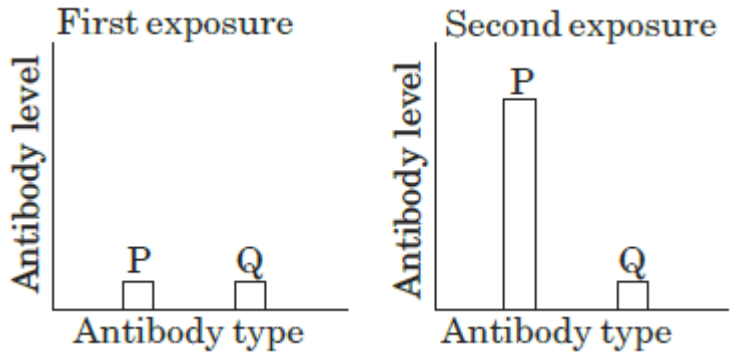
INDIAN SCHOOL AL WADI AL KABIR		
CLASS: XII	**DEPARTMENT: SCIENCE 2024 – 2025** **SUBJECT: BIOLOGY**	**DATE: 25/08/2024**
WORKSHEET NO 7	**TOPIC: HUMAN HEALTH AND DISEASES**	**NOTE: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

CASE STUDY-1

In a study to test a new vaccine against a viral disease, mouse model testing is done. In this process, mice are vaccinated and their blood samples were tested. Mice developed mild disease symptom. After few days those mice were again infected with the virus. This time they do not show any disease symptoms. Their blood samples were tested. Two graphs show antibody concentration for the first and second infection in mice blood.



Based on the above information, answer the following questions.

(i) P and Q in the given graphs indicate
(a) IgM and IgG respectively
(b) IgG and IgM respectively
(c) IgG and IgE respectively
(d) IgM and IgA respectively.

(ii) Which form of pathogen is used in vaccination?

(a) Activated and strong pathogenic antigens
(b) Inactivated and weakened pathogenic antigens
(c) Hyperactive and strong pathogen
(d) Preformed antibodies

(iii) Which of the following is incorrect for P?
(a) It is the most abundant class of Ig.
(b) It is found in blood, lymph and intestine.
(c) It is unable to cross the placental barrier.
(d) It is a monomer.

(iv) How does vaccination work?
(a) The immune system produces antibodies which stay in the blood.
(b) Memory lymphocytes remain in the body to fight off any future infection with the same pathogen.
(c) Antigenic proteins of pathogens generate primary immune response and the memory B and T cells.
(d) All of these.

(v) Read the given statements and select the correct option.
Statement A : Mice do not show any disease symptoms during second exposure to the pathogenic virus.
Statement B : The antibody production is accelerated and more intense during secondary immune response.
(a) Both statements A and B are true.
(b) Statement A is false but statement B is true.
(c) Statement A is true but statement B is false.
(d) Both statements A and B are false.

CASE STUDY-2

Bacteria like Streptococcus pneumoniae and Haemophilus influenzae are responsible for the disease pneumonia in humans which infects the alveoli (air filled sacs) of the lungs. As a result of the infection, the alveoli get filled with fluid leading to severe problems in respiration. Dysentery, plague, diphtheria, etc., are some of the other bacterial diseases in man. Many viruses also cause diseases in human beings. Rhino viruses represent one such group of viruses which cause one of the most infectious human ailments – the common cold. Droplets resulting from cough or sneezes of an infected person are either inhaled directly or transmitted through contaminated objects such as pens, books, cups, doorknobs, computer keyboard or mouse, etc., and cause infection in a healthy person.

a**)** Define the term 'Infectious disease' (1)

b) Which organ in the humans get affected by pneumonia disease and what is the result of it in severe cases. (1)
c) How is common cold different from pneumonia. (2)

CASE STUDY- 3

When you have gone to a new place and suddenly you started sneezing, wheezing for no explained reason, and when you went away, your symptoms disappeared. The above-mentioned reaction could be because of allergy to pollen, mites, etc., which are different in different places, the exaggerated response of the immune system to certain antigens present in the environment is called allergy. Somehow, modern-day life style has resulted in lowering of immunity and more sensitivity to allergens – more and more children in metro cities suffer from allergies and asthma due to sensitivity to the environment.

1.The most abundant antibody produced against allergens is
(a) IgE
(b) IgA
(c) IgG
(d) IgM.

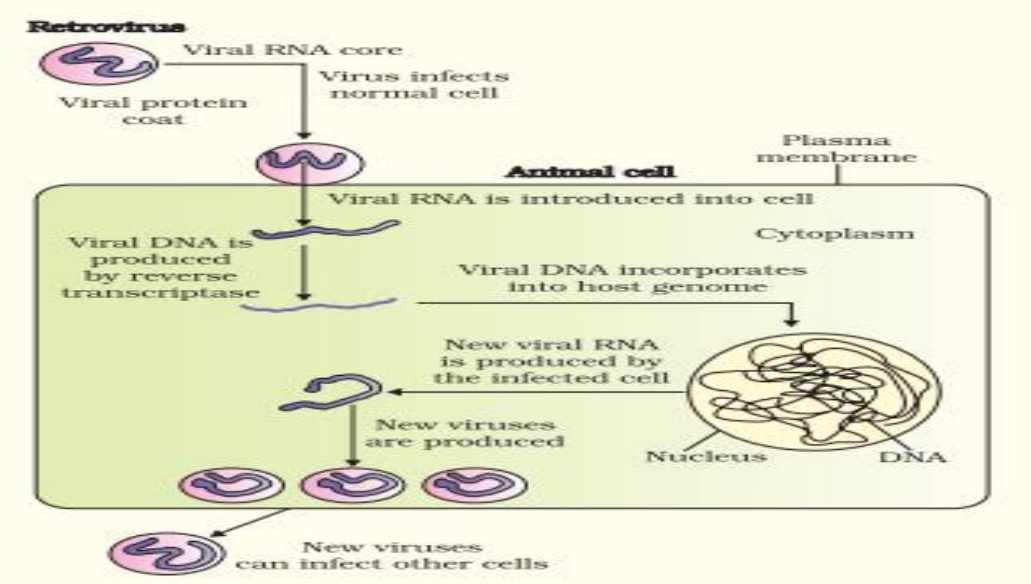
2.Which of the following cells actively participate during allergy?
(a) B-lymphocytes
(b) Liver cells
(c) Mast cells
(d) Red blood cells

3.The drugs used to quickly reduce the symptoms of allergy are
(a) anti-histamine and adrenaline
(b) histamine and thyroxine
(c) adrenaline and a-interferon
(d) all of these

4.**Assertion**: Allergy is due to the release of chemicals like histamine and serotonin from the mast cells.
Reason: Modern-day life style has resulted in lowering of immunity and more sensitivity to allergens
(a) Both A and Reason are true, and the R is the correct explanation of the A
(b) Both A and R are true, but the R is not the correct explanation of the A
(c) A is true but R is false.
(d) Both A and R are false

CASE STUDY-4

Observe the diagram and answer the questions that follow



1.AIDS stands for Acquired Immuno Deficiency Syndrome, this means
a) Congenital disease
b) Deficiency of immune system
c) Heredity disease
d) Lifestyle disease

2. AIDS is caused by the Human Immuno deficiency Virus (HIV), a member of a group of viruses called retrovirus
(a) which have an envelope enclosing the DNA genome
(b) which have an envelope enclosing the both DNA and RNA genome
(c) which have an envelope enclosing without any genome
(d) Which have an envelope enclosing the RNA genome.

3. **Assertion:** The person suffering from HIV starts suffering from infections that could have been otherwise overcome
Reason: Due to increase in the number of helper T lymphocytes

(a) Both assertion and reason are true, and the reason is the correct explanation of the assertion.
(b) Both assertion and reason are true, but the reason is not the correct explanation of the assertion.
(c) Assertion is true but reason is false.
(d) Both assertion and reason are false.

4. The-------- continue to produce virus and in this way acts like a HIV factory.
(a) RBCs
(b) Macrophages
(c) Helper T-lymphocytes
(d) Liver cells

MCQs-OBJECTIVE TYPE QUESTIONS (1 Marks.)

1.'Smack' is a drug obtained from the
(a) latex of Papever somniferum
(b) leaves of Cannabis saliva
(c) flowers of Datura
(d) fruits of Erythroxylon coca

2.The substance produced by a cell in viral infection that can protect other cells from further infection is
(a) serotonin
(b) colostrum
(c) interferon
(d) histamine.

3.Antibodies present in colostrum which protect the new born from certain diseases is of
(a) IgG type
(b) IgA type
(c) IgD type
(d) IgE type.

4.Haemozoin is a
(a) precursor of haemoglobin
(b) toxin released from Streptococcus infected cells
(c) toxin released from Plasmodium infected cells
(d) toxin released from Haemophilus infected cell

5.A person with sickle cell anaemia is
(a) more prone to malaria
(b) more prone to typhoid
(c) less prone to malaria
(d) less prone to typhoid.

6.Typhoid fever in human beings is caused by
(a) Plasmodium vivax
(b) Trichophyton
(c) Salmonella typhi
(d) Rhinoviruses.

7.Which one of the following sets includes bacterial diseases?
(a) Tetanus, tuberculosis, Cholera
(b) Diphtheria, leprosy, plague
(c) Typhoid, mumps, measles
(d) Malaria, mumps, poliomyelitis

8.The common cold is caused by
(a) Rhino viruses
(b) Streptococcus pneumonea
(c) Salmonella typhimurium
(d) Plasmodium vivax.

9.Injection of antitoxin in tetanus confers which type of immunisation?
(a) Active immunisation
(b) Passive immunisation
(c) Auto-immunisation
(d) Humoral immunisation
.
10.Vaccine against polio viruses is an example of
(a) auto-immunisation
(b) passive immunisation
(c) active immunisation
(d) simple immunisation

11.During the life cycle of Plasmodium, sexual reproduction takes place in which of the following hosts ?
(a) Human
(b) Female Anopheles mosquito
(c) Male Anopheles mosquito
(d) Both (a) and (b)

12.An intestinal parasite which causes blockage of the intestinal passage and whose eggs are excreted along with the faeces of infected person is _____.
(a) Wuchereria bancrofti
(b) Ascaris
(c) Epidermophyton
(d) Microsporum

13.Appearance of dry, scaly lesions with itching on various parts of the body are the symptoms of _____.
(a) elephantiasis
(b) ringworm
(c) ascariasis
(d) amoebiasis

14.Heroin is commonly called as
(a) coke
(b) crack
(c) smack
(d) charas.

15.Marijuana is extracted from .
(a) dried leaves and flowers of hemp plant .
(b) ergot fungus
(c) roots of hemp plant
(d) cocoa plant.

16.Hepatitis B vaccine is produced from
(a) inactivated viruses
(b) yeast
(c) Haemophilus influenzae
(d) Salmonella typhimurium.

17.**Assertion:** Lymph nodes serve to trap the micro-organisms or other antigens, which happen to get into the lymph and tissue fluid.
Reason: Antigens trapped in the lymph nodes are responsible for the activation of lymphocytes present there and cause the immune response

(a) Both assertion and reason are true, and the reason is the correct explanation of the assertion.
(b) Both assertion and reason are true, but the reason is not the correct explanation of the assertion.
(c) Assertion is true but reason is false.
(d) Both assertion and reason are false

18.**Assertion:** Metastasis is the most feared property of malignant tumors.
Reason: As the cells actively divide and grow they also starve the normal cells by competing for vital nutrients.

(a) Both assertion and reason are true, and the reason is the correct explanation of the assertion.
(b) Both assertion and reason are true, but the reason is not the correct explanation of the assertion.
(c) Assertion is true but reason is false.
(d) Both assertion and reason are false

SHORT ANSWER TYPE QUESTION (2 Marks) Previous years Board Questions

1. What is the reason of shivering in malarial patient?

2.Why does an AIDS patient suffer from many infections?

3. Where are B-cells and T-cells formed? How do they differ from each other?

4.What would happen to the immune system, if thymus gland is removed from the body of a person?

5.Differentiate between two different types of tumours?

6.Differentiate between active & passive immunity?

7.Enumerate the two properties of cancer cells that distinguish them from normal cell.

8.What are autoimmune diseases? Give two examples?

LONG ANSWER TYPE QUESTIONS (3 Marks)-Previous years Board Questions

1. What are Cannabinoids? From which plant Cannabinoids are obtained? Which part of the body is affected by consuming these substances?
2. Mention any three causes of drug abuse. Suggest some measures for the prevention and control of drug abuse.
3. What is innate immunity? List the four types of barriers which protect the body from the entry of the foreign agents.

LONG ANSWER TYPE QUESTIONS (5 Marks)-Previous years Board Questions

1.With the help of a diagrammatic representation depict the life cycle of the HIV.

2.a) With the help of a diagrammatic representation depict the life cycle of the Plasmodium in the Primary host.

b) Why does the symptoms of malaria not appear immediately after the plasmodium enters our body.

3 a) How is cancer caused and what is its most feared property

b) Mention any two techniques of its diagnosis and its treatment.

c) How are oncoviruses different from oncogenes,

HINTS

<table>
<tr><td colspan="2">ANSWER KEY</td></tr>
<tr><td>1</td><td>ANSWERS (1-18) MCQs
<table>
<tr><td>1-a</td><td>2-c</td><td>3-b</td><td>4-c</td><td>5-c</td><td>6-c</td><td>7-a</td></tr>
<tr><td>8-a</td><td>9-b</td><td>10-c</td><td>11-b</td><td>12-b</td><td>13-b</td><td>14-a</td></tr>
<tr><td>15-a</td><td>16-b</td><td>17-a</td><td>18-a</td><td></td><td></td><td></td></tr>
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<tr><td></td><td>2MARK QUESTIONS</td></tr>
<tr><td>1</td><td>After sporozoite infection, when RBC ruptures, a toxic substance hemozoin is released which cause chilling and high fever</td></tr>
<tr><td>2</td><td>Because in AIDS patient, immune system greatly weakens & cannot fight against any infection</td></tr>
<tr><td>3.</td><td>B-cells and T-cells are formed in bone marrow. B-cells produce antibodies but T-cells do not produce antibodies but help B-cells to produce them, B-cells form the humoral system and T-cells the CMI</td></tr>
<tr><td>4.</td><td>T-lymphocytes are developed and matured in thymus gland, Immune system will become weak on removal of thymus gland.</td></tr>
<tr><td>7.</td><td>i) uncontrolled proliferation of cells without any differentiation

ii) Ability of these cells to invade other tissues called metastasis</td></tr>
<tr><td>8.</td><td>arthritis, Immunity is based on ability to differentiate foreign organism from self-cells. Sometimes immune system may go off the track & turns against self-antigen and elicit immunity. Such conditions are called auto – immune diseases eg. Rheumatoid Myasthenia gravis.</td></tr>
<tr><td></td><td>3 MARK Question</td></tr>
<tr><td>1</td><td>-Cannabinoids are a group of chemicals which interact with Cannabinoid receptors present

- Principally in the brain Cannabinoids are obtained from the inflorescences of the plant Cannabis sativa.

– The substances affect the cardiovascular system adversely.</td></tr>
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