many species of mosquitoes the males do not prefer human blood, but females do. State why?

In many species of mosquitoes the males do not prefer human blood, but females prefer because female mosquitoes require large amount of protein to lay their eggs. So, they feed on human blood which is rich in protein.

Q.49 The disease-causing microbes enter the body through different means. Where do they go then? Do all microbes go to the same tissue or organ, or do they go to different ones?

Different species of microbes seem to have evolved to home in on different parts of the body. In part, this selection is connected to their point of entry. If they enter through the air via the nose, they are likely to go to the lungs. This is seen in the bacteria causing tuberculosis. If they enter through the mouth, they can stay in the gut lining like typhoid causing bacteria or they can go to the liver, like the viruses that cause jaundice. But this needn't always be the case. An infection like HIV that comes into the body through the sexual organs will spread to lymph nodes all over the body. Malaria-causing microbes, entering through a mosquito bite, will go to the liver, and then to the red blood cells. The virus causing Japanese encephalitis, or brain fever, will similarly enter through a mosquito bite. But it goes on to infect the brain.

Q.50 List any three reasons why you think you are sick and ought to see a doctor. If only one of these symptoms were present, would you still go to a doctor? Why or why not?

Symptoms like headache, stomach pain, nausea, vomiting, fever etc make us feel that we are sick and must consult a doctor. It is because any of these symptoms can be the sign of sickness or disease. Ignoring it may lead to increase in the disease.

Therefore, it becomes a necessity to visit the doctor so that the disease could be diagnosed and proper medication could be done.

However, if only one of these symptoms is present, we usually do not visit a doctor. This is because such symptoms do not have much effect on our general health and ability to work. But, if any of these symptoms continue to persist for sometime, then it is advisable to consult a doctor.

Q.51 Why is it necessary to collect garbage regularly?

It is necessary to collect garbage regularly because if there is great deal of garbage thrown on the streets or if there is open drain water lying stagnant around where we live, then the possibility of poor health increases.

Q.52 What are the principles of treatment of a disease?

Principles of treatment of disease:

There are two ways to treat an infectious disease:

(i) One would be to reduce the effect of the disease—

(a) By symptomatic treatment (b) By taking a bed rest.

(ii) Killing the micro-organisms of infectious agents.

Q.53 State the modes of transmission of each of the following diseases :

(i) Syphilis
(ii) Tuberculosis
(iii) Jaundice
(iv) Japanese encephalitis

Name of the Disease	Mode of Transmission
(i) Syphilis	Sexual contact
(ii) Tuberculosis	Air borne
(iii) Jaundice	Water borne
(iv) Japanese encephalitis	Mosquito bite

Q.54 Why are antibiotics not effective for viral diseases?

Antibiotics affect on life processes of bacteria and inhibit their growth. On the other hand, virus is just a piece of DNA, not a well defined life form. It is not considered as a living organism. They can reproduce inside the host cells and do not use biochemical pathways as other microbes (bacteria, fungi etc). That's why antibiotics not effective for viral diseases.

Q.55 Explain how disease causing microbes spread through air?

Disease causing microbes can spread through air. During coughing, sneezing or talking many disease causing microbes come out from the body of infected persons and spread through air. When a person happens to breathe these infected droplets gets infected with the disease. Some common air borne diseases are common cold, pneumonia, tuberculosis.

Q.56 Explain how disease causing microbes spread through water?

Diseases can also be spread through water. Water gets contaminated with microbes, if the excreta of someone suffering from an infectious gut disease, such as cholera or typhoid, gets mixed with the drinking water used by people living nearby. The cholera-causing microbes will enter new hosts through the water they drink and cause disease in them. Such diseases are more likely to spread in the absence of safe supplies of drinking water

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Q.57 State any four ways by which an AIDS virus spreads from an infected person to a healthy person.

(1) Blood to blood contact (transfusion).

(2) From an infected mother to her unborn baby during pregnancy, labour or delivery.

(3) Through breast feeding.

(4) *Through injection needle that have been used by someone who is infected.*

Q.58 List some general ways of prevention of infectious diseases.

General ways of preventing infectious disease:

(i) **Air-borne** – We can prevent exposure by providing living condition that is not overcrowded.

(ii) **Water-borne** – prevent by providing safe drinking water. This is done by treating the water to kill any microbial contamination.

(iii) **Vector-borne** – We can provide clean environment, which would not allow mosquito breeding.

Q.59 What causes Encephalitis? How does it enter the body? Which organ does it infect? What are the symptoms if this organ is infected?

- Virus causes encephalitis.

- Through mosquito bite it enters into human body.

- Brain is infected in this disease.

- Headache, fits, vomiting, unconsciousness

Q.60 A person was bitten by a stray dog. After some days his nature gets irritated, he started fearing water.

(i) Name the disease.

(ii) Is there any vaccine available?

(iii) Is there any plan of your local authority for the control of this disease?

(i) Rabies.

(ii) Anti-rabies vaccine.

(iii) Compulsory immunization of pets/dogs with anti-rabies vaccine

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Q.61 (i) What is balanced diet?

(ii) What problems will you face if you do not eat a balanced diet ?

(i) A diet that contains adequate amounts of fibre (roughage), water and all other necessary nutrients (protein, fat, carbohydrate, vitamins and minerals) required for healthy growth and activity is called balanced diet.

(ii) Lack of balanced diet will lead to the following problems:

(a) Poor maintenance of body tissues and organs.

(b) Lack of proper growth and development of the body.

(c) Lack of energy.

(d) Improper functioning of the various systems of the body.

All this will ultimately lead to some illness.

Q.62 Why antibiotics cannot be used for the treatment of AIDS?

AIDS is caused by virus (HIV- Human Immunodeficiency Virus). Antibiotics do not work against viruses, they only work against bacteria (which are whole, living cells).This is because antibiotics target certain aspects of a cell's machinery like building up of its cell wall, or making proteins necessary for performing vital functions etc. Viruses are different from all other forms of life as they do not have any internal machinery of their own. They enter the host cell and use its machinery for their life processes, thus providing few virus specific targets on which antibiotics can act. Moreover, HIV also has an extremely high rate of mutation which overcomes antiviral drugs with time. Therefore, antibiotics cannot be used for the treatment of AIDS.

Q.63 State the meaning of immunisation. Mention the principle on which it is based. List two diseases for which vaccines are provided under public health program

Process of developing artificial immunity in a person by giving vaccination against a particular disease is known as immunisation. Immunization is used to prevent diseases caused by microorganisms.

Principle of immunisation: The principle of immunization is based on the memory of the immune system on encountering an infectious agent. On subsequent encounters with the same or related microbe, the response of the immune system is multiplied greatly, leading to quick elimination of the infection.

The diseases that can be prevented by immunisation are: Tetanus, diphtheria, whooping cough, measles, and polio.

Q.64 Why is AIDS considered to be a ‘syndrome’ and not a disease?

AIDS is caused by a virus called HIV(Human Immunodeficiency Virus). It is acquired by the individual through various modes like infected blood transfusion, sexual contact and using syringes and needles used by others. Once this virus enters the human system, it spreads all over the body lymph nodes and suppresses the immune systems of the body thus making the body susceptible for many group of diseases i.e syndrome (group of diseases). That is reason that AIDS is considered as a syndrome since a group of health problems are characteristic of the disease. It causes individuals to become susceptible to bacterial, viral, fungal, and parasitic infections.

A syndrome can be defined as a group of symptoms that are characteristic of a disorder or disease (but it may be due to multiple diseases or no disease, e.g. an accident). A disease however is more crisply defined as a disorder of a specific organ or body system that arises from heredity, infection, environmental causes, etc.

Q.65 What are the causes, transmission, symptoms and preventive measure of malaria?

Causes of Malaria : -

Malaria is a life- threatening disease caused by a parasite called *Plasmodium*. The parasite is transmitted to humans by the bite of infected female *Anopheles* species mosquitoes.

Occasionally malaria is transmitted by blood transfusion. Malaria can also be transmitted from a mother to her foetus.

Symptoms of malaria may include: fever, which may come and go, or may be constant

Chills, profuse sweating, muscle and joint pain are other symptoms

Control : - Malaria can be controlled by taking antimalarial drugs. Most common antimalarial drug is quinine. It is extracted from the bark of Cinchoma tree.

Prevention:

We can only take some precautions like

Remove all unwanted water containers around the houses to prevent breeding of mosquitoes.

While going out always wear long-sleeved shirts and long pants.

Use mosquito repellant spray or creams and by sleeping under mosquito nets.

Q.66 How do antibiotics (e.g. Penicillin) kill bacterial cells but not human cells?

Antibiotic (‘anti’ means against, ‘biotic’ means living) are types of medications that destroy or slow the growth of bacteria. They are often termed as antibacterial. They work against the life processes of bacteria. They commonly block the biochemical pathways important for bacteria. Many bacteria make a cell wall to protect them. The antibiotic penicillin blocks the bacterial processes that build cell wall. Penicillin works by preventing cells from dividing. It does not allow them to synthesize cell wall, and thus when the cells attempt to duplicate, they rupture and end up killing themselves. Human cells don’t make cell wall, so penicillin cannot have such an effect on humans.

Q.67 Will a person who is already immunized with smallpox vaccine is infected with rabies when bitten by a rabid dog? Does he need to immunize again?

Vaccines are made using several different processes. They may contain live viruses that have been attenuated (weakened or altered so as not to cause illness); inactivated or killed organisms or viruses; inactivated toxins (for bacterial diseases where toxins generated by the bacteria, and not the bacteria themselves, cause illness); or merely segments of the pathogen (this includes both subunit and conjugate vaccines).

Rabies virus is different from the smallpox virus. The smallpox vaccine contains the “live” vaccinia virus while the vaccine for rabies is made from dead or killed viruses. So, immunization with smallpox vaccine does not have any effect against the rabies virus, Hence, the immunization with the smallpox vaccine does not induce our immune system to fight against the rabies virus. So, the person needs to immunize with the vaccine effective against the rabies virus.

Q.68 Write the signs, symptoms and preventive measure for Tuberculosis

Tuberculosis (TB) is a disease caused by bacteria, Mycobacterium Tuberculosis, that are spread through the air from person to person. The TB bacteria are put into the air when a person with TB disease of the lungs or throat coughs, sneezes, speaks, or sings. People nearby may breathe in these bacteria and become infected. The TB bacteria usually attack the lungs, but can attack any part of the body such as the kidney, spine, and brain. If not treated properly, TB disease can be fatal.

Symptoms of TB disease depend on where in the body the TB bacteria are growing. TB disease symptoms may include:

- A bad cough that lasts 3 weeks or longer
- Pain in the chest
- Coughing up blood or sputum (phlegm from deep inside the lungs)
- Weakness or fatigue
- Weight loss
- No appetite
- Chills
- Fever
- Sweating at night

Tuberculosis can also affect other parts of your body, including your kidneys, spine or brain. When TB occurs outside your lungs, signs and symptoms vary according to the organs involved. For example, tuberculosis of the spine may give you back pain, and tuberculosis in your kidneys might cause blood in your urine.

Prevention:

Steps to be followed to help keep your friends and family from getting sick:

- Stay home. Don't go to work or school or sleep in a room with other people during the first few weeks of treatment for active tuberculosis.

- Ventilate the room. Tuberculosis germs spread more easily in small closed spaces where air doesn't move. If it's not too cold outdoors, open the windows and use a fan to blow indoor air outside.

- Cover your mouth. Use a tissue to cover your mouth anytime you laugh, sneeze or cough. Put the dirty tissue in a bag, seal it and throw it away.

- Wear a mask. Wearing a surgical mask when you're around other people during the first three weeks of treatment may help lessen the risk of transmission.

- Finish your entire course of medication-This is the most important step you can take to protect yourself and others from tuberculosis. When you stop treatment early or skip doses, TB bacteria have a chance to develop mutations that allow them to survive the most potent TB drugs. The resulting drug-resistant strains are much more deadly and difficult to treat.

- Immunisation with BCG vaccine.

Q.69 How Vaccines Prevent Diseases

Vaccines reduce the risk of infection by working with the body's natural defenses to help it safely develop immunity to disease.

When germs, such as bacteria or viruses, invade the body, they attack and multiply. This invasion is called an infection, and the infection is what causes illness. The immune system then has to fight the infection. Once it fights off the infection, the body is left with a supply of cells that help recognize and fight that disease in the future.

Vaccines help develop immunity by imitating an infection, but this "imitation" infection does not cause illness. It does, however, cause the immune system to develop the same response as it does to a real infection so the body can recognize and fight the vaccine-preventable disease in the future. Sometimes, after getting a vaccine, the imitation infection can cause minor symptoms, such as fever. Such minor symptoms are normal and should be expected as the body builds immunity.

Q.70 Give two symptoms of typhoid and cholera. Name the disease causing micro-organism.

Typhoid:

Typhoid, also known as typhoid fever or enteric fever, is an infection caused by the bacteria *Salmonella typhi*. Typhoid is usually transmitted by water or food, in much the same way as cholera

Symptoms:

Typhoid usually causes a high, sustained fever, often as high as 40°C (104°F), and extreme exhaustion.

Other common symptoms include:

- constipation
- cough

Cholera *is an acute epidemic infectious disease caused by the bacterium Vibrio cholerae.*

Symptoms include-

The symptoms and signs of cholera are a watery diarrhea

- Vomiting
- Rapid heart rate
- Loss of skin elasticity

Q.71 (a) Which disease is the leading cause of infant mortality? What is its main cause?

(b) Name the disease that can be prevented by DPT immunisation.

(c) In what way does breast-feeding of infants protect them from infectious diseases?

(a) Diarrhoea is the leading cause of infant mortality. **Diarrhea** or **diarrhoea** is the condition of having at least three loose or liquid bowel movements each day. It often lasts for a few days and can result in dehydration due to fluid loss leading leave the body without the water and salts that are necessary for survival. Most kids who die from diarrhoea actually die from severe dehydration and fluid loss.

(b) The diseases that can be prevented by DPT immunization are diphtheria, whooping cough and tetanus.

(c) Milk supplied directly from the breast is free of bacteria. Breast-feeding provides the child with

essential nutrients and natural antibiotics.

Breastfeeding strengthens the immune system. During nursing, the mother passes antibodies to the child, which helps the child resist diseases and help improve the normal immune response to certain vaccines.

Q.72 A person is suffering cholera.

What is the immediate cause of cholera? What is the source of infection? Mention two contributory causes.

Immediate cause of cholera is bacterial infection.

Source of infection is contaminated food or water.

Contributory causes are lack of resistance and improper nourishment.

Value based questions

Q.1 Your teachers and parents would have often reminded you to use a handkerchief while you are suffering from cold and cough.

Answer the following questions based on the above information:

(a) Why do you think your elders ask you to put handkerchief in front of your mouth while sneezing or coughing?

(b) Which etiquette do you think are being imbibed to you by your elders?

(a) Respiratory droplets from an infected person's coughs or sneezes (these droplets generally travel less than one metre) and touching contaminated surfaces (including hands) and then touching your mouth, nose or eyes.

(b) Hygiene etiquette are being imbibed by our elders in us. Hygiene etiquette involves practices that prevent the spread of illness and disease.

Q.2 In India, we can see people dumping their household garbages and plastic wastes into the drain or rivers instead of dumping them into municipality dustbins.

(a) What are the problems that are likely to arise because of the disposal of garbage into drains and other water bodies?

(b) Do you think that the disposal of garbage into drains is correct way of disposing waste?

(a) The disposal of garbage's into drains can clog the drain and create water logging. The stagnant water will become breeding grounds for mosquitoes and other insects leading to the spread of various diseases

(b) As a responsible citizen of our country, we should dump waste in the dust bins provided by each municipality thereby reducing the spread of various diseases and will also help to keep the environment clean.

Previous Year's Questions

1 Mark Questions

Q.1 Give one local and one general effect of inflammation process.

[CBSE, 2012]

Sol. Local effects of inflammation: redness, warmth, swelling and pain.
General effect of inflammation: fever

Q.2 Name the protozoan's that cause:
(a) Sleeping sickness and
(b) Kala-azar

[CBSE 2010]

Sol. (a) Trypanosoma causes sleeping sickness.
(b) Leishmania causes Kala-azar.

Q.3 Name any diseases that can be prevented by using vaccines.

[DAV 2008]

Sol. Diphtheria, Pertussis, Tetanus, Measles Typhoid. Tuberculosis

2 Marks Questions

Q.4 What is an antibiotic? Give its one example.

[Board, 2012]

Sol. Antibiotics are chemicals produced by microorganisms which are capable of destroying or inhibiting the growth of other microorganisms. The microorganisms that produce antibiotics are mostly bacteria but some fungi also produce it. Examples of antibiotics are Penicillin, Tetracycline etc

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Q.5 Health workers are exposed to more sick people than others in the community. Write any four preventive measures they take to avoid sickness.

[Board 2012]

Sol. (i) Observing personal hygiene i.e., washing hands with antiseptics like dettol after handling equipment's, clothes etc of patients.

(ii) Use of mask to cover the nose and mouth to avoid infection through air.

(iii) Avoid direct physical contact i.e., use of hand gloves while treating or examining the patient.

(iii) Proper disposal or sterilizing the instruments.

(iv) Undergo Immunization time to time regularly.

Q.6 List any two ways of preventing the spread of air-borne diseases.

[Board 2012]

Sol. To prevent air borne diseases

- Airborne micro-organisms can be prevented by providing living conditions which are not over crowded
- Stay away from the infected person.
- Wear a mask when you need to contact an infected person.
- Cover your mouth and nose while coughing or sneezing to prevent the spread of the disease

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Q.7 Which system of our body is activated in response to infection and how it responds?

[CBSE (CCE), 2010]

Sol. Immune system is activated in response to infections. It responds by recruiting many cells to the affected tissue to kill the disease causing microbes. This recruitment process is called inflammation

Q.8 Although Archana has been suffering from a 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 those classmates catching cold and cough in spite of their exposure to the infection.

[CBSE (CCE), 2012]

Sol. When a microbe enters a body, the immune system of the body fight and try to kill the microbe. The immune system of those who did not suffer with cold and cough were able to successfully fight off the microbes to which they were exposed. Only people with weak immune system will be infected by the disease.

Q.9 (a) How do bacteria protect themselves?
(b)How is rabies virus spread?

[CBSE (CCE), 2010]

Sol. (a) Bacteria protect themselves by making a cell wall.
(b) Rabies virus is spread by the bite of infected dogs and other animals.

3 Marks Questions

Q.10 Write the symptoms when following organs are targeted by microbes:
(a)Lungs, (b) Liver, (c) Brain

[Board 2012]

Sol. (a) Lungs- Persistent cough and breathlessness
(b) Liver- Jaundice, weakness and fatigue, weight loss, nausea, vomiting
(c) Brain- Headache, fits, unconsciousness, vomiting

Q.11 State reason for the following statements:
(a) Children at the time of birth must be given proper vaccination.
(b) A person suffering from disease like tuberculosis, flue should be advised to avoid close public contact.
(c) Personal hygiene is very essential for good health.

[Board 2012]

Sol. (a) Children are more prone to get infectious diseases as their immune system is weak. Thus they should be given proper vaccination so that they are able to fight infectious pathogen and do not get the disease.
(b) BCG and DPT.
(c) Personal hygiene refers to the comprehensive cleaning of and caring for your body. Keeping your body clean is vital in combating and preventing illness -- both for yourself and for those around you. Washing your hands can prevent the spread of germs from one person to another or from one part of your body to another. Flossing and brushing your teeth can reduce the likelihood of oral and other diseases.

Q.12 State the method of transmission of each of the following diseases:
(a) (i) Cholera (ii) AIDS (iii) Malaria (iv) Pneumonia
(b) Name the diseases a person will get if the disease-causing microbes target the liver of a person.

[Board 2012]

Sol. (a) (i) Cholera – Contaminated water
(ii) HIV-AIDS – Sexual contact

(iii) Malaria – Mosquito / anopheles female
(iv) Pneumonia – Air

(b) Jaundice

Q.13 A man is suffering from AIDS.

(a) He is not able to fight off even minor infections. Why?

(b) Write any two ways in which he could have got this disease.

(c) Will the treatment by antibiotics help him in AIDS? Justify your answer.

[Board 2012]

Sol. (a) The patient might be suffering from AIDS. In case of AIDS, the virus affects the body's immune system and damages its function. Our body can then no longer fight off the many minor infections that we face every day. It is because of these subsequent infections that people suffering from AIDS die due to minor cold or gut infection.

(b) The pathogen that causes AIDS is **Human Immunodeficiency Virus.** AIDS is transmitted through sexual contact, from infected mother to child, infected syringe / needle, blood transfusion.

(c) Since it is caused by virus. Viruses do not have biochemical pathways and cell wall. They enter the host cell and use its machinery for their life processes, thus providing few virus specific targets on which antibiotics can act. Therefore, antibiotics are not effective in curing AIDS

Q.14 List the names of three diseases caused by virus stating their mode of communication is each case.

[CBSE (CCE), 2012]

Sol. Disease caused by virus and their mode of transmission: -

(a) Jaundice - Contaminated food and water.

(b) Rabies – Saliva of infected animal.

(c) AIDS – Through sexual contact, blood transfusion, contaminated needle from other to foetus.

Q.15 Why is DPT called Triple antigen?

[CBSE, 2011]

Sol. The vaccine which saves the life of babies from three diseases s called DPT. It is also known as Triple Antigen because DTP vaccine is a combination of vaccine which provides protection against the three diseases causing antigens i.e diphtheria, pertussis (whooping cough) and tetanus.

Q.16 (i) Define 'disease'.

(ii) Explain briefly the two groups of causes of diseases.

[CBSE (CCE), 2011]

Sol. (i) Disease: When the functioning or the appearance of one or more systems of the body changes for the worse then the body is said to be suffering from some diseases.

(ii) The two causes of diseases are :

(a) Infectious causes, (b) Non-infectious causes

(a) Infectious causes: Diseases where microbes are the immediate cause are called infectious disease. They spread in the community by microbes.

(b) Non-infectious causes: Diseases that are not caused by microbes are called non-infectious diseases. They do not spread in the community. e.g., high blood pressure.

Q.17 (a) What are communicable diseases?
(b) What are common methods of transmission of diseases?
[CBSE (CCE), 2011]

Sol. (i) Diseases that get communicated from one affected person to the other are called communicable diseases. Examples: Cough, Cold, Pneumonia.

(ii) These are spread by disease carrying microbes which are spread through the air, water and vector.

(iii) Several diseases spread from affected person to healthy person by means of water, air, food, insect, physical contact etc.

5 Marks Questions

Q.18 Explain the statement by giving two examples:
'It is not necessary that the pathogen may affect an organ or tissue depending upon the point of entry'

[Board 2014]

Sol. This statement means that it is not necessary that the pathogen will first affect the organ or tissue through which it has gained entry into the body of the living organism
Example:

(i) AIDS– Human Immunodeficiency Virus enter through sex organs – spread to lymph modes and then affects all parts of the body.

(ii) Dengue – the virus enters the blood stream via the bite of an infected mosquito (Aedes aegypti), begins replicating in target organs, infects white blood cells and lymphatic tissues and can affect every part of the body's system from the brain (encephalitis) to the body's nervous system.

Q.19 A person is suffering from chest pain, breathlessness, loss of body weight, persistent cough and produces blood stained sputum.
(a) Name the disease and its causative agent.
(b) Mention two means of its transmission.
(c) Name the vaccine used to prevent this disease.
(d) Who discovered this disease?

[DAV 2005]

Sol. (a) The person is suffering from Lung or Pulmonary Tuberculosis (T.B.) It is caused by a bacterium called Mycobacterium tuberculosis.

(b) It is a contagious disease. It spreads when a person who has active TB breathes out air that has the TB bacteria in it and then another person breathes in the bacteria from the air. An infected person releases even more bacteria when he or she coughs or laughs. T.B. may also be contracted from animals.

(c) Immunization with BCG or Bacillus-Calmette-Guerin vaccine can prevent T.B.

(d) T.B. was first discovered by Robert Koch in 1882.