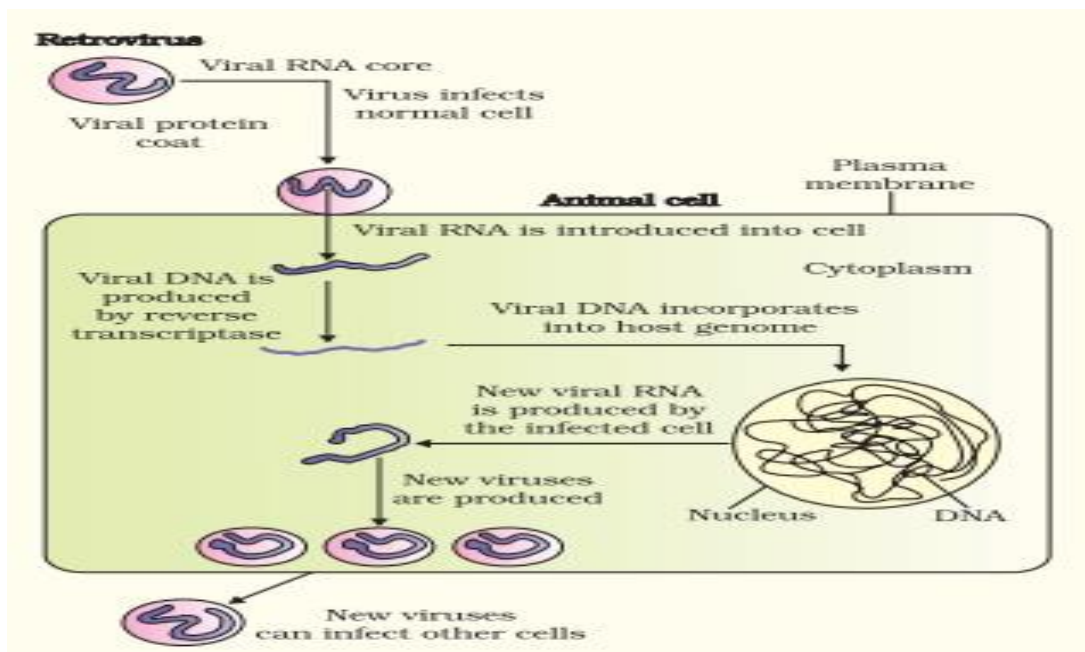




<b>Class: XII</b>	<b>Department: SCIENCE 2021 – 22</b> <b>SUBJECT: BIOLOGY</b>	<b>Date of submission:</b> <b>Fourth week of</b> <b>October 2021</b>
<b>Worksheet</b> <b>No: 8</b>	<b>UNIT: BIOLOGY IN HUMAN WELFARE</b> <b>HUMAN HEALTH AND DISEASE</b>	<b>Note:</b> <b>A4 FILE FORMAT</b>
<b>NAME OF THE STUDENT</b>	<b>CLASS &amp; SEC:</b>	<b>ROLL NO.</b>

### CASE STUDY-Replication of a retrovirus

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. Transmission of HIV-infection generally occurs by

- a) sexual contact with infected person
- b) by transfusion of contaminated blood and blood products
- c) by sharing infected needles as in the case of intravenous drug abusers
- d) from all the above

5. 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

#### **Assertion and Reasoning (Objective 1-mark question)**

**1.Assertion:** Normal cells show a property called contact inhibition

**Reason:** Cancer cells appears to have lost this property and show uncontrolled growth.

- 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

2. **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

3. **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 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. **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

#### MCQs-OBJECTIVE TYPE QUESTIONS (1 Marks.)

1. AIDS is caused by HIV. Among the following, which one is not a mode of transmission of HIV?

- (a) Transfusion of contaminated blood.
- (b) Sharing the infected needles.
- (c) Shaking hands with infected persons.
- (d) Sexual contact with infected persons.

2. 'Smack' is a drug obtained from the

- (a) latex of *Papaver somniferum*
- (b) leaves of *Cannabis sativa*
- (c) flowers of *Datura*
- (d) fruits of *Erythroxylon coca*

3. 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.

4. 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.

5. Which of the following is not a lymphoid tissue?

- (a) Spleen
- (b) Tonsils
- (c) Pancreas
- (d) Thymus.

6. 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

7. 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.

8. Which of the following pairs contains an infectious and a non-infectious disease respectively?

- (a) Typhoid and AIDS
- (b) AIDS and cancer
- (c) Pneumonia and malaria
- (d) Cancer and malaria

9. Typhoid fever in human beings is caused by

- (a) *Plasmodium vivax*
- (b) *Trichophyton*
- (c) *Salmonella typhi*

(d) Rhinoviruses.

10. Which one of the following sets includes bacterial diseases?

- (a) Tetanus, tuberculosis, measles
- (b) Diphtheria, leprosy, plague
- (c) Cholera, typhoid, mumps
- (d) Malaria, mumps, poliomyelitis

11. The common cold is caused by

- (a) Rhino viruses
- (b) Streptococcus pneumoniae
- (c) Salmonella typhimurium
- (d) Plasmodium vivax.

12. Humoral immunity is associated with

- (a) T-cells
- (b) B-cells
- (c) macrophages
- (d) both (a) and (b)

13. A protein or polysaccharide molecule that stimulates antibody formation.

- (a) antigen
- (b) antibiotics
- (c) exotoxin
- (d) endotoxins.

14. Injection of antitoxin in tetanus confers which type of immunisation?

- (a) Active immunisation
- (b) Passive immunisation
- (c) Auto-immunisation
- (d) Humoral immunisation

15. Vaccine against polio viruses is an example of

- (a) auto-immunisation
- (b) passive immunisation
- (c) active immunisation
- (d) simple immunisation

16. 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)

17. 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

18. Which of the following is affected by the infection of *Wuchereria bancrofti*?

- (a) Lymphatic vessels
- (b) Respiratory system
- (c) Nervous system
- (d) Blood circulation

19. 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

20. Heroin is commonly called as

- (a) coke
- (b) crack
- (c) smack
- (d) charas.

21. Marijuana is extracted from .

- (a) dried leaves and flowers of hemp plant .
- (b) ergot fungus
- (c) roots of hemp plant
- (d) cocoa plant.

22. Hepatitis B vaccine is produced from

- (a) inactivated viruses
- (b) yeast
- (c) *Haemophilus influenzae*
- (d) *Salmonella typhimurium*.

23. The most abundant antibody produced against allergens is

- (a) IgE
- (b) IgA
- (c) IgG
- (d) IgM.

24. Which of the following cells actively participate during allergy ?

- (a) B-lymphocytes
- (b) Liver cells
- (c) Mast cells
- (d) Red blood cells

25. The drugs used to quickly reduce the symptoms of allergy are

- (a) anti-histamine and adrenaline

- (b) histamine and thyroxine
- (c) adrenaline and  $\alpha$ -interferon
- (d) all of these

26. An auto-immune disease is

- (a) SCID
- (b) rheumatoid arthritis
- (c) myasthenia gravis
- (d) both (b) and (c).

27. The site where lymphocytes interact with antigens and proliferate to become effector cells are

- (a) spleen and lymph nodes
- (b) bone marrow and thymus
- (c) Peyer's patches and tonsils
- (d) both (a) and (c)

28. AIDS is widely diagnosed by

- (a) Widal test
- (b) ELISA
- (c) PC
- (d) Chromatography.

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

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

### **SHORT ANSWER TYPE QUESTION (2 Marks)**

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

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

33. What is the role of histamine in inflammatory response? Name few drugs which reduce the symptoms of allergy.

34. Differentiate between two different types of tumours?

35. Differentiate between active & passive immunity?

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

37. What are allergens? How do they cause inflammatory response inside human body?

38. What are autoimmune diseases? Give two examples?

### LONG ANSWER TYPE QUESTIONS (3 Marks)

39. What are Cannabinoids? From which plant Cannabinoids are obtained? Which part of the body is affected by consuming these substances?

40. Mention any three causes of drug abuse. Suggest some measures for the prevention and control of drug abuse.

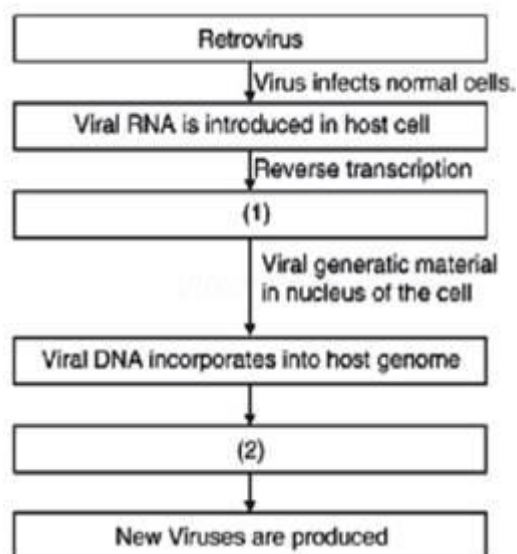
41. A person shows unwelcome immunogenic reactions while exposed to certain substances.

(a) Name this condition.

(b) What common term is given to the substances responsible for this condition?

(c) Name the cells and the chemical substances released which cause such reactions

42. In the given flow diagram, the replication of retrovirus in a host cell is shown. Examine it and answer the following questions



(a) Why is virus called retrovirus



(b) Fill in (1) and (2)

(c) Can infected cell survive while viruses are being replicated and released by host cell?

43. What is innate immunity? List the four types of barriers which protect the body from the entry of the foreign agents.

**HELP**

**ANSWERS (1-28) MCQs**

<b>1-c</b>	<b>2-a</b>	<b>3-c</b>	<b>4-b</b>	<b>5-c</b>	<b>6-c</b>	<b>7-a</b>
<b>8-b</b>	<b>9-c</b>	<b>10-b</b>	<b>11-a</b>	<b>12-b</b>	<b>13-a</b>	<b>14-b</b>
<b>15-c</b>	<b>16-b</b>	<b>17-b</b>	<b>18-a</b>	<b>19-b</b>	<b>20-c</b>	<b>21-a</b>
<b>22-b</b>	<b>23-a</b>	<b>24-c</b>	<b>25-a</b>	<b>26-d</b>	<b>27-d</b>	<b>28-b</b>

29. After sporozoite infection, when RBC ruptures, a toxic substance haemozoin is released which cause chilling and high fever.

30. Because in AIDS patient, immune system greatly weakens & cannot fight against any infection

31. B-cells and T-cells are formed in bone marrow. B-cells produce antibodies but E-cells do not produce antibodies but help B-cells to produce them

32. T-lymphocytes are developed and matured in thymus gland, Immune system will become weak on removal of thymus gland.

33. Histamine acts as allergy-mediator which cause blood vessels to dilate. It is released by mast cells. Antihistamine steroids and adrenaline quickly reduce the symptoms of allergy.

36.i) uncontrolled proliferation of cells without any differentiation

ii) Ability of these cells to invade other tissues called metastasis.

37.The substance which causes the hypersensitive reaction of the immune system is called an allergen e.g. dust, pollen grains etc. These allergens are actually weak antigens. First exposure to allergen does not cause allergy but consequent exposure, allergen combines with Ig E on mast cell. That causes cells to burst & release Histamines which cause inflammatory response.

38.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 arthritis, Myasthenia gravis.

39. -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

42.(a) Allergy (b) Allergens

(c) Mast Cells - Histamine, Serotonin

<b>Prepared by: Ms. Agnes Aranha</b>	<b>Checked by : HOD - Science</b>
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