

Human Health and Disease — NEET Biology PYQ (2005-2021)

Class 12 Biology · 62 real NEET & AIPMT questions, year-tagged · answers checked by RankUp

NEET 2021

1. Match List - I with List - II.

List - I | List - II

(a) Filariasis | (i) Haemophilus influenzae

(b) Amoebiasis | (ii) Trichophyton

(c) Pneumonia | (iii) Wuchereria bancrofti

(d) Ringworm | (iv) Entamoeba histolytica

Choose the correct answer from the options given below.

(A) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

(B) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

(C) (a)-(i), (b)-(ii), (c)-(iv), (d)-(iii)

(D) (a)-(ii), (b)-(iii), (c)-(i), (d)-(iv)

NEET 2020 · Q4

2. Match the following diseases with the causative organism and select the correct option.

Column - I | Column - II

(a) Typhoid | (i) Wuchereria

(b) Pneumonia | (ii) Plasmodium

(c) Filariasis | (iii) Salmonella

(d) Malaria | (iv) Haemophilus

(A) (a)-i, (b)-iii, (c)-ii, (d)-iv

(B) (a)-iii, (b)-iv, (c)-i, (d)-ii

(C) (a)-ii, (b)-i, (c)-iii, (d)-iv

(D) (a)-iv, (b)-i, (c)-ii, (d)-iii

NEET 2020 · Q10

3. The infectious stage of Plasmodium that enters the human body is:

(A) Trophozoites

(B) Sporozoites

(C) Female gametocytes

(D) Male gametocytes

NEET 2020 · Q45

4. Identify the wrong statement with reference to immunity.

(A) When exposed to antigen (living or dead) antibodies are produced in the host's body. It is called "Active immunity".

(B) When ready-made antibodies are directly given, it is called "Passive immunity".

(C) Active immunity is quick and gives full response.

(D) Foetus receives some antibodies from mother, it is an example for passive immunity.

NEET 2019 · Q92

5. Colostrum, the yellowish fluid, secreted by mother during the initial days of lactation is very essential to impart immunity to the newborn infants because it contains :

(A) Natural killer cells

(B) Monocytes

(C) Macrophages

(D) Immunoglobulin A

NEET 2019 · Q149

6. Drug called 'Heroin' is synthesized by :

- (A) methylation of morphine
- (B) acetylation of morphine
- (C) glycosylation of morphine
- (D) nitration of morphine

NEET 2019 · Q162

7. Which of the following immune responses is responsible for rejection of kidney graft ?

- (A) Auto-immune response
- (B) Humoral immune response
- (C) Inflammatory immune response
- (D) Cell-mediated immune response

NEET 2019 · Q175

8. Identify the correct pair representing the causative agent of typhoid fever and the confirmatory test for typhoid.

- (A) Plasmodium vivax / UTI test
- (B) Streptococcus pneumoniae / Widal test
- (C) Salmonella typhi / Anthrone test
- (D) Salmonella typhi / Widal test

NEET 2018 · Q157

9. Which part of poppy plant is used to obtain the drug "Smack"?

- (A) Roots
- (B) Latex
- (C) Flowers
- (D) Leaves

NEET 2018 · Q175

10. In which disease does mosquito transmitted pathogen cause chronic inflammation of lymphatic vessels?

- (A) Ringworm disease
- (B) Ascariasis
- (C) Elephantiasis
- (D) Amoebiasis

NEET 2018 · Q176

11. Which of the following is not an autoimmune disease?

- (A) Alzheimer's disease
- (B) Rheumatoid arthritis
- (C) Psoriasis
- (D) Vitiligo

NEET 2017 · Q73

12. Transplantation of tissues/organs fails often due to non-acceptance by the patient's body. Which type of immune-response is responsible for such rejections?

- (A) Autoimmune response
- (B) Cell - mediated immune response
- (C) Hormonal immune response
- (D) Physiological immune response

NEET 2017 · Q135

13. MALT constitutes about ____ percent of the lymphoid tissue in human body.

- (A) 50%
- (B) 20%
- (C) 70%
- (D) 10%

14. Which of the following statements is correct?

- (A) Acquired immunity is pathogen specific.
- (B) The exaggerated response of the immune system to certain antigens present in the environment is called Auto-immunity.
- (C) Bone marrow acts as a filter of the blood by trapping blood borne micro-organisms.
- (D) AIDS is caused by a group of viruses called rhinovirus.

15. Match Column - I with Column - II and select the correct option.

Column - I: (a) Plasmodium (b) Wuchereria (c) Entamoeba (d) Microsporium

Column - II: (i) Ringworm (ii) Amoebiasis (iii) Elephantiasis (iv) Malaria

- (A) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
- (B) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)
- (C) (a)-(i), (b)-(iii), (c)-(ii), (d)-(iv)
- (D) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

16. Which of the following sets of diseases is caused by bacteria?

- (A) Cholera and tetanus
- (B) Typhoid and smallpox
- (C) Tetanus and mumps
- (D) Herpes and influenza

17. In higher vertebrates, the immune system can distinguish self-cells and non-self. If this property is lost due to genetic abnormality and it attacks self-cells, then it leads to:

- (A) Allergic response
- (B) Graft rejection
- (C) Auto-immune disease
- (D) Active immunity

18. Antivenom injection contains preformed antibodies while polio drops that are administered into the body contain:

- (A) Activated pathogens
- (B) Harvested antibodies
- (C) Gamma globulin
- (D) Attenuated pathogens

19. Which of the following statements is not true for cancer cells in relation to mutations?

- (A) Mutations in proto-oncogenes accelerate the cell cycle.
- (B) Mutations destroy telomerase inhibitor.
- (C) Mutations inactivate the cell control.
- (D) Mutations inhibit production of telomerase.

20. Match each disease with its correct type of vaccine: (a) tuberculosis (b) Whooping cough (c) diphtheria (d) polio — (i) harmless virus (ii) inactivated toxin (iii) killed bacteria (iv) harmless bacteria

- (A) a-(i), b-(ii), c-(iv), d-(iii)
- (B) a-(ii), b-(i), c-(iii), d-(iv)
- (C) a-(iii), b-(ii), c-(iv), d-(i)
- (D) a-(iv), b-(iii), c-(ii), d-(i)

AIPMT 2015

21. HIV that causes AIDS, first starts destroying:

- (A) Thrombocytes
- (B) B – Lymphocytes
- (C) Leucocytes
- (D) Helper T – Lymphocytes

AIPMT 2015

22. The active form of *Entamoeba histolytica* feeds upon:

- (A) blood only
- (B) erythrocytes; mucosa and submucosa of colon
- (C) mucosa and submucosa of colon only
- (D) food in intestine

AIPMT 2014

23. At which stage of HIV infection does one usually show symptoms of AIDS?

- (A) When the infected retro virus enters host cells
- (B) When HIV damages large number of helper T-Lymphocytes
- (C) When the viral DNA is produced by reverse transcriptase
- (D) Within 15 days of sexual contact with an infected person

NEET 2013

24. Infection of *Ascaris* usually occurs by

- (A) drinking water containing eggs of *Ascaris*
- (B) eating imperfectly cooked pork
- (C) tsetse fly
- (D) mosquito bite

NEET 2013

25. The cell-mediated immunity inside the human body is carried out by

- (A) T- lymphocytes
- (B) B-lymphocytes
- (C) Thrombocytes
- (D) Erythrocytes

AIPMT 2012 Mains

26. Read the following four statements (A-D):

- (A) Colostrum is recommended for the new born because it is rich in antigens.**
- (B) Chikungunya is caused by a Gram negative bacterium.**
- (C) Tissue culture has proved useful in obtaining virus-free plants.**
- (D) Beer is manufactured by distillation of fermented grape juice.**

How many of the above statements are wrong?

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

AIPMT 2012 Mains

27. Which one of the following statements is correct with respect to immunity ?

- (A) Preformed antibodies need to be injected to treat the bite by a viper snake
- (B) The antibodies against small pox pathogen are produced by T-lymphocytes
- (C) Antibodies are protein molecules, each of which has four light chains
- (D) Rejection of a kidney graft is the function of B-lymphocytes

AIPMT 2012 Prelims

28. Common cold differs from pneumonia in that

- (A) Pneumonia pathogen infects alveoli whereas the common cold affects nose and respiratory passage but not the lungs
- (B) Pneumonia is a communicable disease whereas the common cold is a nutritional deficiency disease
- (C) Pneumonia can be prevented by a live attenuated bacterial vaccine whereas the common cold has no effective vaccine
- (D) Pneumonia is caused by a virus while the common cold is caused by the bacterium *Haemophilus influenzae*

AIPMT 2012 Prelims

29. Which one of the following is not a property of cancerous cells whereas the remaining three are?

- (A) They show contact inhibition
- (B) They compete with normal cells for vital nutrients
- (C) They do not remain confined in the area of formation
- (D) They divide in an uncontrolled manner

AIPMT 2012 Prelims

30. In which one of the following options the two examples are correctly matched with their particular type of immunity?

- (A) Mucus coating of epithelium lining the urinogenital tract and the HCl in stomach – Physiological barriers
- (B) Polymorpho-nuclear leukocytes and monocytes – Cellular barriers
- (C) Anti-tetanus and anti-snake bite injections – Active immunity
- (D) Saliva in mouth and tears in eyes – Physical barriers

AIPMT 2012 Prelims

31. Widal test is carried out to test

- (A) Typhoid fever
- (B) Malaria
- (C) Diabetes mellitus
- (D) HIV/AIDS

AIPMT 2012 Prelims

32. Motile zygote of Plasmodium occurs in

- (A) Human liver
- (B) Gut of female Anopheles
- (C) Salivary glands of Anopheles
- (D) Human RBCs

AIPMT 2012 Prelims

33. Cirrhosis of liver is caused by the chronic intake of

- (A) Cocaine
- (B) Opium
- (C) Alcohol
- (D) Tobacco (Chewing)

AIPMT 2011 Mains

34. Select the correct statement with respect to diseases and immunisation

- (A) Certain protozoans have been used to mass produce hepatitis B vaccine
- (B) Injection of snake antivenom against snake bite is an example of active immunisation
- (C) If due to some reason B- and T-lymphocytes are damaged, the body will not produce antibodies against a pathogen
- (D) Injection of dead / inactivated pathogens causes passive immunity

AIPMT 2011 Mains

35. Common cold is not cured by antibiotics because it is

- (A) Caused by a Gram-negative bacterium
- (B) Not an infectious disease
- (C) Caused by a virus
- (D) Caused by a Gram-positive bacterium

AIPMT 2011 Mains

36. Which one of the following options gives the correct matching of a disease with its causative organism and mode of infection?

- (A) Elephantiasis – Wuchereria bancrofti – With infected water and food
- (B) Malaria – Plasmodium vivax – Bite of male Anopheles mosquito
- (C) Typhoid – Salmonella typhi – With inspired air
- (D) Pneumonia – Streptococcus pneumoniae – Droplet infection

AIPMT 2011 Prelims

37. Which of the following acts as a physiological barrier to the entry of microorganisms in human body?

- (A) Skin
- (B) Epithelium of urogenital tract
- (C) Tears
- (D) Monocytes

AIPMT 2011 Prelims

38. Where will you look for the sporozoites of the malarial parasite?

- (A) Salivary glands of freshly moulted female Anopheles mosquito
- (B) Saliva of infected female Anopheles mosquito
- (C) Red blood corpuscles of humans suffering from malaria
- (D) Spleen of infected humans

AIPMT 2011 Prelims

39. A certain patient is suspected to be suffering from Acquired Immuno Deficiency Syndrome. Which diagnostic technique will you recommend for its detection?

- (A) WIDAL
- (B) ELISA
- (C) MRI
- (D) Ultra sound

AIPMT 2011 Prelims

40. At which stage of HIV infection does one usually show symptoms of AIDS?

- (A) Within 15 days of sexual contact with an infected person
- (B) When the infecting retrovirus enters host cells
- (C) When viral DNA is produced by reverse transcriptase
- (D) When HIV replicates rapidly in helper T-lymphocytes and damages large number of these

AIPMT 2010 Mains · Q21

41. Which one of the following techniques is safest for the detection of cancers?

- (A) Magnetic resonance imaging (MRI)
- (B) Radiography (X-ray)
- (C) Computed tomography (CT)
- (D) Histopathological studies

AIPMT 2010 Mains · Q41

42. A person suffering from a disease caused by Plasmodium, experiences recurring chill and fever at the time when?

- (A) The sporozoites released from RBCs are being rapidly killed and broken down inside spleen
- (B) The trophozoites reach maximum growth and give out certain toxins
- (C) The parasite after its rapid multiplication inside RBCs ruptures them, releasing the stage to enter fresh RBCs
- (D) The microgametocytes and megagametocytes are being destroyed by the WBCs

43. Widal test is used for the diagnosis of

- (A) Typhoid
- (B) Malaria
- (C) Pneumonia
- (D) Tuberculosis

44. Ringworm in humans is caused by

- (A) Viruses
- (B) Bacteria
- (C) Fungi
- (D) Nematodes

45. Consider the following four statements (a-d) regarding kidney transplant and select the two correct ones out of these.

- a. Even if a kidney transplant is proper the recipient may need to take immunosuppressants for a long time**
- b. The cell-mediated immune response is responsible for the graft rejection**
- c. The B-lymphocytes are responsible for rejection of the graft**
- d. The acceptance or rejection of a kidney transplant depends on specific interferons**

The two correct statements are

- (A) a & b
- (B) b & c
- (C) c & d
- (D) a & c

46. Which one of the following statements is correct with respect to AIDS?

- (A) The causative HIV retrovirus enters helper T-lymphocytes thus reducing their numbers
- (B) The HIV can be transmitted through eating food together with an infected person
- (C) Drug addicts are least susceptible to HIV infection
- (D) AIDS patients are being fully cured cent per cent with proper care and nutrition

47. Select the correct statement from the ones given below

- (A) Cocaine is given to patients after surgery as it stimulates recovery
- (B) Barbiturates when given to criminals make them tell the truth
- (C) Morphine is often given to persons who have undergone surgery as a pain killer
- (D) Chewing tobacco lowers blood pressure and heart rate

48. A person likely to develop tetanus is immunised by administering:

- (A) Preformed antibodies
- (B) Wide spectrum antibiotics
- (C) Weakened germs
- (D) Dead germs

49. The letter T in T-lymphocyte refers to:

- (A) Thalamus
- (B) Tonsil
- (C) Thymus
- (D) Thyroid

AIPMT 2009 Prelims · Q101

50. Which of the following is a pair of viral diseases?

- (A) Common Cold, AIDS
- (B) Dysentery, Common Cold
- (C) Typhoid, Tuberculosis
- (D) Ringworm, AIDS

AIPMT 2009 Prelims · Q125

51. Which one of the following statements is correct?

- (A) Benign tumours show the property of metastasis.
- (B) Heroin accelerates body functions.
- (C) Malignant tumours may exhibit metastasis.
- (D) Patients who have undergone surgery are given cannabinoids to relieve pain.

AIPMT 2009 Prelims · Q127

52. Use of anti-histamines and steroids give a quick relief from:

- (A) Nausea
- (B) Cough
- (C) Headache
- (D) Allergy

AIPMT 2008 Prelims · Q186

53. To which type of barriers under innate immunity, do the saliva in the mouth and the tears from the eyes, belong?

- (A) Physical barriers
- (B) Cytokine barriers
- (C) Cellular barriers
- (D) Physiological barriers

AIPMT 2008 Prelims · Q187

54. Match the disease in Column I with the appropriate items (pathogen/prevention/treatment) in Column II

Column I: (a) Amoebiasis (b) Diphtheria (c) Cholera (d) Syphilis

Column II: (i) Treponema pallidum (ii) Use only sterilized food and water (iii) DPT Vaccine (iv) Use oral rehydration therapy

- (A) a-(ii), b-(iii), c-(iv), d-(i)
- (B) a-(i), b-(ii), c-(iii), d-(iv)
- (C) a-(ii), b-(iv), c-(i), d-(iii)
- (D) a-(ii), b-(i), c-(iii), d-(iv)

AIPMT 2008 Prelims · Q198

55. Cornea transplant in humans is almost never rejected. This is because

- (A) It is a non-living layer
- (B) Its cells are least penetrable by bacteria
- (C) It has no blood supply
- (D) It is composed of enucleated cells

AIPMT 2007 Prelims · Q163

56. Increased asthmatic attacks in certain seasons are related to

- (A) eating fruits preserved in tin containers
- (B) inhalation of seasonal pollen
- (C) low temperature
- (D) hot and humid environment

57. Lysozyme that is present in perspiration, saliva and tears, destroys

- (A) certain types of bacteria
- (B) all viruses
- (C) most virus-infected cells
- (D) certain fungi

58. Antibodies in our body are complex :

- (A) lipoproteins
- (B) steroids
- (C) prostaglandins
- (D) glycoproteins

59. HIV that causes AIDS, first starts destroying :

- (A) B-lymphocytes
- (B) leucocytes
- (C) thrombocytes
- (D) helper T-lymphocytes

60. Damage to thymus in a child may lead to :

- (A) a reduction in haemoglobin content of blood
- (B) a reduction in stem cell production
- (C) loss of antibody mediated immunity
- (D) loss of cell mediated immunity

61. AIDS is caused by HIV that principally infects :

- (A) all lymphocytes
- (B) activator B cells
- (C) T 4 lymphocytes
- (D) cytotoxic T cells

62. Which one of the following depresses brain activity and produces feelings of calmness, relaxation and drowsiness.

- (A) Valium
- (B) Morphine
- (C) Hashish
- (D) Amphetamines

Answer key and explanations

1. Answer: (B) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

Filariasis is caused by *Wuchereria bancrofti*, amoebiasis by *Entamoeba histolytica*, pneumonia by *Haemophilus influenzae* (and *Streptococcus pneumoniae*), and ringworm by *Trichophyton*. Hence (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii).

2. Answer: (B) (a)-iii, (b)-iv, (c)-i, (d)-ii

Typhoid is caused by *Salmonella typhi*, pneumonia by *Haemophilus influenzae* (and *Streptococcus pneumoniae*), filariasis by *Wuchereria* and malaria by *Plasmodium*. Only the option pairing these as *Salmonella*, *Haemophilus*, *Wuchereria*, *Plasmodium* is correct.

3. Answer: (B) Sporozoites

The female *Anopheles* mosquito injects sporozoites into human blood when it bites, and these first multiply in liver cells. Trophozoites are stages inside red blood cells, and gametocytes form in human blood and are taken up by the mosquito.

4. Answer: (C) Active immunity is quick and gives full response.

Active immunity is slow and takes time to give its full response, because the body must make its own antibodies after meeting the antigen. Passive immunity, from ready-made antibodies such as those passing from mother to foetus, is the quick one.

5. Answer: (D) Immunoglobulin A

Colostrum is rich in IgA antibodies, which give the newborn passive immunity. Cells like NK cells, monocytes and macrophages are not the protective component that colostrum is valued for.

6. Answer: (B) acetylation of morphine

Heroin (smack) is diacetylmorphine, obtained by acetylation of morphine extracted from the poppy plant. Glycosylation adds sugar groups and does not produce heroin.

7. Answer: (D) Cell-mediated immune response

Graft rejection is due to cell-mediated immunity, in which T-lymphocytes recognise the graft as non-self. Humoral immunity works through antibodies and is not the main cause of graft rejection.

8. Answer: (D) Salmonella typhi / Widal test

Typhoid is caused by Salmonella typhi and confirmed by the Widal test. The anthrone test detects carbohydrates, and Streptococcus pneumoniae causes pneumonia.

9. Answer: (B) Latex

Smack (heroin, diacetylmorphine) is made by acetylation of morphine, which is extracted from the latex of the unripe capsules of the poppy Papaver somniferum. Roots, flowers and leaves are not the source.

10. Answer: (C) Elephantiasis

Filariasis (elephantiasis) is caused by Wuchereria bancrofti, transmitted by the bite of female Culex mosquitoes; the worms live in lymphatic vessels and cause chronic inflammation and swelling of the limbs and genital organs. Ringworm is a fungal skin infection, and ascariasis and amoebiasis spread through contaminated food and water.

11. Answer: (A) Alzheimer's disease

Alzheimer's disease is a neurodegenerative disorder linked to loss of cholinergic neurons and amyloid plaques, not an attack by the immune system on self tissue. Rheumatoid arthritis, psoriasis and vitiligo are autoimmune disorders.

12. Answer: (B) Cell - mediated immune response

Graft rejection is caused by cell-mediated immunity, in which T-lymphocytes recognise the graft as non-self and attack it. An autoimmune response is directed against the body's own cells, not against a transplanted organ.

13. Answer: (A) 50%

NCERT states that mucosa-associated lymphoid tissue (MALT), lining the respiratory, digestive and urogenital tracts, makes up about 50 percent of the lymphoid tissue in the human body. The other percentages do not match this figure.

14. Answer: (A) Acquired immunity is pathogen specific.

Acquired immunity is specific to the pathogen encountered and shows memory. An exaggerated response to environmental antigens is allergy, the spleen (not bone marrow) filters blood-borne microbes, and AIDS is caused by HIV, a retrovirus.

15. Answer: (D) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

Plasmodium causes malaria, Wuchereria (a filarial worm) causes elephantiasis, Entamoeba histolytica causes amoebiasis and the fungus Microsporium causes ringworm. Pairing Wuchereria with ringworm swaps a helminth with a fungal disease.

16. Answer: (A) Cholera and tetanus

Cholera is caused by Vibrio cholerae and tetanus by Clostridium tetani, so both are bacterial. Smallpox, mumps, herpes and influenza are viral, so each other pair has at least one viral disease.

17. Answer: (C) Auto-immune disease

When the immune system fails to recognise self and destroys the body's own cells, the result is an autoimmune disease such as rheumatoid arthritis. Allergy is an exaggerated response to harmless foreign antigens, and graft rejection is a response to non-self tissue.

18. Answer: (D) Attenuated pathogens

Oral polio vaccine contains live attenuated (weakened) poliovirus that induces active immunity. Antivenom and gamma globulin provide passive immunity through ready-made antibodies.

19. Answer: (D) Mutations inhibit production of telomerase.

Cancer cells typically reactivate telomerase so their telomeres are maintained and they divide indefinitely; mutations do not inhibit telomerase production. Activated proto-oncogenes, loss of telomerase inhibition and loss of cell-cycle control all favour cancer.

20. Answer: (D) a-(iv), b-(iii), c-(ii), d-(i)

BCG for tuberculosis uses harmless (attenuated) bacteria, the whooping cough vaccine uses killed bacteria, the diphtheria vaccine is a toxoid (inactivated toxin) and oral polio vaccine uses harmless (attenuated) virus. The other matchings pair diphtheria or polio with bacteria, which is wrong.

21. Answer: (D) Helper T - Lymphocytes

After entering the body, HIV multiplies in macrophages and then enters and destroys helper T-lymphocytes (CD4 cells), whose number falls steadily. B-lymphocytes and platelets are not its primary targets.

22. Answer: (B) erythrocytes; mucosa and submucosa of colon

The trophozoite of *Entamoeba histolytica* invades the mucosa and submucosa of the colon, causing ulcers, and also ingests red blood cells. Feeding on blood alone or on gut food alone is incomplete.

23. Answer: (B) When HIV damages large number of helper T-Lymphocytes

After infection HIV multiplies in helper T-lymphocytes; symptoms of AIDS appear only when a large number of helper T-cells have been destroyed and immunity breaks down, often years later. Entry of the virus, formation of viral DNA by reverse transcriptase or a period of 15 days after contact do not by themselves produce AIDS symptoms.

24. Answer: (A) drinking water containing eggs of Ascaris

Ascaris eggs passed in faeces contaminate soil, water and vegetables, and infection occurs by swallowing these eggs with water or food. Undercooked pork transmits *Taenia*, and mosquitoes and tsetse flies transmit other parasites.

25. Answer: (A) T- lymphocytes

Cell-mediated immunity is carried out by T-lymphocytes, which act directly on infected cells and grafts. B-lymphocytes produce antibodies, giving humoral immunity.

26. Answer: (B) Three

Three are wrong. Colostrum is valuable because it is rich in antibodies (IgA), not antigens; chikungunya is caused by a virus; and beer is brewed from malted barley without distillation. Only the statement about tissue (meristem) culture giving virus-free plants is right.

27. Answer: (A) Preformed antibodies need to be injected to treat the bite by a viper snake

Snake antivenom supplies preformed antibodies (passive immunisation), which is needed for a quick response to viper venom. Antibodies are made by B-lymphocytes and have two light and two heavy chains, and graft rejection is mediated by T-lymphocytes.

28. Answer: (A) Pneumonia pathogen infects alveoli whereas the common cold affects nose and respiratory passage but not the lungs

Pneumonia, caused by bacteria such as *Streptococcus pneumoniae*, infects the alveoli of the lungs, whereas the common cold (rhinovirus) affects the nose and respiratory passages but not the lungs. The common cold is an infectious viral disease, not a nutritional deficiency, and it is not caused by *Haemophilus*.

29. Answer: (A) They show contact inhibition

Cancer cells have lost contact inhibition, so they keep dividing even when touching neighbouring cells. Uncontrolled division, spreading from the site of origin (metastasis) and competing with normal cells for nutrients are all true of cancer cells.

30. Answer: (B) Polymorpho-nuclear leukocytes and monocytes - Cellular barriers

Polymorphonuclear leukocytes (neutrophils) and monocytes are cellular barriers of innate immunity. Mucus coating is a physical barrier, HCl, saliva and tears are physiological barriers, and anti-tetanus and anti-snake venom injections give passive, not active, immunity.

31. Answer: (A) Typhoid fever

The Widal test detects antibodies against *Salmonella typhi* and confirms typhoid fever. Malaria is diagnosed from blood smears, diabetes by blood sugar, and HIV by ELISA.

32. Answer: (B) Gut of female Anopheles

Gametes of Plasmodium fuse in the gut of the female Anopheles mosquito to form a motile zygote (ookinete), which then forms an oocyst on the gut wall. Sporozoites are found in the salivary glands, while the liver and RBCs host the asexual stages in humans.

33. Answer: (C) Alcohol

Chronic heavy intake of alcohol damages liver cells and leads to cirrhosis. Cocaine, opium and chewing tobacco cause other harmful effects but are not the classic cause of cirrhosis.

34. Answer: (C) If due to some reason B- and T-lymphocytes are damaged, the body will not produce antibodies against a pathogen

B-lymphocytes produce antibodies and need helper T-cells to do so, so damage to both lymphocyte types stops antibody production against a pathogen. Hepatitis B vaccine is produced in yeast, not protozoans; snake antivenom supplies ready-made antibodies (passive immunity); and dead or inactivated pathogens stimulate the body's own response (active immunity).

35. Answer: (C) Caused by a virus

Common cold is caused by rhinoviruses, and antibiotics act on bacterial structures and processes, so they have no effect on viruses. It is an infectious disease spread by droplets or contact, not a bacterial one.

36. Answer: (D) Pneumonia - Streptococcus pneumoniae - Droplet infection

Pneumonia is caused by Streptococcus pneumoniae (and Haemophilus influenzae) and spreads by droplet infection. Elephantiasis spreads through the bite of the female Culex mosquito, malaria through female (not male) Anopheles, and typhoid through contaminated food and water, not inspired air.

37. Answer: (C) Tears

Physiological barriers to infection include acid in the stomach, saliva in the mouth and tears from the eyes, which prevent microbial growth. Skin and the mucus-coated epithelium of the urogenital tract are physical barriers, and monocytes are cellular barriers.

38. Answer: (B) Saliva of infected female Anopheles mosquito

Sporozoites, the infective stage of Plasmodium, are stored in the salivary glands of an infected female Anopheles and enter humans with her saliva when she bites. A freshly moulted mosquito has not yet fed on an infected person, and human RBCs contain merozoites and trophozoites.

39. Answer: (B) ELISA

ELISA (enzyme-linked immunosorbent assay) detects antibodies against HIV and is the widely used diagnostic test for AIDS. WIDAL is a test for typhoid, and MRI and ultrasound are imaging techniques.

40. Answer: (D) When HIV replicates rapidly in helper T-lymphocytes and damages large number of these

After infection, HIV multiplies in macrophages and later in helper T-lymphocytes; AIDS symptoms appear when the virus replicates rapidly and destroys large numbers of these cells, crippling immunity. This usually takes years, not days after contact.

41. Answer: (A) Magnetic resonance imaging (MRI)

MRI uses strong magnetic fields and non-ionising radiation, so it does not damage DNA the way X-rays do. Radiography and CT both use ionising X-rays, which can themselves cause mutations. Histopathology is accurate but needs a biopsy, which is an invasive procedure.

42. Answer: (C) The parasite after its rapid multiplication inside RBCs ruptures them, releasing the stage to enter fresh RBCs

Plasmodium multiplies asexually inside RBCs and then bursts them, releasing new merozoites to infect fresh RBCs along with the toxin haemozoin. This bursting happens in cycles (every 48 hours in vivax), which is when the chill and high fever recur. Sporozoites enter through the mosquito bite and go to the liver, not RBCs.

43. Answer: (A) Typhoid

The Widal test detects antibodies against Salmonella typhi and is used to confirm typhoid fever. Malaria is diagnosed by examining blood smears for Plasmodium.

44. Answer: (C) Fungi

Ringworm is a skin infection caused by fungi such as Microsporum, Trichophyton and Epidermophyton. Despite the name, no worm (nematode) is involved.

45. Answer: (A) a & b

NCERT states that graft rejection is due to the cell-mediated (T-lymphocyte) immune response, and that even after tissue and blood-group matching the patient has to take immunosuppressants for life. B-lymphocytes give humoral immunity, and graft acceptance depends on matching tissue antigens (HLA), not interferons.

46. Answer: (A) The causative HIV retrovirus enters helper T-lymphocytes thus reducing their numbers

HIV infects helper T-cells (T_H) and multiplies in them, so their number steadily falls and immunity weakens. HIV does not spread through shared food, drug addicts who share needles are at high risk, and antiretroviral therapy only prolongs life without curing AIDS.

47. Answer: (C) Morphine is often given to persons who have undergone surgery as a pain killer

Morphine is an opioid that works as a strong sedative and painkiller, and it is used for patients who have undergone surgery. Tobacco contains nicotine, which raises blood pressure and heart rate rather than lowering them. Cocaine is not used to aid recovery.

48. Answer: (A) Preformed antibodies

When a quick immune response is needed, as in a person at risk of tetanus after an injury, NCERT says preformed antibodies or antitoxin are injected directly; this is passive immunisation. Weakened or dead germs give active immunity, which takes too long to protect someone already exposed.

49. Answer: (C) Thymus

T-lymphocytes arise in the bone marrow but mature and become immunocompetent in the thymus, hence the letter T. Tonsils and thyroid are not sites of T-cell maturation.

50. Answer: (A) Common Cold, AIDS

Common cold is caused by rhinoviruses and AIDS by HIV, so both are viral. Typhoid and tuberculosis are bacterial, dysentery is bacterial or protozoan, and ringworm is fungal.

51. Answer: (C) Malignant tumours may exhibit metastasis.

Malignant tumours shed cells that travel through blood to form secondary tumours elsewhere; this is metastasis. Benign tumours stay confined to their site, and heroin is a depressant that slows body functions.

52. Answer: (D) Allergy

In allergy, mast cells release histamine and serotonin, so antihistamines, adrenalin and steroids quickly reduce the symptoms. They are not the standard treatment for nausea or headache.

53. Answer: (D) Physiological barriers

NCERT classes acid in the stomach, saliva in the mouth and tears from the eyes as physiological barriers that stop microbial growth. Physical barriers are the skin and the mucus lining of the tracts.

54. Answer: (A) a-(ii), b-(iii), c-(iv), d-(i)

Amoebiasis spreads through contaminated food and water, so sterilised food and water prevent it; diphtheria is prevented by the DPT vaccine; cholera dehydration is treated with oral rehydration; and syphilis is caused by *Treponema pallidum*. *Treponema* is a bacterium, not the cause of amoebiasis.

55. Answer: (C) It has no blood supply

The cornea is avascular, so immune cells and antibodies carried in the blood rarely reach the graft and rejection seldom occurs. The cornea is living tissue with nucleated cells, so the 'non-living' and 'enucleated' options are false.

56. Answer: (B) inhalation of seasonal pollen

Seasonal asthma is an allergic reaction: pollen released in particular flowering seasons acts as an allergen, triggering IgE-mediated release of histamine and bronchial constriction. Temperature alone does not explain the seasonal pattern.

57. Answer: (A) certain types of bacteria

Lysozyme is an enzyme that breaks the peptidoglycan of bacterial cell walls, so it kills certain (mainly Gram-positive) bacteria as part of innate immunity. Viruses and fungi have no peptidoglycan, and virus-infected cells are killed by interferons and cytotoxic cells.

58. Answer: (D) glycoproteins

Antibodies (immunoglobulins) are glycoproteins made of two heavy and two light polypeptide chains with carbohydrate attached. They are not lipoproteins, steroids or prostaglandins.

59. Answer: (D) helper T-lymphocytes

HIV enters and multiplies inside helper T-lymphocytes, which it gradually destroys, so their number falls. B-lymphocytes are not the first target.

60. Answer: (D) loss of cell mediated immunity

T lymphocytes mature in the thymus, and T cells drive cell-mediated immunity. Damage to the thymus in childhood therefore causes loss of cell-mediated immunity. Antibody-mediated immunity relies mainly on B cells, which mature in the bone marrow.

61. Answer: (C) T 4 lymphocytes

HIV attaches to the CD4 receptor, so it mainly infects helper T (T4) lymphocytes (and macrophages). The steady fall in these cells causes immunodeficiency. Cytotoxic T cells are CD8 and are not the main target.

62. Answer: (A) Valium

Valium (diazepam), a benzodiazepine tranquilliser, depresses the central nervous system and brings calm, relaxation and drowsiness. Amphetamines are stimulants, hashish is a cannabinoid that alters perception, and morphine is an opioid painkiller.

Questions as set in the AIPMT/NEET papers conducted by CBSE and NTA. Answers checked and explanations written by the RankUp team. RankUp is not affiliated with CBSE or NTA.