

Chapter 8

Human Health and Disease

(Assertion Reason Questions)

Directions: In the following questions, a statement of assertion is followed by a statement of reason.

Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

Q.1. Assertion: Streptococcus pneumoniae and Haemophilus influenzae are responsible for causing infectious diseases in human beings.

Reason: A healthy person acquires the infection by inhaling the droplets/aerosols released by an infected person.

Q.2. Assertion: Paroxysms are regular and daily in Quotidian malaria.

Reason: Recurrence of fever is after 48 hours if the infection is caused by Plasmodium malariae.

Q.3. Assertion: There is no chance of malaria to a man on the bite of male Anopheles mosquito.

Reason: It carries a non-virulent strain of Plasmodium. [AIIMS 1998]

Q.4. Assertion: Plasmodium vivax is responsible for malaria.

Reason: Malaria is caused by polluted water. [AIIMS 2001]

Q.5. Assertion: Escherichia coli, Shigella sp. and Salmonella sp. are all responsible for diarrhoeal diseases.

Reason: Dehydration is common to all types of diarrhoeal diseases and adequate supply of fluids and electrolytes should be ensured. [AIIMS 2008]

Q.6. Assertion: Rabies is an infection of mammals, it involves central nervous system which may result in paralysis and finally death.

Reason: This is caused by neurotropic bacteria in saliva of rabies animal. [AIIMS 2000]

Q.7. Assertion: Pork should be properly cooked to avoid Taenia infection.

Reason: It contains hexacanth and cysticercic larvae.

Q.8. Assertion: Tapeworm, roundworm and pinworm are endoparasites of human intestine.

Reason: Improperly cooked food is the source of all intestinal infections.

Q.9. Assertion: Stool test is done to detect giardiasis.

Reason: Giardia is enteric flagellate protozoan.

Q.10. Assertion: Severe Acute Respiratory syndromes is common in China.

Reason: China is the most populated country of the world.

Q.11. Assertion: β -cells work chiefly by secreting substances called antibodies into the body fluids.

Reason: Antibodies ambush foreign antigen circulating in the blood stream.

Q.12. Assertion: Interferons help in the elimination of viral infections.

Reason: Interferons released by infected cells, reach nearby unaffected cells and make them resistant to viral infection.

Q.13. Assertion: An antibody is represented by H_2L_2 .

Reason: Each antibody is made of four peptide chains.

Q.14. Assertion: Innate immunity is non-specific defence.

Reason: It consists of four types of barriers.

Q.15. Assertion: T-lymphocytes mediate CMI response.

Reason: The above response makes it easy to transplant organs.

-X-X-X-

ANSWER KEY

Q.1 : (b) A healthy person acquires the infection by inhaling the droplets/aerosols released by an infected person or even by sharing glasses and utensils with an infected person.

Q.2 : (d) Paroxysms a sudden attack or outburst of a particular emotion or activity. Quotidian malaria in which the febrile paroxysms occur daily. In *P. malariae* infection, the relapses occur once every 72 hours and it is called Quartan malaria.

Q.3 : (c) Male *Anopheles* mosquito do not have piercing and sucking type of mouth parts. So, they can not inject malarial parasite into man.

Q.4 : (b) Malaria is caused by *Plasmodium* whose sexual phase occurs in the mosquito *Anopheles*. When female *Anopheles* feed on blood, they can serve as vector host for malarial parasite.

Q.5 : (b) Diarrhoeal disease conditions include frequent and excessive discharge of watery material from the bowel. Such diseases mostly result from ingestion of harmful germs with food and water. *E. coli*, *Shigella* sp. & *salmonella* sp. causes diarrhoea. Diarrhoea caused by virus, bacteria or parasites possesses two characteristics- firstly, the offending organisms colonise the intestine and as a consequence cause inflammation of the intestine or enteritis; and secondly, they upset the balance of intestinal fluid absorption and secretion mechanism, often enhancing the latter very considerably, which is then manifested as watery stool discharged frequently in large volumes. *Shigella* sp, *Salmonella* sp. are quite closely related genera that are responsible for diarrhoeal diseases. Dehydration is common to all types of diarrhoeal diseases & adequate supply of fluids & electrolytes that provides ions, should be ensured.

Q.6 : (c) Rabies (hydrophobia) is caused by rabies virus. Its vectors are rabid animals especially dogs. It leads to encephalitis, fear of water (hydrophobia), high fever, severe headache, spasm of throat & chest, leading to death.

Q.7 : (c) Human infection is direct and oral. It occurs by eating raw or under-cooked meaty pork (Pig muscle with cysticercus larvae of Taenia). Infection in vegetarians occurs through improperly washed vegetable. So proper cooking of pork and properly washed vegetable to avoid Taenia infection.

Q.8 : (a) Endoparasite lives inside its host. Bovine endoparasites may be divided into three categories: nematodes, or roundworms; cestodes, or tapeworms; and trematodes, or flukes.

Q.9 : (a) If a giardia infection is present, the parasite or its cysts can be seen when the stool is looked at under a microscope. If giardiasis is suspected, an antigen test may be done on the stool or a sample of the fluid from the small intestine (duodenal contents). Giardia is a genus of anaerobic flagellated protozoan parasites of the phylum Sarcomastigophora that colonise and reproduce in the small intestines of several vertebrates, causing giardiasis.

Q.10 : (b) On November 16, 2002, an outbreak of what is believed to be severe acute respiratory syndrome (SARS), began in the Guangdong province of China, which borders on Hong Kong. China is the most populated country in the World.

Q.11 : (a)

Q.12 : (a) Virus infected cells secrete proteins called interferons, which protect non-infected cells from further viral infection.

Q.13 : (a) Immunoglobulins, also known as antibodies, are glycoprotein molecules produced by plasma cells (white blood cells). The Ig monomer is a "Y"-shaped molecule that consists of four polypeptide chains; two identical heavy chains and two identical light chains connected by disulfide bonds.

Q.14 : (b) Innate immunity refers to nonspecific defense mechanisms that come into play immediately or within hours of an antigen's appearance in the body. Four barriers are physical, physiological, cellular and cytokine barriers.

Q.15 : (c) Cell-mediated immunity (CMI) is an immune response that does not involve antibodies, but rather involves the activation of phagocytes, antigen-specific cytotoxic T lymphocytes, and the release of various cytokines in response to an antigen. The immune response to a transplanted organ consists of both cellular (lymphocyte mediated) and humoral (antibody mediated) mechanisms.

Although other cell types are also involved, the T cells are central in the rejection of grafts.