

**31** Years

**NEET**

CHAPTER-WISE SOLUTIONS with

**NCERT**

References

# BIOLOGY

Only Book with **NCERT** Based References

Includes NEET 2018 Exam Paper

(1988-2018)

Aim  **AIIMS**  
**NEET**



ALTIS VORTEX

## Points to Remember

Disease	Causative Agents	Symptoms
1. Common cold	<i>Rhinoviruses</i>	Nasal congestion and discharge, sore throat, cough, headache, tiredness and hoarseness.
2. Salmonella typhi	<i>Salmonella typhi</i>	Sustained higher fever, stomach pain, loss of appetite, constipation, headache
3. Pneumonia	<i>Streptococcus Pneumoniae</i> and <i>Haemophilus influenzae</i>	Fever, headache, cough, chills in severe cases finger nails may turn grey to bluish in colour.
4. Malaria	<i>Plasmodium (P. malaris, P. vivax, P. falciparum)</i>	Yaming, tiredness, acute headache, muscular pain, feelings of chillness and shivering, nausea and high temperatures.
5. Amoebic dysentery	<i>Entamoeba histolytica</i>	Abdominal pain, cramps, stool with excess mucus and blood clots, constipation
6. Ringworm	<i>Microsporum, Epidermophyton and Trichophyton</i>	Dry scaly lesions on skin, nails and scalp, itching
7. Ascariasis	<i>Ascaris lumbricoides</i>	Anaemia, muscular pain, internal bleeding, insomnia, blockage of intestinal passage
8. Filariasis or Elephantiasis	<i>Wuchereria bancrofti and W. malayi</i>	Fever, blockage of lymphatic vessels, enormous swelling of affected part viz. arm, foot, leg, mamma or scrotum

## Drugs

Criteria	Opioids	Cannabinoids	Coca alkaloids
Source	<i>Papaver somniferum</i> (Poppy plant)	<i>Cannabis sativa</i> (Hemp Plant)	<i>Erythroxylum coca</i> (Coca plant)
Part of plant	Fruits (Unripe Capsules)	Inflorescence, leaves, resin	Leaves and young twigs
Product	Opium, Morphine Heroin/Smack	Charas, ganja, hashish Marijuana	Cocaine (Coke/Crack)
Mode of Intake	Snorting, Injection	Oral, Inhalation	Snorting
Effects (Property)	Neuro depressant, slow down the functions of the body	Interact with Cannabinoids receptors, Cardiovascular system effects	Sense of euphoria interferes with neurotransmitters, Hallucination

## Dengue

Caused by – Viruses DEN-1, DEN-2, DEN-3, DEN-4

Vector – Female mosquito *Aedes aegypti*

Classical Dengue fever	Dengue: Hemorrhagic fever
Symptoms - high fever, headache,	Symptoms - high fever, nausea,
Backache, joint pains, muscles pain,	Vomiting, abdominal pain, palpable
Chill, rashes on arms, chest, back	Liver, internal bleeding, fall in platelets

**Useful Drugs:** Paracetamol + blood platelet replacement

**Harmful Drugs.** Aspirin and dispirin harmful.

### Chickenguneya

Caused by – Alpha virus

Vector – mosquitoes (*Aedes aegypti* and *A. albopictus*)

Symptoms – rashes on limbs and trunk, arthritis of multiple joints, fever(120°F), conductivities etc.

Drug – Chloroquine phosphate reduces impact of disease.

### Types of cancer

- **Carcinoma:** cancer of epithelial cells
- **Sarcoma:** cancer of connective tissues.
- **Melanomas:** cancer of melanocytes
- **Leukemia:** blood cancer
- **Lymphomas:** cancer of spleen and lymph nodes.

Tobacco contains **nicotine** (an alkaloid) which stimulates adrenal gland to release adrenaline and nor-adrenaline, causing high BP and heart rate.

Antibodies produced against the **allergens** are of **IgE type**.

### Alcohol:

- **Beverages:** Wine, beer and toddy (5-15% alcohol).
- **Spirits:** Whisky, brandy, rum, gin, arrack etc (more than 50% alcohol).

## Past Year Questions

- MALT constitutes about \_\_\_\_\_ percent of the lymphoid tissue in human body. (2017-Delhi)  
a. 50%      b. 20%      c. 70%      d. 10%
- 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? (2017-Delhi)  
a. Autoimmune response  
b. Cell-mediated immune response  
c. Hormonal immune response  
d. Physiological immune response
- Which of the following statements is correct? (2017-Gujarat)  
a. AIDS is caused by a group of viruses called rhinovirus.  
b. Acquired immunity is pathogen specific  
c. The exaggerated response of the immune system to certain antigens present in the environment is called Auto-immunity  
d. Bone marrow acts as a filter of the blood by trapping blood borne micro-organisms
- Match Column - I with Column - II and select the correct option. (2017-Gujarat)

Column - I		Column - II	
(1)	<i>Plasmodium</i>	(i)	Ringworm
(2)	<i>Wuchereria</i>	(ii)	Amoebiasis
(3)	<i>Entamoeba</i>	(iii)	Elephantiasis

(4)	<i>Microsporium</i>	(iv)	Malaria
-----	---------------------	------	---------

- |         |       |      |       |
|---------|-------|------|-------|
| (1)     | (2)   | (3)  | (4)   |
| a. (iv) | (iii) | (ii) | (i)   |
| b. (iv) | (i)   | (ii) | (iii) |
| c. (iv) | (iii) | (i)  | (ii)  |
| d. (i)  | (iii) | (ii) | (iv)  |
- Which of the following sets of diseases is caused by bacteria? (2016 - II)  
a. Tetanus and mumps  
b. Herpes and influenza  
c. Cholera and tetanus  
d. Typhoid and smallpox
  - Which of the following is correct regarding AIDS causative agent HIV? (2016 - II)  
a. HIV is undeveloped retrovirus.  
b. HIV does not escape but attacks the acquired immune response.  
c. HIV is enveloped virus containing one molecule of single-stranded RNA and one molecule of reverse transcriptase.  
d. HIV is enveloped virus that contains two identical molecules of single-stranded RNA and two molecules of reverse transcriptase.
  - Which of the following statements is not true for cancer cells in relation to mutations? (2016 - I)  
a. Mutations in proto-oncogenes accelerate the

- cell cycle
- Mutations destroy telomerase inhibitor
  - Mutations inactivate the cell control
  - Mutations inhibit production of telomerase
8. The organisms which cause diseases in plants and animals are called: (2016 - I)
- Pathogens
  - Vectors
  - Insects
  - Worms
9. Antivenom injection contains preformed antibodies while polio drops that are administered into the body contain: (2016-I)
- Activated pathogens
  - Harvested antibodies
  - Gamma globulin
  - Attenuated pathogens
10. 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: (2016 - I)
- Allergic response
  - Graft rejection
  - Auto-immune disease
  - Active immunity
11. Which of the following viruses is not transferred through semen of an infected male? (2015)
- Chikungunya virus
  - Ebola virus
  - Hepatitis B virus
  - Human immunodeficiency virus
12. Match each disease with its correct type of vaccine: (2015)
- |                    |                        |
|--------------------|------------------------|
| (a) Tuberculosis   | (i) Harmless virus     |
| (b) Whooping cough | (ii) Inactivated toxin |
| (c) Diphtheria     | (iii) Killed bacteria  |
| (d) Polio          | (iv) Harmless bacteria |
- (a) (b) (c) (d)  
 a. (iv) (iii) (ii) (i)  
 b. (i) (ii) (iv) (iii)  
 c. (ii) (i) (iii) (iv)  
 d. (iii) (ii) (iv) (i)
13. HIV that causes AIDS, first starts destroying: (2015)
- Helper T - Lymphocytes
  - Thrombocytes
  - B - Lymphocytes
  - Leucocytes
14. The active form of *Entamoeba histolytica* feeds upon: (2015)
- Food in intestine
  - Blood only
  - Erythrocytes; mucosa and submucosa of colon
  - Mucosa and submucosa of colon only
15. Grafted kidney may be rejected in a patient due to: (2015 Re)
- Cell-mediated immune response
  - Passive immune response
  - Innate immune response
  - Humoral immune response
16. Which of the following diseases is caused by a protozoan? (2015 Re)
- Influenza
  - Babesiosis
  - Blastomycosis
  - syphilis
17. Which of the following immunoglobulins does constitute the largest percentage in human milk? (2015 Re)
- Ig M
  - IgA
  - Ig G
  - Ig D
18. At which stage of HIV infection does one usually show symptoms of AIDS? (2014)
- When the viral DNA is produced by reverse transcriptase
  - Within 15 days of sexual contact with an infected person
  - When the infected retro virus enters host cells
  - When HIV damages large number of helper T- Lymphocytes
19. Which is the particular type of drug that is obtained from the plant whose one flowering branch is shown below? (2014)



- Pain-killer
  - Hallucinogen
  - Depressant
  - Stimulant
20. The cell-mediated immunity inside the human body is carried out by: (2013)
- Erythrocytes
  - T-lymphocytes
  - B-lymphocytes
  - Thrombocytes

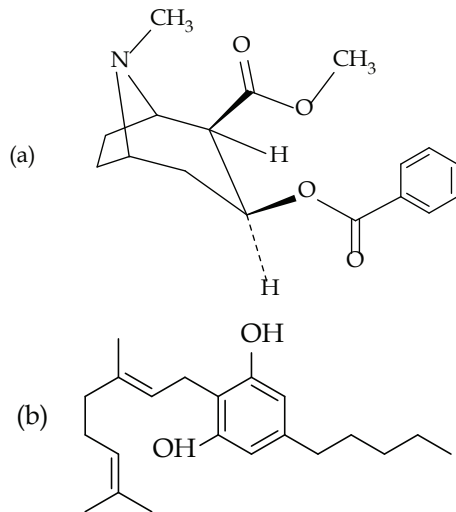
21. Infection of *Ascaris* usually occurs by: (2013)

- Mosquito bite
- Drinking water containing eggs of *Ascaris*
- Eating imperfectly cooked port
- Tse-tse fly

22. Which one of the following statements is correct with respect to immunity? (2012 Mains)

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

23. Identify the molecules (a) and (b) shown below and select the right option giving their source and use: (2012 Mains)



	Molecule	Source	Use
a.	(a) Cocaine	<i>Erythroxylum coca</i>	Accelerates the transport of dopamine
b.	(b) Heroin	<i>Cannabis sativa</i>	Depressant and slows down body functions
c.	(b) Cannabinoids	<i>Atropa belladonna</i>	Produces hallucinations
d.	(a) Morphine	<i>Papaver somniferum</i>	Sedative and pain killer

24. Which one of the following sets of items in the options a. - d. are correctly categorized with one exception in it? (2012 Mains)

	Items	Category	Exception
a.	UAA, UAG, UGA	Stop codons	UAG
b.	Kangaroo, Koala, Wombat	<i>Australian marsupials</i>	Wombat
c.	<i>Plasmodium</i> , <i>Cuscuta</i> , <i>Trypanosoma</i>	Protozoan parasites	<i>Cuscuta</i>
d.	Typhoid, Pneumonia, Diphtheria	Bacterial diseases	Diphtheria

25. Which one of the following human organs is often called the “graveyard” of RBCs? (2012 Mains)

- Gall bladder
- Kidney
- Spleen
- Liver

26. Which one of the following organisms is scientifically correctly named, correctly printed according to the International Rules of Nomenclature and correctly described? (2012 Mains)

- Musca domestica* - The common house lizard, a reptile
- Plasmodium falciparum* - A protozoan pathogen causing the most serious type of malaria
- Felis tigris* - The Indian tiger, well protected in Gir forests
- E.coli* - Full name Entamoeba coli, a commonly occurring bacterium in human intestine

27. Cirrhosis of liver is caused by the chronic intake of: (2012 Pre)

- Cocaine
- Opium
- Alcohol
- Tobacco (Chewing)

28. Motile zygote of *Plasmodium* occurs in: (2012 Pre)

- Human liver
- Gut of female Anopheles
- Salivary glands of Anopheles
- Human RBCs

29. Widal test is carried out to test: (2012 Pre)

- Typhoid fever
- Malaria
- Diabetes mellitus
- HIV/AIDS

30. Which one of the following is not a property of cancerous cells whereas the remaining three are shown? (2012 Pre)

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

31. Common cold differs from pneumonia in, that:

(2012 Pre)

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

32. Which one of the following options gives the correct matching of a disease with its causative organism and mode of infection? (2011 Mains)

	Disease	Causative Organisms	Mode of Infection
a.	Elephantiasis	<i>Wuchereria bancrofti</i>	With infected water and food
b.	Malaria	<i>Plasmodium vivax</i>	Bite of male Anopheles mosquito
c.	Typhoid	<i>Salmonella typhi</i>	With inspired air
d.	Pneumonia	<i>Streptococcus Pneumoniae</i>	Droplet infection

33. Common cold is not cured by antibiotics because it is: (2011 Mains)
- Caused by a Gram-negative bacterium
  - Not an infectious disease
  - Caused by a virus
  - Caused by a Gram-positive bacterium
34. Select the correct statement with respect to diseases and immunization: (2011 Mains)
- Certain protozoan's have been used to mass produce hepatitis B vaccine
  - Injection of snake antivenom against snake bite is an example of active immunization
  - If due to some reason B-and T-lymphocytes are damaged, the body will not produce antibodies against a pathogen
  - Injection of dead / inactivated pathogens causes passive immunity
35. At which stage of HIV infection does one usually show symptoms of AIDS? (2011 Pre)
- Within 15 days of sexual contact with an infected person
  - When the infected retrovirus enters host cells

- When viral DNA is produced by reverse transcriptase
- When HIV replicates rapidly in helper T-lymphocytes and damages large number of these

36. A certain patient is suspected to be suffering from Acquired Immuno Deficiency Syndrome. Which diagnostic technique will you recommend for its detection? (2011 Pre)

- WIDAL
- ELISA
- MRI
- Ultra sound

37. Where will you look for the sporozoites of the malarial parasite? (2011 Pre)

- Salivary glands of freshly molted female Anopheles mosquito
- Saliva of infected female Anopheles mosquito
- Red blood corpuscles of humans suffering from malaria
- Spleen of infected humans

38. Which one of the following acts as a physiological barrier to the entry of microorganisms in human body? (2011 Pre)

- Skin
- Epithelium of urogenital tract
- Tears
- Monocytes

39. Consider the following statements (A - D) regarding kidney transplant and select the two correct ones out of these: (2010 Pre)

- Even if a kidney transplant is proper, the recipient may need to take immunosuppressant's for a long time
  - The cell mediated immune response is responsible for the graft rejection
  - B - lymphocytes are responsible for rejection of graft
  - Acceptance or rejection of a kidney transplant depends upon specific interferon's
- C and D
  - A and C
  - A and B
  - B and C

40. Select the correct statement from the ones given below: (2010 Pre)

- Morphine is often given to a person who have undergone surgery as a pain killer
- Chewing tobacco lowers blood pressure and heart rate

- c. Cocaine is given to patients after surgery as it stimulates recovery  
 d. Barbiturates when given to criminals make them tell the truth
41. Which one of the following statements is correct with respect to AIDS? (2010 Pre)  
 a. Drug addicts are least susceptible to HIV infection.  
 b. AIDS patients are being fully cured cent percent with proper care and nutrition  
 c. The causative HIV retrovirus enters helper T-lymphocytes thus reducing their number  
 d. HIV can be transmitted through eating food together with an infected person
42. Ringworm in humans is caused by: (2010 Pre)  
 a. Fungi                      b. Nematodes  
 c. Viruses                    d. Bacteria
43. Which one of the following cannot be used for preparation of vaccination against plague? (2010 Mains)  
 a. Heat killed suspension of virulent bacteria  
 b. Formalin inactivated suspension of virulent bacteria  
 c. A virulent live bacteria  
 d. Synthetic capsular polysaccharide material
44. Which of the following techniques is safest for the detection of cancer? (2010 Mains)  
 a. Magnetic resonance imaging  
 b. Radiography  
 c. Computed tomography  
 d. Histopathological study.
45. Widal test is used for the diagnosis of: (2010 Pre)  
 a. Typhoid  
 b. Plague  
 c. Pneumonia  
 d. Diphtheria
46. Use of antihistamines and steroid give a quick relief from. (2009)  
 a. Nausea                      b. Headache  
 c. Allergy                      d. Cough
47. A person likely to develop tetanus is immunized by giving: (2009)  
 a. Weakened germs  
 b. Preformed antibodies  
 c. Dead germs  
 d. Wide spectrum antibodies
48. Pair of viral diseases is: (2009)  
 a. Ringworm, AIDS  
 b. Typhoid, Tuberculosis  
 c. Dysentery, Common cold  
 d. Common cold, AIDS
49. What is correct? (2009)  
 a. Malignant tumors may exhibit metastasis  
 b. Patients who have undergone surgery are given cannabinoids to relieve pain  
 c. Benign tumors show metastasis  
 d. Heroin accelerates body functions
50. The letter T in T-lymphocytes refers to: (2009)  
 a. Thyroid                      b. Thymus  
 c. Thalamus                    d. Tonsil
51. What is true of the psychotropic drug? (2008)  
 a. Morphine leads to delusions and disturbed emotions  
 b. Barbiturates cause relaxation and temporary euphoria  
 c. Hashish causes after thought perceptions and hallucinations  
 d. Opium stimulates nervous system and causes hallucination
52. To which type of barrier under innate immunity do saliva in mouth and tears from eyes belong? (2008)  
 a. Physiological barriers  
 b. Physical barriers  
 c. Cytokine barriers  
 d. Cellular barriers
53. Match the columns: (2008)
- |    | I          |     | II                                 |
|----|------------|-----|------------------------------------|
| A. | Amoebiasis | i   | <i>Treponema pallidum</i>          |
| B. | Diphtheria | ii  | Use only sterilized food and water |
| C. | Cholera    | iii | DPT vaccine                        |
| D. | Syphilis   | iv  | Use oral rehydration therapy       |
- a. A - i, B - ii, C - iii, d - iv  
 b. A - ii, B - iii, C - iv, D - i  
 c. A - i, B - ii, C - iv, D - iii  
 d. A - ii, B, - iv, C - i, D - iii
54. Cornea transplant is seldom rejected because: (2008)  
 a. It has no blood supply  
 b. It is composed of enucleated cells  
 c. It is non-living layer  
 d. Its cells are least penetrable by bacteria

55. Lysozyme found in saliva, perspiration and tears, destroys: (2007)
- Certain fungi
  - Certain types of bacteria
  - All viruses
  - Most virus infected cells
56. Increased asthmatic attacks in certain seasons are due to: (2007)
- Inhalation of seasonal pollen
  - Heat and humidity
  - Low temperature
  - Eating preserved fruits
57. A person showing unpredictable moods, out-bursts of emotions, quarrelsome behavior and conflicts with others is suffering from: (2006)
- Addictive disorders
  - Schizophrenia
  - Borderline personality disorder
  - Mood disorders
58. Antibodies are complex: (2006)
- Lipoproteins
  - Steroids
  - Prostaglandins
  - Glycoprotein's
59. AIDS is caused by HIV that principally infects: (2005)
- All lymphocytes
  - Activator B-cells
  - Cytotoxic T-cells
  - T-4 helper lymphocytes
60. Damage to thymus in a child would lead to: (2005)
- Loss of cell-mediated immunity
  - Loss of antibody-mediated immunity
  - A reduction in stem cell production
  - Reduction in haemoglobin content of blood.
61. Drug addict shows symptoms of depressed brain activity, feeling of calmness, relaxation, drowsiness, Possibly the addiction is of: (2005)
- Valium
  - Amphetamine
  - Morphine
  - Marijuana/hashish
62. Mast cells of connective tissue contain: (2004)
- Heparin and histamine
  - Heparin and calcitonin
  - Serotonin and melanin
  - Vasopressin and relaxin
63. Cancer cells are more easily damaged by radiation than normal cells because they are: (2004)
- Undergoing rapid division
  - Different in structure
  - Non-dividing
  - Starved of mutation
64. Which one of the following is not correctly matched? (2004)
- Culex pipiens* — Filariasis
  - Aedes aegypti* - Yellow fever
  - Anopheles culicifacies* - Leishmaniasis
  - Glossina palpalis* - Sleeping sickness
65. ELISA is used to detect viruses, where: (2004)
- Southern blotting is done
  - Alkaline phosphatase is the key reagent
  - Catalase is the key reagent
  - DNA-probes are required
66. Carcinoma refers to: (2003)
- Malignant tumours of the connective tissue
  - Malignant tumours of the skin or mucous membrane
  - Malignant tumours of the colon
  - Benign tumours of the connective tissue
67. Short-lived immunity acquired from mother to foetus across placenta or through mother's milk to the infant is categorised as: (2003)
- Active immunity
  - Passive immunity
  - Cellular immunity
  - Innate non-specific immunity
68. What is true about T-lymphocytes in mammals? (2003)
- There are three main types-cytotoxic T-cell, helper T-cells and suppressor T - cells
  - These originate in lymphoid tissues
  - They scavenge damaged cells and cellular debris
  - These are produced in thyroid
69. During its life-cycle, *Fasciola hepatica* (liver fluke) infects its intermediate host and primary host at the following larval stages respectively: (2003)
- Redia and miracidium
  - Cercaria and redia
  - Metacercaria and cercaria
  - Miracidium and metacercaria
70. Which one of the following conditions though harmful in itself, is also a potential saviour from a mosquito borne infectious disease? (2003)
- Thalassemia
  - Sickle cell anaemia
  - Pernicious anaemia
  - Leukemia
71. Christmas disease is another name for: (2003)



- a. Haemophilia B      b. Hepatitis B  
c. Down's syndrome    d. Sleeping sickness
72. Which of the following is used in the treatment of Thyroid cancer? (2002)  
a. I<sup>131</sup>      b. U<sup>238</sup>      c. Ra<sup>224</sup>      d. C<sup>14</sup>
73. Stool of a person contain whitish grey colour due to malfunction of which type of organ? (2002)  
a. Pancreas              b. Spleen  
c. Kidney                d. Liver
74. Cancerous cells can easily be destroyed by radiations due to: (2002)  
a. Rapid cell division    b. Lack of nutrition  
c. Fast mutation        d. Lack of oxygen
75. What is true for monoclonal antibodies? (2001)  
a. These antibodies obtained from one parent and for one antigen  
b. These obtained from different parents and for one antigen  
c. These obtained from one parent and for many antigens  
d. These obtained from many parents and for many antigen
76. Which of the following is the most infectious disease: (2001)  
a. Hepatitis-B            b. AIDS  
c. Cough and cold      d. Malaria
77. Which one of the following is correct match? (2001)  
a. Reserpine - Tranquilizer  
b. Cocaine - opiate narcotic  
c. Morphine - Hallucinogenic  
d. Bhang - Analgesic
78. *Salmonella* is related with: (2001)  
a. Typhoid                b. Polio  
c. T.B.                    d. Tetanus
79. Which is showing accurate pairing? (2000)  
a. Syphilis- *Treponema pallidum*  
b. AIDS - *Bacillus conjugalis*  
c. Gonorrhoea - *Leishmania denovoni*  
d. Typhoid - *mycobacterium leprae*
80. During viral infection the protein formed in host cells to resist is: (2000)  
a. Interferon              b. Antitoxin  
c. Antibody                d. Histone
81. Which cell organelle is concerned with glycosylation of protein? (2000)  
a. Ribosome  
b. Peroxisome  
c. Endoplasmic reticulum  
d. Mitochondria
82. Similarity in *Ascaris lumbricoides* and *Anopheles stephensi*: (2000)  
a. Sexual dimorphism  
b. Metamerism  
c. Anaerobic respiration  
d. Endoparasitism
83. Saline solution is given to patients of cholera because: (2000)  
a. Na<sup>+</sup> prevents water loss from body  
b. NaCl function as regulatory material  
c. NaCl produces energy  
d. NaCl is antibacterial
84. Koch's postulates not applicable to: (1999)  
a. *Mycobacterium leprae*  
b. Tuberculosis  
c. Pneumonia  
d. Cholera
85. HIV infects: (1999)  
a. RBC                      b. T - helper cells  
c. B - cells                d. Basophils
86. During injury mast cells secrete: (1999)  
a. Histamine              b. Heparin  
c. Prothrombin          d. Antibodies
87. Which gland decreases in size with increasing age? (1999)  
a. Thyroid    b. Adrenal    c. Thymus    d. Pituitary
88. What is vaccine? (1999)  
a. Treated bacteria, virus & protein  
b. Treated algae  
c. Treated fungi  
d. Treated plasmodium
89. Typhoid caused by: (1998)  
a. *Rickettsiae*              b. *Chlamydia*  
c. *Salmonella typhi*      d. *Mycobacterium*
90. Histamine secreted by: (1998)  
a. Mast cells                b. Fibroblast  
c. Histiocytes              d. Plasma cells
91. Which of the following is an opiate narcotic? (1997)  
a. Amphetamines        b. LSD  
c. Barbiturates         d. Morphine
92. Which of the following will be curable in next two decades? (1997)  
a. Tuberculosis            b. Cancer  
c. Poliomyelitis          d. None of these

93. Diphtheria is caused by: (1997)  
 a. Nematodes                      b. Bacteria  
 c. Virus                              d. None of these
94. Which of the following diseases is now considered completely eradicated from India? (1997)  
 a. Small pox                      b. Poliomyelitis  
 c. Plague                              d. Kala-azar
95. Which of the following symptoms indicate red sickness? (1997)  
 a. Nausea and loss of hair  
 b. Ulcerated skin, nausea and loss of hair  
 c. Red and ulcerated skin  
 d. Nausea and anaemia
96. If a person shows production of interferons in his body, the chances are that he has got an infection of: (1997)  
 a. Tetanus                              b. Malaria  
 c. Typhoid                              d. Measles
97. Which of the following pair of diseases is caused by virus? (1996)  
 a. Rabies, mumps  
 b. Cholera, tuberculosis  
 c. Typhoid, tetanus  
 d. AIDS, syphilis
98. Antibodies are produced by: (1996)  
 a. Leucocytes                      b. Monocytes  
 c. Lymphocytes                      d. Spleen
99. The interferons are: (1996)  
 a. Antigen proteins  
 b. Antiviral proteins  
 c. Antibiotic proteins  
 d. All of these
100. Which of the following is the false statement about "antibiotics"? (1996)  
 a. Some persons have allergy from antibiotics  
 b. Antibiotics are capable of curing any disease  
 c. This term was given by Waksman in 1942  
 d. Antibiotics is produced by micro-organisms
101. Nicotine acts as a stimulant because it mimics the effect of: (1995)  
 a. Testosterone  
 b. Dopamine  
 c. Thyroxine  
 d. Acetylcholine
102. The blood cancer is known as: (1995)  
 a. Haemolysis                      b. Haemophilia  
 c. Leukemia                              d. Thrombosis
103. Which one of the following pairs is not correctly matched? (1995)  
 (a) Syphilis                      *Trichuris trichiura*  
 (b) Sleeping sickness                      *Trypanosoma gambiense*  
 (c) Dengue fever                      *Arbovirus*  
 (d) Plague                              *Yersinia pestis*
104. Which one of the following diseases is due to an allergic reaction? (1995)  
 a. Enteric fever                      b. Skin cancer  
 c. Goitre                              d. Hay fever
105. Which of the following causes plague? (1995)  
 a. *Trichinella spiralis*  
 b. *Salmonella typhimurum*  
 c. *Yersinia pestis*  
 d. *Leishmania donovani*
106. Antigens are present: (1995)  
 a. Inside the cytoplasm  
 b. On nuclear membrane  
 c. Inside the nucleus  
 d. On cell surface
107. A cell-coded protein that is formed in response to infection, with most animal viruses, is called: (1994)  
 a. Histone                              b. Antibody  
 c. Interferon                              d. Antigen
108. Which one of the following does correctly match a sexually transmitted disease with its pathogen? (1994)  
 a. Syphilis - *Treponema pallidum*  
 b. Gonorrhoea - *Entamoeba histolytica*  
 c. Urethritis - *Bacillus anthracis*  
 d. Softsore - *Bacillus brevis*
109. A metastatic cancerous tumour is termed 'sarcoma' if the disorder is in: (1994)  
 a. Fibroblasts                      b. Circulatory system  
 c. Immune system                      d. Epithelial cells
110. Rickettsia form a group under: (1994)  
 a. Viruses  
 b. Bacteria  
 c. Fungi  
 d. A category between viruses and bacteria
111. The main reason why antibodies could not solve all the problems of bacteria mediated disease is: (1994)  
 a. Decreased efficiency of the immune system  
 b. Insensitivity of the individual following prolonged exposure to antibiotics

- c. Development of mutant strains resistant to antibodies  
d. Inactivation of antibiotics by bacterial enzymes
- 112.** Opiate narcotic is: (1993)  
a. Bhang                      b. Charas  
c. Heroin                     d. Nicotine
- 113.** Give the correct matching of causative agent/germ and disease: (1993)  
(a) *Anopheles*              Malaria  
(b) *Leishmania*             Sleeping sickness
- (c) *Glossina*                 Kala-azar  
(d) *Wuchereria*             **Filariasis**
- 114.** Analgesic drugs: (1990)  
a. Form tissues              b. Relieve pain  
c. Relieve fatigue            d. Cause pain
- 115.** Which one engulfs pathogen rapidly? (1989)  
a. Acidophils                 b. Monocytes  
c. Basophils                 d. Neutrophils
-

### Answer Key

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
a	b	a	b	c	d	d	a	d	c	a	a	a	c	a	c	b
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
d	b	b	b	a	d	c	c	b	c	b	a	a	a	d	c	c
35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
d	b	b	c	c	a	c	a	c	a	a	c	b	d	a	b	c
52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
a	b	a	b	a	c	d	d	a	a	a	a	c	b	b	b	a
69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
d	b	a	a	d	a	b	a	a	a	a	a	c	a	a	a	b
86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102
a	c	a	c	a	d	b	b	a	b	d	a	c	b	b	d	c
103	104	105	106	107	108	109	110	111	112	113	114	115				
a	d	c	d	c	a	a	b	c	c	d	b	d				

### EXPLANATIONS

**1. (a) NCERT (XII) Ch - 8, Pg. 154**

MALT is Mucosa Associated Lymphoid Tissue and it constitutes about 50 percent of the lymphoid tissue in human body.

**2. (b) NCERT (XII) Ch - 8, Pg. 152**

Cell-mediated response / cell-mediated immunity (CMI):

T-lymphocytes (T-cells) mediate CMI.

CMI causes Graft rejection.

The body is able to differentiate 'self' and 'non-self'.

Tissue matching & blood group matching are essential before undertaking any graft/ transplant. After this, the patient has to take immune-suppressants all his life.

**3. (a) NCERT (XII) Ch - 8, Pg. 151**

Acquired immunity is pathogen specific and is characterized by memory.

**4. (b) NCERT (XII) Ch - 8, Pg. 148**

*Plasmodium* - Malaria

*Wuchereria* - Ringworm

*Entamoeba* - Amoebiasis

*Microsporium* - Elephantiasis

**5. (c) Cholera (*Vibrio cholera*) and tetanus (*Clostridium tetani*) is a sets of diseases which is caused by bacteria.**

Dysentery, plague, diphtheria, etc., are some of the other bacterial diseases in human.

**6. (d)** HIV (human immuno deficiency virus), is the causative agent of AIDS, which have an envelope enclosing the RNA genome. It contains two identical molecules of ssRNA and two molecules of reverse transcriptase.

**7. (d)** Mutations doesn't inhibit production of telomerase.

**8. (a) NCERT (XII) Ch - 8, Pg. 146**

A wide range of organisms including bacteria, viruses, fungi, protozoans, helminaths. etc., cause diseases in plants and animals. Such disease causing organisms are called pathogens. While vectors are the carriers of pathogens which may be insects or worms.

**9. (d)** Polio drops that are administered into the body contain attenuated pathogens.

**10. (c) NCERT (XII) Ch - 8, Pg. 153**

Due to genetic and other unknown reasons, the body attacks self-cells. This results in damage to the body and is called auto-immune disease. Rheumatoid arthritis which affects many people in our society is an auto-immune disease.

**11. (a)** Chikungunya is caused by the bite of *Aedes aegypti* mosquito, which requires no direct with body

fluids like blood, semen or saline for its transmission.

**12. (a) Tuberculosis - harmless bacteria**

Whooping cough - killed bacteria

Diphtheria - inactivated toxin

Polio - harmless virus

**13. (a) NCERT (XII) Ch - 8, Pg. 156**

During subsequent attack on macrophage, HIV enters into helper T cells, replicates and produces progeny viruses. The progeny virus released in the blood, attack the other helper T cell.

**14. (c) NCERT (XII) Ch - 8, Pg. 156**

*Entamoeba histolytica* is a protozoan parasite in the large intestine of human. Symptoms of this disease include abdominal pain and cramps, stool with excess mucous and blood clots.

**15. (a) NCERT (XII) Ch - 8, Pg. 156**

Cell mediated immunity is mediated by cells of the T-lymphocytes series with antigen - specific receptors on their surfaces. It is responsible for graft rejection.

**16. (c) NCERT (XII) Ch - 8, Pg. 156**

Syphilis - Bacterium (*Treponema pallidum*)

Influenza - Virus (Rhino virus)

Blastomycosis - Fungus

Babesiosis - Protozoan

**17. (b) NCERT (XII) Ch - 8, Pg. 156**

The yellowish fluid colostrums secreted by mother during the initial days of lactation have abundant antibodies (IgA) to protect the infant.

**18. (d) NCERT (XII) Ch - 8, Pg. 156**

When HIV damages large number of T-lymphocytes, this distorted immune -system. In such condition, person may acquire infection even from toxoplasma.

**19. (b) NCERT (XII) Ch - 8, Pg. 159**

Datura has hallucinogenic properties.

**20. (b) NCERT (XII) Ch - 8, Pg. 156**

T-Lymphocytes mainly generate cell-mediated immune response.

**21. (b) NCERT (XII) Ch - 9, Pg. 165**

Infection occur by contaminated food and water containing eggs of *Ascaris*.

**22. (a) NCERT (XII) Ch - 8, Pg. 152**

Antibody is a protein molecule having two light chain and two heavy chain. T-cells cause transplant rejection.

**23. (d) NCERT (XII) Ch - 8, Pg. 158 - 159**

Molecule (a) represents structure of morphine. Morphine is the most abundant alkaloid extracted from the latex of poppy plant *Papaver somniferum*. Molecule (b) represents the structure of cannabinoid molecule. Natural cannabinoids are obtained from the inflorescences of the plant *Cannabis Sativa*.

**24. (c) NCERT (XII) Ch - 8, Pg. 154**

*Plasmodium* and *Trypanosoma* are protozoan parasites while *Cuscuta* is a parasitic angiosperm. Typhoid, pneumonia and diphtheria are caused by bacteria.

**25. (c) NCERT (XII) Ch - 8, Pg. 154**

The spleen is a large bean - shaped organ. It mainly contains lymphocytes and phagocytes. It acts as a filter of the blood by trapping blood-borne micro-organisms. Spleen also has a large reservoir of erythrocytes.

**26. (b) NCERT (XII) Ch - 8, Pg. 147**

Malignant malaria caused by *Plasmodium falciparum*

**27. (c) NCERT (XII) Ch - 8, Pg. 162**

The chronic use of drugs and alcohol damages nervous system and liver (cirrhosis).

**28. (b) NCERT (XII) Ch - 8, Pg. 147**

When a female Anopheles mosquito bites an infected person, these parasites enter the mosquito's body and undergo further development. The parasites multiply within them to form sporozoites that are stored in their salivary glands.

**29. (a) NCERT (XII) Ch - 8, Pg. 146**

*Salmonella typhi* is a pathogenic bacterium which causes typhoid fever in human beings. Typhoid fever could be confirmed by Widal test.

**30. (a) NCERT (XII) Ch - 8, Pg. 157**

Normal cells show a property called contact inhibition by virtue of which contact with other cells inhibits their uncontrolled growth. Cancer cells appear to have lost this property.

**31. (a) NCERT (XII) Ch - 8, Pg. 147**

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.

Common cold infects the nose and respiratory passage but not the lungs.

**32. (d) NCERT (XII) Ch - 8, Pg. 147**

Pneumonia, caused by of bacteria *S. Pneumoniae* or *Haemophilis influenzae*, is a respiratory disease affecting lungs. This is caused by droplet effect or through simple communication with infected person.

**33. (c) NCERT (XII) Ch - 8, Pg. 147**

Common cold is caused by a virus (Rhinovirus). Any infection causing because of a virus cannot be cured using antibiotics because virus lacks cell & an antibiotic binds to the cell wall of the antigen to perform their function.

**34. (c) NCERT (XII) Ch - 8, Pg. 151**

The B-lymphocytes (Bone marrow Lymphocytes) produce an army of proteins in response to pathogens into our blood to fight with them. These proteins are called antibodies. The T-cells (Thymus cells) themselves do not secrete antibodies but help B cells produce them.

So Statement (c) is correct

**35. (d) NCERT (XII) Ch - 8, Pg. 156**

Symptoms of AIDS appear when HIV replicates rapidly in helper T-lymphocytes and damages large number of T-cells (Thymus cells).

**36. (b) NCERT (XII) Ch - 8, Pg. 156**

Diagnostic test for AIDS is ELISA.

ELISA is based on the principle of antigen-antibody interaction. Infection by pathogen can be detected by the presence of antigens (proteins, glycoprotein's, etc.) or by detecting the antibodies synthesized against the pathogen.

**37. (b) NCERT (XII) Ch - 8, Pg. 148**

*Plasmodium* enters the human body as sporozoites (infectious form) through the bite of infected female Anopheles mosquito. The parasites initially multiply within the liver cells and then attack the red blood cells (RBCs) resulting in their rupture. The rupture of RBCs is associated with release of a toxic substance, haemozoin, which is responsible for the chill and high fever recurring every three to four days.

**38. (c) NCERT (XII) Ch - 8, Pg. 150**

Acid in the stomach, saliva in the mouth, tears from eyes—all prevent microbial growth these all act as physiological barriers.

**39. (c)** Cell - mediated immunity mediated by T-lymphocytes is responsible for graft rejection. Immunosuppressant suppresses the immune response towards alien graft.

**40. (a) NCERT (XII) Ch - 8, Pg. 158**

Morphine is acts as a sedative and has been given to a

person undergone a surgery.

**41. (c) NCERT (XII) Ch - 8, Pg. 157**

Drugs addicts are most susceptible to HIV. AIDS has no cure. It is spreads through contact with body fluids.

**42. (a) NCERT (XII) Ch - 8, Pg. 149**

Ringworm in human is caused by fungus belonging to genera *Microsporum*, *Trichophyton* and *Epidermophyton*.

**43. (c)** A Virulent live bacteria cannot be used in vaccine preparation.

**44. (a) NCERT (XII) Ch - 8, Pg. 157**

MRI used strong magnetic fields and non-ionizing radiations to accurately detect pathological and physiological changes in the living tissue.

**45. (a) NCERT (XII) Ch - 8, Pg. 147**

Typhoid fever confirmed by Widal test.

**46. (c) NCERT (XII) Ch - 8, Pg. 153**

Allergy is due to release of chemicals like histamine and serotonin from mast cells.

**47. (b)** It required a dose of preformed antibodies because it requires quick immune response.

**48. (d) NCERT (XII) Ch - 8, Pg. 149**

Ringworm	→ Fungal
Typhoid, TB	→ Bacteria
Virus	→ Common cold, AIDS
Protozoa	→ Dysentery

**49. (a) NCERT (XII) Ch - 8, Pg. 157**

Metastasis exhibited by the malignant tumors. Patients undergo surgery can be given morphine (opoids). Heroin act as depressant. Benign tumors do not show metastasis.

**50. (b) NCERT (XII) Ch - 8, Pg. 153**

The letter 'T' in T-lymphocytes refers to thymus. These are produced in the bone marrow but matures in thymus.

**51. (c)** Psychotropic drugs act on the brain and alter the behavior, consciousness and power of perception. Hashish is a hallucinogen, which alters the person thought.

**52. (a) NCERT (XII) Ch - 8, Pg. 150**

Saliva found in saliva and tears are physiological barriers, prevents microbial growth.

**53. (b) NCERT (XII) Ch - 8, Pg. 148**

Amoebiasis - Use sterilized food & water

Syphilis - *Treponema pallidum*

Diphtheria - DPT vaccine

Cholera - Use ORS

**54. (a) NCERT (XII) Ch - 8, Pg. 152**

Cornea is avascular. It does not have any issue of rejection, since there is no chance of antibody - antigen interaction.

**55. (b) NCERT (XII) Ch - 8, Pg. 150**

Lysozyme found in saliva and tears is physiological barriers, prevents microbial growth.

**56. (a) NCERT (XII) Ch - 8, Pg. 153**

Asthma: It is common manifestation of allergy. It is characterized by the narrowing of bronchi. Pollen grains of many species of plants cause bronchial affections leading to chronic respiratory disorders.

**57. (c)** Border line personality disorder: It is emotionally unstable personality disorder in which the patient suffers from unpredictable moods, outburst of emotion, uncontrolled anger and quarrelsome behavior.

**58. (d) NCERT (XII) Ch - 8, Pg. 151**

Antibodies are glycoproteins which meant to provide immunity to body against antigen.

**59. (d) NCERT (XII) Ch - 8, Pg. 155**

HIV during infection enters into the helper T-Lymphocytes ( $T_H$ ), replicates and produce progeny virus. This progeny virus destroys other helper T-Lymphocytes.

**60. (a) NCERT (XII) Ch - 8 Pg. 153**

Thymus glands secrete thymosin. Thymosin plays an important role in the differentiation of T - lymphocytes which provide cell mediated immunity.

**61. (a)** Valium is tranquillizers, depresses brain activity and produces feeling of calmness, relaxation and drowsiness.

**62. (a)** Mast cell, a granulocyte, is a part of immune system & contains many granules rich in histamine & heparin, powerful biologically active mediators.

**63. (a)** Radiation therapy is used to damage cancer cells as it affects cancer cells more than normal cells. Cancer cells divide & grow very rapidly, and are less organized than healthy cells which makes it harder for them to repair the damage done by radiation.

**64. (c)** Leishmaniasis is caused by parasites of *Leishmania* & spread by the bite of certain sandflies.

**65. (b)** ELISA (Enzyme Linked Immunosorbent Assay) is a technique that uses antibody - antigen reaction & identify the substance by detecting the colour changes. Alkaline phosphatase & Horse radish peroxidase is used in this technique as key reagent.

**66. (b)** Carcinoma is a type of malignant tumor that develops from epithelial cells. It begins in a tissue that lines the inner or outer surfaces of the body.

**67. (b)** Passive immunity is short-term immunity that is the result of introduction of antibodies from outside to the body. It occurs naturally when maternal antibodies are transferred to the foetus through the placenta.

**68. (a)** T-lymphocytes play a central role in cell-mediated immunity. They are categorized in 3 main types- Cytotoxic T Lymphocyte (CTL) also called killer cells, Helper T-cells (activate B cells & macrophages) and suppressor T-Lymphocytes (play a role in immune tolerance). Other types of T cell include memory cells, natural killer cells, etc.

**69. (d)** Life cycle of *F.hepatica* goes through the intermediate host and several environmental larval stages. Primary host is sheep & intermediate host is snail. In snails, miracidia develop into rediae, then to cercariae. The cercariae are released from snail to form metacercariae which is eaten by mammalian host.

**70. (b)** Sickle cell trait provides a survival advantage over people with normal RBCs against mosquito borne diseases such as Malaria.

**71. (a)** Christmas disease is a form of haemophilia caused by deficiency of the blood-clotting factor IX, also called Haemophilia B. It is a rare genetic disorder that leads to prolonged bleeding.

**72. (a)**  $I^{131}$  is radioactive iodine. Radioiodine therapy is used in the treatment of papillary and follicular thyroid cancer.  $I^{131}$  becomes toxic to cells of thyroid gland that accumulate iodine from bloodstream and in turn kills these cell.

**73. (d)** Pale colored stools indicates the problem of drainage of biliary system. Bile salts are released into stools by liver, giving the stools a grey colour.

**74. (a)** Rapidly dividing cells of cancer have very less or no time to repair the damage caused by radiations and thus radiation therapy is used to destroy cancerous cells.

**75. (b)** Monoclonal antibodies are made by identical immune cells that are clones of a unique parent cell. Hence, though they are produced by different cells, they specifically recognise a single type of antigen.

**76. (a)** Hepatitis - B is a serious liver infection caused by Hepatitis - B virus. Transmission of virus is via blood, semen, saliva, broken skin around mouth, genitals or rectum, therefore, it is the most infectious disease.

**77. (a)** Reserpine is antipsychotic, antihypertensive alkaloid that has been used for controlling high blood pressure and antipsychotic symptoms (hence called tranquilizer).

- 78. (a)** *Salmonella typhi* is a causative agent of typhoid.
- 79. (a)** Bacteria *Treponema pallidum* cause the disease syphilis. AIDS is caused by the Human Immunodeficiency Virus (HIV). Gonorrhoea is bacterial infection caused by bacterium *Neisseria gonorrhoeae*. *Salmonella typhi* is a causative agent of Typhoid.
- 80. (a)** Interferons are signalling proteins formed by host cells during the infection of viruses of bio-synthetic secretory pathway in endoplasmic reticulum & golgi apparatus.
- 81. (c)** Glycosylation is a process of adding carbohydrate residues. It is a critical function of bio-synthetic secretory pathway in endoplasmic reticulum & Golgi apparatus.
- 82. (a)** Sexual dimorphism is the difference in size or appearance between two sexes of an animal.
- 83. (a)** Cholera causes severe diarrhoea & dehydration, i.e., excessive loss of water from the body. The first priority in cholera treatment is to conserve water & rehydrate the body, thus, saline solution is used to prevent water loss from the body.
- 84. (a)** Koch's postulates are criterias to establish a causative relationship between a microbe & a disease.
- 85. (b)** HIV infects vital cells in the human immune system such as helper T-lymphocytes, macrophages & dendritic cells.
- 86. (a)** Most cells are abundantly found at the sites of potential injury. Histamine is released from these cells in response to antibody IgE.
- 87. (c)** Thymus serves as a site of T cell differentiation. The thymus increases gradually in size and activity until puberty and then it undergoes gradual involution (or atrophy). In elderly individual, it appears as small islands of thymic tissue covered with fat & surrounded by yellowish capsule.
- 88. (a)** Vaccine is suspension of weakened, killed or fragmented microbes or toxins that is administered primarily to prevent disease.
- 89. (c)** *Salmonella typhi* is the causative agent of typhoid that spreads through contaminated food and water.
- 90. (a)** Mast cells secrete the powerful chemical mediator histamine in granules at the site of injury.
- 91. (d)** Morphine is pain medication of opiate variety. It acts directly on CNS (Central Nervous System) to decrease the feeling of pain .
- 92. (b)** By that time, cancer was incurable and lots of discoveries were going on to treat this fatal disease.
- 93. (b)** Diphtheria is an infection of nose & throat caused by bacterium *Corynebacterium diphtheriae*.
- 94. (a)** For around 2000 years, small pox was endemic to India. After many efforts & projects of WHO, India received "no-small pox" certificate on May 24, 1975.
- 95. (b)** Symptoms of red sickness includes fever, runny eyes & nose, cough, rashes, nausea, headache, etc.
- 96. (d)** Measles is a viral infection caused by Rubella virus. Interferons are secreted by virus - infecting cells to protect the neighboring cell from infection of Rubella.
- 97. (a)** Rabies & Mumps are viral infections. Rabies virus is a RNA virus of Rhabdovirus family and mumps is caused by paramyxovirus of Rubulavirus family.
- 98. (c)** Antibodies are produced by B-lymphocytes.
- 99. (b)** Interferons are signalling proteins produced by virus- infecting host cells to prevent the infection of cells from virus.
- 100. (b)** Antibiotics are capable of curing disease caused by bacterial infections.
- 101. (d)** When nicotine gets into brain, it attaches to acetylcholine receptors and mimics the action of acetylcholine (a neurotransmitter).
- 102. (c)** Leukemia is a cancer of blood-forming tissues. It is caused by an over production of damaged white blood cells (leukocytes).
- 103. (a)** Syphilis is caused by a spirochete (spiral bacterium) *Treponema pallidum*.
- 104. (d)** Hay fever is an allergic response causing itchy, watery eyes, sneezing & other similar symptoms. It is also called as allergic rhinitis, occurs when immune system overreacts to allergens in the air.
- 105. (c)** Plague is caused by a bacterium *Yersinia pestis*. *Y. pestis* is a facultative anaerobic organism that infect humans via oriental rat flea.
- 106. (d)** An antigen is any foreign substance like protein or polysaccharide present on the external coating of pathogen, feather, constituent of vegetable, fruit, meat, drug, chemical, tissue or organ transplant which induced the immune system to produce antibodies.
- 107. (c)** Interferons are signalling molecules produced by host cells in response to viral infection.
- 108. (a)** *Treponema pallidum* is a causative agent of disease syphilis.
- 109. (a)** Sarcoma is the cancer of connective tissue. Fibroblast is a connective tissue, therefore malignancy of these cells will be termed as sarcoma.
- 110. (b)** Rickettsia is a very small coccoid or rod-shaped gram-negative bacterium belonging to the phylum proteobacteria. With one exception, rickettsias are obligate parasite, being unable to reproduce outside the



cells of their hosts. Rickettsias can infect such arthropods as ticks, fleas, lice, and mites, through which they can be transmitted to vertebrates, including humans.

**111. (c)** Bacteria grow & divide very rapidly so they are prone to new mutation & develop into new strains. Consequent exposure of bacteria to antibiotics results in some changes in population which is beneficial in terms of their survival. These changes lead to development of new, antibiotic resistant strains.

**112. (c)** Opiates act on opioid receptors to produce morphine-like effects such as pain-relief. Narcotics are psychoactive drugs that have sleep-inducing properties. Heroin, a diamorphine, is an opioid used for its euphoric effects.

**113. (d)** Filariasis (Elephantiasis): Pathogen is filarial worms or *Wuchereria* (*W. bancrofti* & *W. malayi*).

Mode of transmission: Bite of female *Culex* mosquito.

Symptoms: Filarial worms live in lymphatic vessels (usually of lower limbs). It causes chronic inflammation of the organs in which they live for many years. Limbs and genital organs may be deformed.

**114. (b)** Analgesic drugs are used to relieve pain (and popularly known as painkillers) without causing the loss of consciousness.

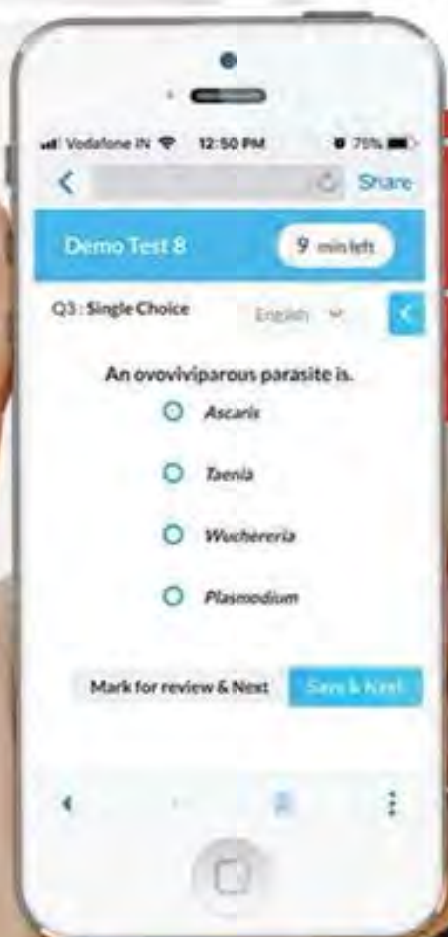
**115. (d)** Neutrophils help to fight from infections by ingesting micro-organisms & releasing the enzymes that kill those micro-organisms. It is a granulocyte.

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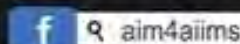
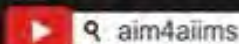
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