Human Health and Disease

Class 12 Biology · 24 NEET MCQs with answers & explanations

Human Health and Disease is one of NEET's most factual chapters — diseases, their causative organisms, symptoms, immunity types, cancer and drugs/alcohol abuse are all tested. NEET questions are direct and fact-based, so a well-made revision table can lock in multiple marks. Pay special attention to the immune system (innate vs adaptive, humoral vs cell-mediated).

Key Diseases & Immunity

Disease / Concept	Key Fact
Typhoid	Salmonella typhi; intestinal perforation; Widal test for diagnosis
Malaria	Plasmodium (vivax/falciparum); female Anopheles mosquito; attacks RBCs
AIDS	HIV (retrovirus); attacks helper T-cells (CD4+); ELISA for screening
Cancer	Oncogenes (growth), tumour suppressor genes; benign vs malignant
Innate immunity	Non-specific: skin, mucus, phagocytes, NK cells, complement
Adaptive immunity	Specific: humoral (B-cells → antibodies) + cell-mediated (T-cells)

Questions

Q1. A person receives ready-made antibodies transferred from another source. Which immunity type is this?

(A) Passive acquired immunity
(B) Active acquired immunity
(C) Innate non-specific immunity
(D) Cell-mediated immunity

Q2. A patient with a severe antibody deficiency would show the greatest reduction in which serum fraction?

(A) Red blood cell count
(B) Serum albumin
(C) Clotting factor VIII
(D) Serum globulins

Q3. Which condition best describes the definition of health according to NCERT?

(A) Complete physical, mental and social well-being
(B) Absence of pathogens in the body
(C) High metabolic activity in all tissues
(D) Strong immune response at all times

Q4. Which factor most directly determines personal health status?

(A) Geographical location of residence
(B) Balanced nutrition and personal hygiene
(C) Availability of advanced medicines
(D) Genetic uniformity among individuals

Q5. Which type of drug slows down brain activity and produces calming or sedating effects on the CNS?

(A) Depressants
(B) Stimulants
(C) Hallucinogens
(D) Analgesics

Q6. Which drug category increases alertness, heart rate, and neural activity by acting on the CNS?

(A) Opioids
(B) Stimulants
(C) Hallucinogens
(D) Narcotics

Q7. Which characteristic most clearly distinguishes cancer cells from normal cells according to NCERT?

(A) Uncontrolled cell division
(B) Reduced metabolic rate
(C) Lack of nucleus
(D) Absence of DNA

Q8. Which term describes a mass of proliferating cells resulting from uncontrolled cell division?

(A) Mutation
(B) Tumour
(C) Antigen
(D) Lymphocyte

Q9. Which mode of transmission involves spread of pathogens through droplets released during coughing or sneezing?

(A) Airborne transmission
(B) Vector transmission
(C) Foodborne transmission
(D) Blood-borne transmission

Q10. Which disease is transmitted primarily through contaminated food and water?

(A) Malaria
(B) Typhoid
(C) Pneumonia
(D) Common cold

Q11. Which protozoan parasite causes malaria in humans?

(A) Plasmodium species
(B) Trypanosoma gambiense
(C) Entamoeba histolytica
(D) Wuchereria bancrofti

Q12. Which protozoan parasite causes amoebiasis in humans?

(A) Plasmodium vivax
(B) Entamoeba histolytica
(C) Leishmania donovani
(D) Giardia lamblia

Q13. Which type of immunity is present from birth and provides immediate non-specific defense against pathogens?

(A) Innate immunity
(B) Acquired immunity
(C) Passive immunity
(D) Artificial immunity

Q14. Which cells differentiate into plasma cells and produce antibodies during an acquired immune response?

(A) B lymphocytes
(B) T lymphocytes
(C) Macrophages
(D) Neutrophils

Q15. Which feature best distinguishes infectious diseases from non-infectious diseases in humans?

(A) Caused by pathogens; transmissible between individuals
(B) Always hereditary in origin
(C) Always involve autoimmune response
(D) Always triggered by nutritional deficiency

Q16. Which category includes diseases that arise due to defects in genes or chromosomes?

(A) Communicable diseases
(B) Genetic diseases
(C) Vector-borne diseases
(D) Degenerative diseases

Q17. A patient has an immediate hypersensitivity reaction after exposure to a normally harmless allergen. Which mechanism is most directly involved?

(A) Formation of a malignant tumour
(B) Destruction of all B-lymphocytes by HIV
(C) Production of red blood cells
(D) Mast-cell-mediated release of histamine and serotonin

Q18. A child receives IgA through colostrum immediately after birth. Which statement best describes this protection?

(A) Active immunity because the infant synthesises the transferred IgA
(B) It is passive immunity because preformed antibodies are transferred from mother to child
(C) Innate immunity because IgA is a physical barrier
(D) Autoimmunity because maternal antibodies recognise infant cells

Q19. Which combination correctly identifies the pathogen and vector involved in malaria?

(A) Entamoeba histolytica — Aedes mosquito
(B) Wuchereria — housefly
(C) Salmonella typhi — female Anopheles
(D) Plasmodium — female Anopheles mosquito

Q20. Which immune-cell pairing is correctly matched with its primary function?

(A) B-lymphocyte — humoral antibody-mediated response
(B) T-lymphocyte — secretes all circulating antibodies
(C) Neutrophil — generates immunological memory
(D) Red blood cell — antigen-specific antibody production

Q21. Which bacterial disease mentioned in NCERT is transmitted mainly through contaminated food and water?

(A) Typhoid
(B) Malaria
(C) Influenza
(D) Leishmaniasis

Q22. Which viral disease spreads primarily through droplets released during coughing and sneezing?

(A) Tuberculosis
(B) Common cold
(C) Cholera
(D) Amoebiasis

Q23. Which virus is responsible for causing Acquired Immunodeficiency Syndrome in humans?

(A) Human Immunodeficiency Virus
(B) Hepatitis B Virus
(C) Influenza Virus
(D) Dengue Virus

Q24. Which immune cells are primarily targeted and destroyed by HIV?

(A) B lymphocytes
(B) Helper T lymphocytes (CD4+)
(C) Neutrophils
(D) Natural killer cells

Answer key

1-A	**2-D**	**3-A**	**4-B**	**5-A**	**6-B**	**7-A**	**8-B**
9-A	**10-B**	**11-A**	**12-B**	**13-A**	**14-A**	**15-A**	**16-B**
17-D	**18-B**	**19-D**	**20-A**	**21-A**	**22-B**	**23-A**	**24-B**

Answers with explanations

Q1 — Answer: (A) Passive acquired immunity
Passive immunity results from transfer of ready-made antibodies rather than production by the recipient. It acts rapidly but is temporary because immunological memory is not established. Active immunity requires the person's own immune response and is longer-lasting.

Q2 — Answer: (D) Serum globulins
Antibodies are immunoglobulins belonging to the globulin fraction of serum proteins. A marked antibody deficiency therefore reflects as reduced serum globulins. Albumin, clotting factors and red blood cells are not antibodies and would not be the primary indicator of antibody deficiency.

Q3 — Answer: (A) Complete physical, mental and social well-being
NCERT defines health as a state of complete physical, mental and social well-being — not merely absence of disease or pathogens. Options B, C, D each capture only one partial aspect.

Q4 — Answer: (B) Balanced nutrition and personal hygiene
NCERT states personal health depends on balanced diet, hygiene, and healthy lifestyle habits. Geography and genetics play secondary roles; medicines treat disease but do not determine baseline health.

Q5 — Answer: (A) Depressants
Depressants like alcohol and barbiturates reduce neural activity, producing relaxation or sedation. Stimulants do the opposite — they increase CNS activity. Analgesics relieve pain but do not primarily sedate.

Q6 — Answer: (B) Stimulants
Stimulants such as cocaine and amphetamines enhance CNS activity, increasing alertness and heart rate. Opioids and narcotics depress CNS function; hallucinogens alter perception without primarily stimulating.

Q7 — Answer: (A) Uncontrolled cell division
Cancer cells lose normal cell cycle regulation, leading to uncontrolled and abnormal division. Options B, C, and D are incorrect — cancer cells retain nuclei and DNA and often show increased, not reduced, metabolic activity.

Q8 — Answer: (B) Tumour
A tumour is a mass of abnormal cells produced by uncontrolled cell proliferation. Mutation is the underlying cause, not the resulting mass; antigens and lymphocytes are immunology terms unrelated to this definition.

Q9 — Answer: (A) Airborne transmission
Respiratory droplets expelled during coughing or sneezing carry pathogens that infect persons in close proximity — this is airborne (droplet) transmission. Vector transmission requires a living carrier organism; foodborne and blood-borne routes are entirely distinct portals of entry.

Q10 — Answer: (B) Typhoid
Typhoid is caused by Salmonella typhi, which enters the body through ingestion of contaminated food or water. Malaria is vector-borne; pneumonia and common cold are transmitted via respiratory droplets.

Q11 — Answer: (A) Plasmodium species
Malaria is caused by protozoan parasites of genus Plasmodium, transmitted by the bite of infected female Anopheles mosquito. Entamoeba causes amoebiasis; Wuchereria is a helminth causing filariasis; Trypanosoma causes sleeping sickness (not in NCERT scope here).

Q12 — Answer: (B) Entamoeba histolytica
Amoebiasis is caused by Entamoeba histolytica, which infects the large intestine. Plasmodium causes malaria; Leishmania causes kala-azar; Giardia causes giardiasis — all distinct protozoan diseases.

Q13 — Answer: (A) Innate immunity
Innate immunity is present from birth and acts as rapid, non-specific defense via physical barriers and phagocytic cells. It does not require prior antigen exposure. Acquired immunity, by contrast, develops only after antigen encounter.

Q14 — Answer: (A) B lymphocytes
B lymphocytes, on antigen stimulation, differentiate into plasma cells that secrete specific antibodies. T lymphocytes mediate cell-mediated immunity and do not produce antibodies. Macrophages and neutrophils are innate immune cells.

Q15 — Answer: (A) Caused by pathogens; transmissible between individuals
Infectious diseases are caused by pathogens capable of transmission from infected to healthy individuals; non-infectious diseases arise from internal physiological, genetic, or environmental causes and are not transmitted. Option B describes genetic diseases, not infectious ones.

Q16 — Answer: (B) Genetic diseases
Genetic diseases arise from inherited defects in genes or chromosomes that disrupt normal body function. Communicable diseases involve pathogen transmission; vector-borne diseases require an arthropod carrier; degenerative diseases involve progressive tissue breakdown.

Q17 — Answer: (D) Mast-cell-mediated release of histamine and serotonin
Allergy is an exaggerated immune response to normally harmless substances. NCERT associates allergic reactions with release of chemicals such as histamine and serotonin from mast cells. Tumour formation, HIV-mediated destruction and red blood cell production are unrelated to immediate hypersensitivity.

Q18 — Answer: (B) It is passive immunity because preformed antibodies are transferred from mother to child
Colostrum contains IgA antibodies that provide ready-made protection to the newborn. Because the antibodies are supplied by another individual without the infant generating them, this is passive immunity. The infant does not mount a primary immune response to produce these antibodies.

Q19 — Answer: (D) Plasmodium — female Anopheles mosquito
Malaria is caused by Plasmodium and is transmitted by the bite of an infected female Anopheles mosquito. Salmonella typhi causes typhoid via food and water. Wuchereria causes filariasis. Entamoeba causes amoebiasis.

Q20 — Answer: (A) B-lymphocyte — humoral antibody-mediated response
B-lymphocytes give rise to plasma cells that secrete antibodies and form the basis of humoral immunity. T-lymphocytes mediate cell-mediated immunity. Erythrocytes do not produce antibodies and neutrophils do not generate immunological memory.

Q21 — Answer: (A) Typhoid
Typhoid, caused by Salmonella typhi, spreads through ingestion of food and water contaminated with the bacterium. Malaria spreads via Anopheles mosquito, not food/water. Influenza and Leishmaniasis have entirely different transmission routes.

Q22 — Answer: (B) Common cold
Common cold, caused by rhinoviruses, spreads via respiratory droplets. Tuberculosis is bacterial; Cholera and Amoebiasis are transmitted through contaminated food/water, not droplets.

Q23 — Answer: (A) Human Immunodeficiency Virus
AIDS is caused by HIV (Human Immunodeficiency Virus), a retrovirus that attacks the immune system. Hepatitis B causes liver disease. Influenza and Dengue viruses do not cause immunodeficiency syndrome.

Q24 — Answer: (B) Helper T lymphocytes (CD4+)
HIV selectively infects and destroys CD4+ helper T lymphocytes, progressively crippling immune coordination. B lymphocytes, neutrophils, and NK cells are not the primary targets — though macrophages are also infected, CD4+ T cells are the key target.

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