5 Infectious and non - infectious diseases

Infection is a well known word. A person suffering from disease comes in contact with another person, who becomes a prey of that disease. This is called infection. Diseases caused by bacteria, viruses and fungi can be infectious. Crores of germs and bacteria from the body of a diseased person reach bodies of other animals via some ways and cause disease in them. These bacteria enter human body through the medium of air or dust, through water, milk or food, through bites or stings of animals or insects, through personal contact or through respiration or excreta - urine of disease carrying persons and cause disease. When a disease is spread through bacteria from one animal to other animal we call that disease as infectious disease. When a large number of persons are attacked with infection of certain disease simultaneously, it is called epidemic, cold influenza (flu), Pneumonia, Tuberculosis of lungs, Jaundice, Cholera, Typhoid, Whooping cough, Diphtheria, Measles, Influenja, Pneumonia Chicken - pox, Leprosy, AIDS, Guineaworm, Dysentery etc. are infectious disease.

(1) Germs and Germs carrier :

Germ is a very small living insect. Some of them come under animal kingdom, some come under plant kingdom. Insects enter the body, colonizes there and produce disease, they are called parasites. Germs enter the body, they cause malaria, plague, cholera. Germs of malaria come under animal kingdom, they are called protoza, initial germs.

Bacteria are under plant kingdom. These viruses are of different types. It flies from one place to another place, for example, fungi is a plant, it has very small string. When fungi freezes, after some days, it produces spores like few small drops. It flies in the air here and there. When it drops on food or on other things, fungi increases. Fungi anyhow enters the body, reproduces themselves, it makes man diseased. Some bacteria are useful to man, Milk is converted into curds due to bacterias, yeast bacteria prepares alcohol in the flour of Dhokala. Alcohol is prepared from sugar with the help of bacteria.

Bacteria of diseases enter the human body through the following ways :

(1) Through air : Bacteria of some diseases enter the human body along with air and dust to the lungs, influenza (Flu), Bacteria of Tuberculosis, cough etc.

(2) Through diet, food, water or milk : Bacteria of some diseases enter human body through polluted water, or food e.g. bacteria of diseases like cholera, typhoid, dysentery, worms, jaundice etc.

(3) Through direct contact : Some bacteria enter directly or through contact. Such diseases are called contagious diseases e.g. diseases like scabies, ring worms, eczema, leprosy, small pox, measles, chicken pox, etc..

(4) Through animals and insects : Some bacteria do not directly enter human body. First they enter to other animals and through them they enter the human body. e.g. first the insects of Malaria are with Mosquitos, mosquitos bite us then they enter our body through skin, in the same way diseases are spread by fleas also. The rebies diseases spread by bite of rabid animal. Some bacteria stick to flies feet, wings or other parts, spread from one place to another and food is polluted.

(5) Through rubbing of skin : Skin works as coverage against bacteria entering into the body. Even then some times bacteria of diseases enter human body, through rubbing or cut of skin e.g. anthrax and tetanus diseases are spread in this way.

(6) Through organs of generation : Sexual diseases or secret diseases are contagious diseases entering from one body to another body through organs of generation e.g. Syphilis, Clamedia, Gonorrhea are diseases spread through sexual contact. Those are sexual diseases.

(7) Through disease holders (carriers) : Some men are such that bacteria of specific diseases are there in their bodies, but as they have got immunity to fight against such bacteria, the disease do not adhere to them, but if bacteria from their bodies enter bodies of others, then they can be diseased. Such persons are called carriers of diseases. In such a way when a man becomes free from certain disease, he is a carrier of bacteria for some days. Hence that disease can adhere to the other person. Diphtheria, typhoid etc. are spread through disease carriers.

Prevention of Infectious Disease :

Closed place, houses with darkness and humidity, rotten fruits, food and vegetables are the production place of different types of bacteria. In this atmosphere, bacteria progress in geometrical progression. Bacteria increases like one to two, two to four, four to eight like that there will be innumerable production of bacteria in a very short period. Sunlight and open air destroy bacteria. So we should reside in well sunlit and well - ventilated open air residence. Such atmosphere control the bacteria and destroy them.

Types of diseases :

Diseases can be classified into two types : (i) Infectious diseases (ii) Non - infectious diseases.

(i) Infectious diseases : As we have seen, if one person is suffering from diseases and the other person comes in contact with him and gets affected with that disease, then it is called infection. Disease caused by bacteria, viruses and fungi are infectious.

(ii) Non - infectious diseases : Physical or mental diseases caused by increase or decrease of inanimate factors (external or internal) congenital defects by accident etc. are called non - infectious diseases.

(2) Physical protection against infectious diseases

Physical protection along with environmental health is another important step for protection against infectious diseases. Physical protection against infectious diseases can be had at two layers :

(1) External protection : Disease protection armour

(2) Internal Protection : Disease resistance armour

i. Disease protection armour : Generally most of the infectious diseases spread through carriers like water, food, air, flies, insects etc. If an armour is set up to stop contact between disease - causing bacteria and carriers spreading them, it is a first step of physical protection against infectious diseases.

ii. Immunity : Protection against disease of the diseased body depends on immunity. Immunity is basically of two kinds (1) Natural and (2) Acquired

(3) Natural Immunity :

Many bacteria enter human body through air, food or water. When bacteria enter human body with diseases to the blood, white blood corpuscles, white cells in blood fight to destroy bacteria. These white cells surround the bacteria of diseases enter in their body and destroy them. Antitoxins produced in blood do not allow the poison produced through bacteria to affect human body. The disease - resistance strength of human body is called natural immunity.

(4) Acquired Immunity :

Once there happens small - pox, that did not happen again. The reason is the acquired immunity, so the bacteria do not succeed in human body. The blood gets the immunity to destroy the bacteria of small pox. So we do not suffer the disease. This is called acquired immunity. Immunity is developed by creating situation like mild infection artificially through vaccination in the body over and above infection or disease caused unknowingly. Do not wait for spreading infectious disease, the immunity vaccination should be taken to increase acquired immunity. This immunity is more important than natural immunity.

(5) Regular health (medical) check-up to control diseases:

Regular health check - up is necessary for controlling the diseases. Instead of post diagnosis, its prediagnosis is necessary for protecting and maintaining health. Early diagnosis and treatment brings good result for protection of diseases. Regular medical check up is essential for maintaining health. Especially in case of non-infectious diseases regular medical check-up proves much beneficial.

The Government has made an arrangement for medical check- up and diagnosis. The health - cards of children are prepared and maintained. The facilities are provided to children in the school for diagnosis of general disease, necessary medicine, if essential, vaccination etc. If it is necessary to admit the child in hospital for some diseases, parents are informed accordingly and necessary arrangements are made.

Defective eye sight is found, but diagnosis has not been done, in that case the parents do not give him necessary treatment or there is a defect caused during school period. Early diagnosis brings good result of the treatment for eyesight, paleness in blood, defect of vitamin A, defect of teeth, defect in ear, anemia etc.

Importance of regular health check-up increases tremendously in diseases like high blood pressure, diabetes, diseases of heart or cancer found in adults and senior citizens, because some diseases are found going out of control in the body without giving physical troubles as such, and when physical trouble / complaints arise, till then they would have done much harm. Such hidden diseases can be diagnosed early through regular health check-up. Its treatment then brings good results.

(6) Vaccination programme and booster dose

Immunity has not sufficient capacity to over come and the diseases always. Some bacteria create powerful poison and the healthy person comes under the effect of diseases. For the resistance from the bacteria, the immunity power should be increased. So insects of special disease brought up through artificial treatment and will be converted in passive. Vaccine contains dead bacteria and posion thereof. Vaccine is injected in human body. This is called to put vaccine or innoculation. After vaccination, white cells of blood attack on dead insects, so the white cells are habituated to fight against bacteria, insect and antitoxin is created. Such person gets immunity power to fight against disease. But vaccine is not available for each and every disease. Vaccination programme has been launched through health department for six major diseases in our country. This vaccine is given to the child up to one year from its birth, but some of the vaccines are to be given even after one year. This additional dose is called the booster dose. Moreover the mother is also given vaccine during pregnancy also under the national vaccination programme. The details regarding the name of vaccine, protection against which disease etc. are given here in the following table :

Vaccination in children

Sr. No.	Name of Vaccine	Protection against which disease	When to give	How to give
1	B. C. G.	T. B.	On the second day after birth or after half month	Injection
2	DPT Triple Vaccine	Diphtheria, whooping cough and Tetanus.	- First dose at one and half month -Second dose at two and half months, -Third dose at three and half months	Injection
3	OPV	Polio	After birth on 2nd day and along with DTP three doses.	Two drops in mouth.
4	Small pox measles	Small pox measles	At Nine months	Injection.

Booster Dose

First booster dose

DPT (Triple vaccine)	Diphtheria whooping cough and Tetanus.	Age of one and half to two years	Injection
OPV	Polio	Age of one and half to two years	Two drops in mouth

Second booster dose

DT (Double vaccine)	Diphtheria Tetanus	At the age of 5-6 years	Injection.
OPV	Polio	At the age of 5-6 years	Two drops in month.

Third booster dose

TT (Tetanus)	Tetanus	10 to 16 years	Injection.
Vaccination to the pregnant mother			
TT (Tetanus)	Tetanus	After 16 weeks of pregnancy.	Injection
TT (booster After a month of dose of Tetanus)	Tetanus	After a month of the first dose.	Injection

In the second half of the last century up to 1970-75, vaccine of small pox was being given, but we could abolish not only the disease but also its disease causing bacteria from this earth through effective vaccine and vaccination throughout the whole world, and thus made a history.

In the same way intensive efforts are being made to abolish the disease polio and its disease causing bacteria through universal vaccination. At present we have reached very near to that target of achievement. Once again very quickly we would be able to make history of abolishing this polio through its additional vaccination dose.

Death rate of India - at present time :

There is a good repose of national health programmes of the government of India. People also have become vigilant for health improvement. We succeed to decrease death rate, due to control over the infectious diseases, remedy of the protection on the seasonal spreading disease and modern health technology. The Government of India started Prime Minister health protection scheme in Five year plan. Six centers have been already started at state level on the level of all India Institute of Medical sciences (AIMS), New Delhi. There is also a scheme of upgrading the centres to AIMS level and will be given central status.

The Death rate in India

Year	2001	2002	2003	2004	2005	2006
Percent of Death Rate	8.74%	6.62%	8.49%	8.34%	8.28%	8.18%
Year	2007	2008	2009	2010	2011	2012
Percent of Death Rate	6.58%	6.40%	8.23%	7.53%	7.48%	7.43%

(Percentage per thousand)

It is clear that an average death rate in 2001 to 2005 period was 8.1%, that decreased in 2006 to 2010, and become 6.98%. In 2011-2012 this rate was average 7.45 %.

(7) National Health Programmes :

National health programmes are planned for the control of the problem of health which is wide spread and that has effect on large mass of the nation. Its main objective is to prevent infectious diseases and to establish control on them. People's health will be improved and they will become fit for excellent living. Objectives and working of some important national health programmes is shown below in brief :

(1) Reproduction - Child Health Programme :

- **Objectives :**
  - ❖ To protect and promote health of children as well as mother.
  - ❖ To improve reproduction - as a part of family - welfare and population control.
- **Functions :**

  This programme is a group of many programmes. Efforts are made to achieve the above objectives by co-ordinating all the programmes related to child-health, mother - health and reproduction - health under this programme. Functions of this programme are as under

(1) Vaccination.

(2) Co-ordinated child development scheme.

(3) Gastro - enteritis control programme.

(4) Programme of controlling respiratory diseases.

(5) Family welfare programme.

(6) Deficiency of Vitamin A control - programme.

(7) Anaemia control programme.

(8) Treatment of infections of reproductive system and control programme.

(9) Care of pregnancy and remedial measure.

(2) Improved national TB control programme

- **Objectives :**
  - ❖ To reduce number of TB patients.
  - ❖ To stop new cases of TB.
- **Functioning**

  Treatment has been made available through diagnosis of TB and DOT (Directly observed treatment) dots centers with the help of microscope check-up at many places in the whole country. Every patient is made to take medicine (under direct care of the worker) so that he can recover by taking full dose.

(3) National malaria control programme :

7.5 crores people were suffering from malaria at indepentdence time. Eight lakh people died every year due to this disease. National Malaria Control Programmes were started in 1953. It was converted in National malaria destroy programme in 1958, we succeeded. Malaria infected patients decreased in

1965-66 and number was one lakh. Malaria destroy programme was joined with primary health programme in 1997. Spreading method of pesticizer was changed. Now the pesiticizers were sprayed there where there are two or more patients per thousand population exist. Due to this there is decrease in malaria patients. Greater malaria control programme (GMCP) was started in 1997.

National germs - produced (vector born) diseases control programme has been launched by expanding the area of work of this programme.

- **Objectives :**
  - ❖ To prevent the spreading of diseases like malaria, dangue and elephantiasis (Filariasis) spread through mosquitoes.
  - ❖ To control the proportion of such diseases.
- **Functioning :**

(1) To abolish the breeding places of mosquitoes

(2) To render treatment through immediate diagnosis

(3) To sprinkle insecticides for killing of mosquitoes.

(4) National AIDS Control Programme :

To prevent the spread of AIDS, the Government had started National AIDS Control Programme in April, 1992. NSP programme had worked upto 1993. The second phase, NACP-2 was started from April, 1999. This phase has two objectives (1) To prevent the spread of HIV and (2) To empower the Central and State Government with more efficiency to fight against HIV / AIDS. This programme has been decentralized at state and central administrative territories. The AIDS control society has been started at each state level. That plans a suitable scheme as per local necessity, and execute properly.

- **Objectives :**
  - ❖ To prevent the spread of HIV - AIDS in India.
  - ❖ To give treatment and help to the person affected with HIV - AIDS.

Functioning : To give proper and enough understanding regarding HIV - AIDS to get protection from it. To encourage and help people having risky sexual behavior to develop safe sexual behavior. To plan for making HIV free blood available.

Health Policy : The government of India had declared new national health policy in 2002, regarding health programme, in this scheme, more weightage is given to the field of medical research. The expenditure amount had increased double at government and private sectors up to 2010. In this policy, at the health sector the expenditure increases 8% at the GDP level up to 2010. The provision of 38 percent in health field medical expenditure is included, The provision of expenditure is increased up to 55 percent.

(8) Role of students and community in National Health Programme :

If students and people participate in National Health Programme, the programme will succeed and healthy environment will be created. To prevent this disease, people awarness and people efforts are very important forces.

Prevention of diseases can be achieved only by people participation and cooperation. i.e. malaria spreads through mosquitoes. If mosquitoes increase, the disease spreads rapidly. Mosquitoes which spread malaria, get produced in houses. schools, public places where there is water stored round-about. If we have to stop malaria disease, we must destroy the malaria producting chains like bectaria. Students, youth and people should be educated and trained to remove. The mosquitoes from house to house should find out breeding places of mosquitoes and abolish them. we should do co-operative efforts. We can control the malaria with the help of youths and students.

(9) Primary Health Protection :

Primary health services means necessary services which are related to health should be made available in the vicinity of houses. Primary health protection system includes not only treatment of widespread disease, but also allround services for protection, promotion of health of people of that area and prevention and control of diseases.

National programmes as shown above are a part of primary health protection. Primary health protection is provided through health organization established in the country. The government has started emergency services like 108, KILKILAT children's laughter.

(10) Village and Urban Health Organization.

Village health organization :

Basic facilities of required number of doctors and experts, facilities affecting health like safe drinking water, drainage, toilet arrangement, roads, electricity etc. are found less as compared to those in cities. Hence village health protection organisation has been established in order to make available basic services of health and services affecting health.

Primary Health centre is the unit of this organization. There is a primary health centre with one doctor and his team available for population of about thirty thousand. Under this health centre five to six sub - centres - as per the norm sub - centres for population of five to six thousand are established. Primary health centre is connected with community health centre and district hospital for intensive services.

Urban Health Organization :

Functioning

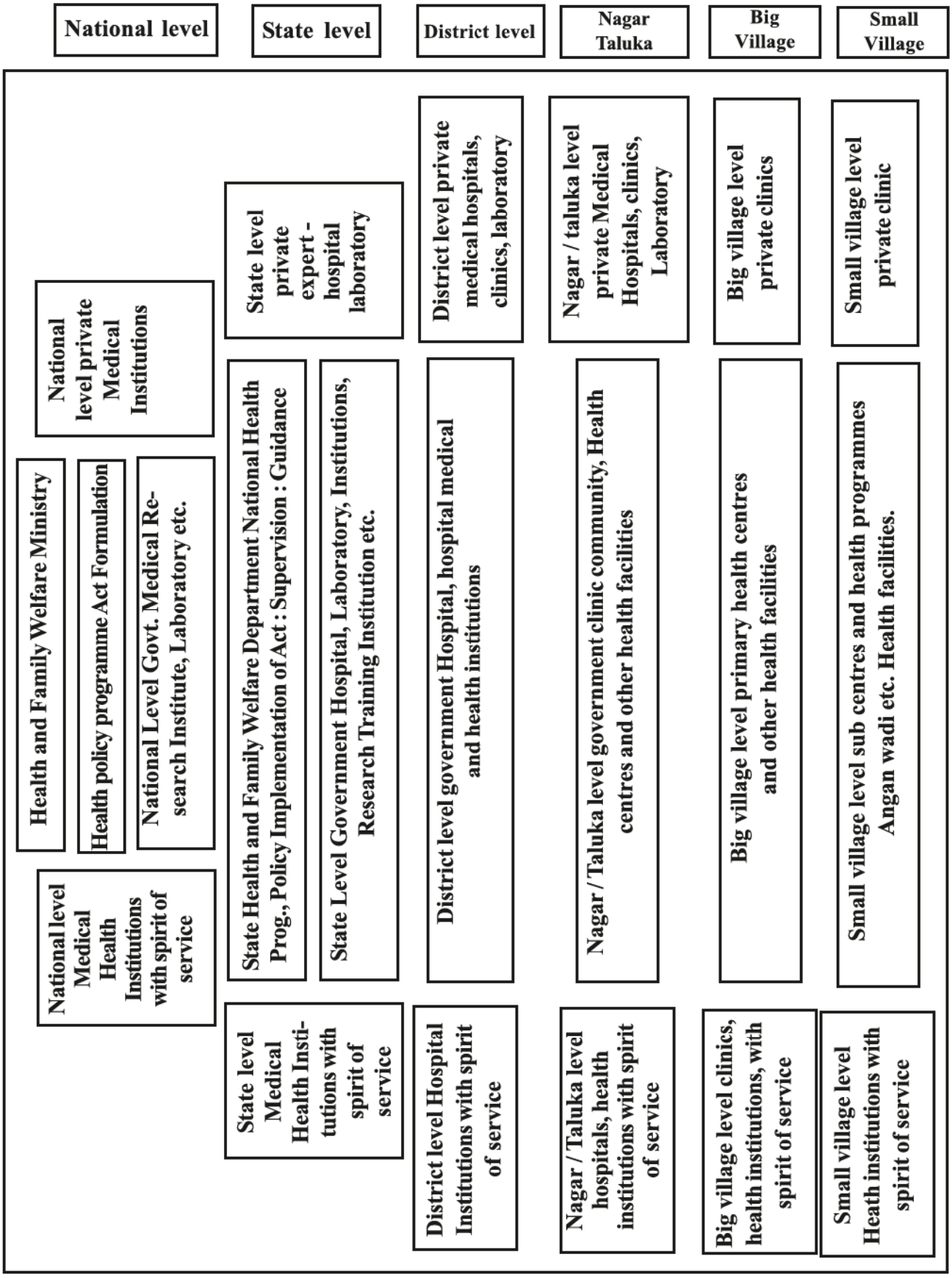
- Basic function: Treatment of ill person.
- Vaccination and family welfare function in slum areas of that particular area.
- Cleanliness of the area and proper dumping of waste.

Urban hospital :

Functioning : Expert and basic medical service facility of treatment like operation and to admit the patient. Health protection arrangement has been made in all India with the help of two health organizations as shown above.

If you study attentively the pictorial health organization shown here, you would be able to understand the health organization right from the village level to the national level. Broadly there are three major partners in health organization. (1) Government (2) Institutions with spirit of service. (3) Private institutions.

Village, Town, District, State and National Level Health organization



Exercise

1. Answer the following questions in detail.

(1) How are the bacteria of diseases enter into human body ?

(2) What made reduction in death-rate ?

(3) State the objectives and functions of reproduction - child health programme.

(4) State the objectives and functions of National Malaria control programme.

(5) State the objectives and functions of National AIDS control programme.

2. Write short notes:

(1) Germs.

(2) Acquired immunity.

(3) Vaccination.

(4) National TB control programme.

3. Answer the following questions in one sentence : :

(1) What is meant by "to be infected" ?

(2) State the types of germs.

(3) What is a parasite insect ?

(4) Give name of one disease that spreads through air.

(5) Give name of one disease that spreads through direct contact.

4. Write answers to the following questions by selecting correct option from the options given below :

(1) Which disease spreads through direct contact ?

(A) TB (B) Scabies (C) Malaria (D) Dysentery.

(2) What is called infectious disease ?

(A) Diseases spread through water. (B) Diseases spread through air.

(C) Diseases spread through one animal to other animal.

(D) Diseases spread through pollution.

(3) Which disease is spread through air ?

(A) Typhoid (B) Influenza (C) Eczema (D) Antharax

(4) Which vaccine is given to prevent TB ?

(A) D. P. T. (B) O. P. V. (C) Small Pox (D) B. C. G.

(5) Bacteria of which disease enters into human body through rubbing of skin ?

(A) Tetanus (B) Malaria (C) AIDS (D) TB.

(6) Which vaccine is given to prevent polio ?

(A) B. C. C. (B) O. P. V. (C) T. T. (D) D. P . T.

(7) Why is pulse polio vaccine given ?

(A) Protection against tetanus. (B) Protection against polio.

(C) Protection against small pox. (D) Protection against diphtheria

(8) Which programme is started to reduce death rate ?

(A) Prime minister health protection programme.

(B) Chief minister health protection programme.

(C) Health minister health protection programme.

(D) Death rate prevention programme.

(9) Which check - up is necessary to control the diseases ?

(A) Regular health check - up. (B) Check - up of blood.

(C) Check - up of lungs. (D) Check - up of heart.

(10) Diseases are classified in how many types ?

(A) One (B) Two (C) Three (D) Four.

***