1. **The beginning of immunology as a science is usually attributed to…**
   A) Robert Koch
   B) Louis Pasteur
   C) Edward Jenner
   D) Elie Metchnikoff

2. **The smallest unit of antigen that is capable of binding with antibodies and T cells is called….**
   A) epitope
   B) paratope
   C) idiotype
   D) pre-antigen

3. **Dendritic cells were discovered in the 1970s by….**
   A) Row Steinman
   B) Ralph Steinman
   C) Lawrence Steinman
   D) Louis Steinman

4. **……is the capacity of a compound to induce an immune response.**
   A) Antigenicity
   B) Immunogenicity
   C) Immunopotency
   D) Antiimmunogenicity

5. **Th2 induce expulsion of……**
   A) tumors
   B) helminths
   C) bacteria
   D) viruses

6. **……is the ingestion by individual cells of invading foreign particles, such as bacteria.**
   A) Complement activation
   B) Apoptosis
   C) Phagocytosis
   D) Opsonin

7. **Which of the following antigen-presenting cells is responsible for priming naïve T cells?**
   A) Macrophages
   B) B cells
   C) Epithelial cells
   D) Dendritic cells

8. **The intrinsic association constant that characterizes the binding of an antibody with an epitope or a hapten is termed……**

A) avidity
B) affinity
C) van der Waals
D) hydrogen bonds

9. **FACS stands for……**

A) fluorescence activator cell sorter
B) fluorescence acting cell setting
C) flow cytometer activator cell sorter
D) fluoride acting cell sorter

10. **CD as nomenclature in immunology refers to…….**

A) cloning of dendritic cells
B) cluster of Dendritic cells
C) cluster of differentiation
D) cloning of differentiation

11. **MHC class II molecules interact with CD4, whose expression defines the subset of T cells called...**

A) $CD8^+$ T cells
B) $CD8^+CD4^+$ T cells
C) $CD4^+$ T cells
D) $CD4^+$ $CD8^+$T cells

12. **…… are proteins synthesized inside a cell and are generally derived from pathogens (such as viruses, bacteria, and parasites) that have infected a host cell.**

A) Exogenous antigens
B) Superantigens
C) Particulate antigens
D) Endogenous antigens

13. **The half-life (days) of IgG is…….**

A) 100
B) 5.5
C) 23
D) 4

14. **The transcription factor of regulatory T cells is….**

A) T-bet
B) RORgT
C) FOXP3
D) GATA-3

15. **Granzymes trigger ……in the target cell both by directly activating caspases and by damaging mitochondria.**

A) growth
B) proliferation
C) apoptosis
D) development

16. T cell education occurs in the ....

A) B cell areas
B) Thymus
C) T cell areas
D) macrophages

17. Increased levels of the .....antibody subtype suggest the presence of *Plasmodium* infection.

A) IgG4
B) IgG2
C) IgG3
D) IgA1

18. How many Toll-like receptor genes are there in humans?

A) 10000
B) 10
C) 4
D) 100

19. **Toll-like receptors are activated by....**

A) PAMPs
B) CAMPs
C) SAMPs
D) All the above

20. Which of the following TLRs is mainly activated by lipopolysaccharide (LPS)?

A) TLR-1
B) TLR-2
C) TLR-3
D) TLR-4

21. The immunity mediated by antibodies is known as .....

A) cell-mediated
B) humoral
C) active
D) passive

22. Which of the following TLRs is mainly activated by lipopolysaccharide (LPS)?

A) TLR-1
B) TLR-2
C) TLR-3
D) TLR-4

30. **Which of the following Immunoglobulins is associated with placental transfer, i.e., enabling the mother to transfer her immunity to the fetus?**
A) IgM
B) IgA
C) IgG
D) IgE

31. **The importance of CTLA-4 is in**
A) inducing tolerance
B) enhancing stimulation
C) supporting growth
D) distracting activation

32. **What is the full meaning of the family of the transcription factor STATs?**
A) Signal transducers and activators of transcription
B) Secreting transcription and activation of transcript
C) Signal transcription and activation of transcript
D) Secreting transcript and activator of transcription

33. **MHC class II molecules have ….residues.**
A) 20-30
B) 14-20
C) 4-8
D) 8-10

34. **CD25 is a marker of….**
A) B cells inhibition
B) early T cell activation
C) cytotoxic T cells
D) late T cell activation

35. **Toll-like receptors are activated by……**
A) PAMPs
B) CAMPs
C) SAMPs
D) BAMPs

36. **Which of the following is the signature molecule for Th1 response?**
A) IL-4
B) IL-5
C) IFN-gamma
D) IL-10

37. **Activation of naïve T cells leads to their….**

44. An antibody molecule comprises three equal-sized globular portions, with its two arms joined by a flexible stretch of polypeptide chain known as the...

A) Y shaped
B) fragment
C) hinge region
D) constant region

45. Papain digest IgG into...

A) 2 Fab fragments and 1 Fc fragment
B) 2 Fab fragments and 2 Fc fragments
C) 1Fab fragment and 2 Fc fragments
D) 1Fab fragment and 1 Fc fragment

46. Which of the following is responsible for immune specificity?

A) Antigen
B) Super antigen
C) Cytokine
D) Antibody

47. Monoclonal refers to....

A) single clone of antibody producing cells
B) multiple clones of antibody producing cells
C) antibody molecules are not identical
D) all the above

48. IgE provide....

A) immunity against viruses
B) immunity against some parasites
C) secretions in the body
D) complement killing of bacteria

49. A secondary antibody is one.....

A) that binds to itself
B) produced in boostered animals
C) that binds to another antibody
D) that is synthetically produced in the lab

50. The main function of antibodies is to.....

A) kill everything in the body
B) protect the nervous system
C) confer immunity
D) combine with antigen which induces it, inactivate the antigen and protect the bo from disease

51. How many types of light chains are there?

A) 20
B) 2
C) 2000
D) 200

52. In humans the average kappa to lambda ratio is....

A) 1:2
B) 20:1
C) 1:20
D) 2:1

53. The importance of CD28 is in...

A) inducing tolerance
B) enhancing stimulation
C) checking growth
D) minimizing growth

54. CD28 functionally competes with ..... after prolonged activation.

A) IL-4
B) TLR-2
C) CTLA-4
D) TNFalpha

55. MHC class I and class II molecules are.....

A) non-membrane bound heterodimers
B) membrane bound heterodimers
C) membrane bound tetradimers
D) non-membrane bound tetradimers

56. Super-antigens stimulate whole families of lymphocyte receptors, all the following are super-antigens except....

A) Toxic shock syndrome toxin-1 (TSST-1)
B) *Staphylococcus aureus* enterotoxin A (SEA)
C) *Staphylococcus aureus* enterotoxin B (SEB)
D) *Litosomoides sigmodontis*

57. DAMPs stand for.....

A) delayed associated microbial patterns
B) damaged associated molecular pattern
C) designed associated molecular pathways
D) destroyed associated molecular pathogens

58. Which of the following was the first to work on vaccines?

A) Robert Koch
B) Louis Pasteur

66. Which of the following statements is true regarding IgM?
A) IgM is a pentamer and is the largest Ig
B) IgM exists as monomer on B cell surface
C) IgM is involved in early primary immune response
D) All the above

67. Light chains and heavy chains are joined by....
A) covalent bond
B) hydrogen bond
C) di-sulphide bond
D) ionic bond

68. The antigen-binding site on an antibody is called.....
A) antitope
B) epitope
C) paratope
D) paratipe

69. An antibody has a (an).....
A) 2 Fab regions and an Fc region
B) Fab region and an Fc region
C) 2 Fab regions and 2 Fc regions
D) many Fab regions and many Fc regions

70. The hypervariable region resides in the.....
A) N-terminal region of the light chain
B) N-terminal region of the light chain and heavy chain
C) C-terminal region of light chain
D) C-terminal region of light chain and heavy chain

71. Fab stands for.....
A) fragment antibody binding
B) fragment antigen binding
C) fragment antibody and antigen binding
D) fragment affinity binding

72. Fc region.....
A) has a hypervariable region that binds with antibody
B) has a hypervariable region that binds with antigen
C) has a hypervariable region that binds with other immune cells
D) has a hypervariable region that binds with T cells

73. The ability of antigen to stimulate antibody production is called.....
A) affinity

B) antigenicity
C) elicitation
D) neutralization

74. Clearance of antigens by antibodies involve……
A) neutralization and agglutination
B) opsonization and complement activation
C) precipitation
D) neutralization and opsonization

75. The hypervariable region of antibody consists of……..
A) 5-10 amino acids that form antigen binding site
B) 50-100 amino acids that form antigen binding site
C) 5-10 amino acids that form the antibody binding site
D) A part of constant region of heavy and light chain

76. Which of the following statements is true?
A) All immunogens are antigens but not all antigens are immunogens
B) All immunogens are antigens and all antigens are immunogens
C) All immunogens are not antigens but all antigens are immunogens
D) All immunogens are proteins and all proteins are immunogens

77. Any agent that may stimulate the immune system and enhance the response without any specific antigenic effect by itself is……..
A) antigen
B) allergen
C) adjuvants
D) carriers

78. CD4 T cells……..
A) is essentially an intracellular glycoprotein
B) is heterodimeric
C) binds processed peptides in its outer groove
D) binds to MHC II on antigen presenting cells

79. The following is characteristic of B but not T cells…..
A) Class I MHC
B) CD3
C) surface immunoglobulin
D) polyclonal activation by concanavalin A

80. Which of the following is an intracellular pathogen?
A) Ascaris
B) Varicella
C) *Streptococcus* spp

D) *Schistoma*

81. When a resting naive T-cell engages its specific MHC/peptide complex displayed on the surface of a fibroblast it....

A) undergoes blast cell formation
B) becomes anergic
C) secretes IL-1
D) moves from Go to G1 of the cell cycle.

82. The T-cell ligand binding B7 on a professional antigen-presenting cell is.....

A) CD2
B) VCAM-1
C) CD40
D) CD69

83. Which of the following substances will not stimulate an immune response unless they are bound to a larger molecule?

A) Antigen
B) Antibody
C) Hapten
D) Immunogen

84. B and T cells are produced by stem cells that are formed in.....

A) bone marrow
B) liver
C) spleen
D) lymph nodes

85. B cells mature in the..... while T cells mature in the.....

A) thymus/bone marrow and gut associated lymphoid tissue (GALT)
B) spleen/bone marrow and GALT
C) bone marrow and thymus
D) liver and kidneys

86. Which of the following immune cells/molecules are most effective at destroying intracellular pathogens?

A) T helper cell
B) B cells
C) Complement
D) Cytotoxic T cells

87. B Cells are activated by.....

A) complement
B) antigen
C) antibody

D) interferon

88. Fusion between a plasma cell and a tumor cell creates a...

A) hybridoma
B) myeloma
C) lymphoblast
D) lymphoma

89. Monoclonal antibodies recognize a single....

A) antigen
B) bacterium
C) epitope
D) b cell

90. Cell mediated immunity is carried out by..... while humoral immunity is mainly carried out by.....

A) B cells/T cells
B) epitopes/antigens
C) T cells/B cells
D) antibodies/nntigens

91. All the following comes under non-specific defence mechanism except.....

A) fever
B) phagocytes
C) cell mediated immunity
D) complement system

92. Haptens cannot activate T cells or B cells due to.....

A) its low molecular weight antigen arbuscules
B) its inability to bind to MHC
C) both a and b
D) a but not b

93. Which of the following can act as a hapten?

A) Cyanide
B) Paracetamol
C) Penicillin
D) None of these

94. The functions of macrophages includes.....

A) phagocytosis
B) antigen presenting cells
C) cytokine production
D) all the above

95. Tissue damage caused by wound of invading pathogenic organism induces a complex sequence of events collectively known as……

A) opsonization
B) phagocytosis
C) inflammation
D) apoptosis

96. Generally, antibodies produced against a pathogen is…….

A) monoclonal
B) homogenous
C) polyclonal
D) stable

97. The transcriptional factor for Th1 is…..

A) GATA-3
B) T bet
C) RORγt
D) FoxP3

98. The transcriptional factor for Th2 is…..

A) T bet
B) GATA-3
C) RORγt
D) FoxP3

99. The transcriptional factor for Th17 is…..

A) T bet
B) GATA-3
C) FoxP3
D) RORγt

100. The following methods of diagnosis utilize labelled antibodies except….

A) ELISA
B) Hemagglutination inhibition test
C) Radio immunoassay
D) Immunofluorescence

101. In the indirect ELISA test the enzyme-linked antibody will attach to……

A) the patient antigen
B) the variable region of the patient antibody
C) the constant region of the patient antibody
D) known antibody

In the following sets of questions (102 – 119) indicate A (True) or B (False) for each statement.

102. Graft-versus-host disease is due to donor T cells in the graft that attack the recipient's tissues.

A) True
B) False

103. The innate immune system uses germline-encoded receptors while the adaptive immune system uses antigen receptor of unique specificity assembled from incomplete gene segments during lymphocytes development.

A) True
B) False

104. Effector lymphocytes do not recirculate like naïve lymphocytes.

A) True
B) False

105. Activated B cells give rise to plasma cells.

A) True
B) False

106. Louis Pasteur's vaccine was against smallpox.

A) True
B) False

107. The ability of an antibody to neutralize a pathogen may depend on its affinity alone.

A) True
B) False

108. Immunity conferred on the general population is referred to as herd immunity.

A) True
B) False

109. The route of vaccination is an important determinant of success.

A) True
B) False

110. Intranasally administered live-attenuated vaccine against influenza virus induces mucosal antibodies, which are more effective than systemic antibodies in the control of upper respiratory tract infections.

A) True
B) False

121. Complement component C3 is cleaved by.....

A) C3b
B) C3bBb
C) Factor B
D) Factor D

122. The membrane attack complex in the complement pathway consists of:

A) C3b3b, Bb
B) C5b, 6,5,8,9
C) OH
D) Colicins

123. Several of the complement components are...

A) enzymes
B) cytokines
C) antibodies
D) glycolipids

124. Autoimmunity represents a breakdown or failure of.....

A) immune power
B) immune education
C) self-Tolerance
D) auto reactivity

125. A critical function of the immune system is to discriminate self from ....

A) autoreactive cells
B) immune molecules
C) non-self
D) tolerance

126. The process of weakening a pathogen is called....

A) vaccination
B) virulence reduction
C) immunization
D) attenuation

127. The first vaccine developed by Louis Pasture was against....

A) pox virus
B) ebola virus
C) rabis virus
D) hepatitis virus

128. Which of the following statements are true regarding polio vaccines?

A) Salk and Sabin are polio vaccines
B) Sabin is live attenuated polio vaccine
C) Salk is an inactivated polio vaccine
D) All of these

129. Which of the following is a polysaccharide vaccine?

A) anthrax vaccine
B) rabies vaccine
C) hepatitis
D) Hib vaccine

130. All the given vaccines are attenuated or inactivated whole pathogen except ...

A) salk
B) sabin
C) hepatitis A
D) tetanus

131. The first vaccine was developed by....

A) Louis Pasteur
B) Edward Jenner
C) Carl Landsteiner
D) Joseph Miester

132. Which of the following statement is true regarding vaccination?

A) vaccination is a method of active immunization
B) vaccination is a method of passive immunization
C) vaccination is a method of artificial passive immunization
D) vaccination is a method of natural passive immunization

133. Plasmids encoding antigenic protein from a pathogen that is directly injected into the cells where it expresses constitute

A) protein vaccines
B) nucleotide vaccines
C) DNA vaccines
D) recombined vaccines

134. Active immunity may be gained by:

A) natural infection
B) vaccines
C) toxoids
D) all of these

135. The process of introduction of weakened pathogen into human body is called

A) immunization
B) vaccination
C) attenuation
D) varioation

136. The technology used for the production of monoclonal antibodies is called?

A) Massculture
B) Hybridoma
C) Suspension culture
D) T cell culture

137. Hybridoma technology was developed by:

A) Beedle and Tautum
B) Kholer and Milsten
C) Khoran and Nirenberg
D) Khoran and Korenberg

138. Which of the following would be considered an organ-specific autoimmune disease?

A) Hashimoto's thyroiditis
B) Rheumatoid Arthritis
C) SLE
D) Goodpasture's syndrome

139. In order to control anaphylactic hypersensitivity, which of the following will be an effective approach?

A) Keeping adenyl cyclase activity at low levels in cells
B) Use of vasodilators
C) Administering a drug to increase phosphodiesterase activity
D) None of the above

140. This drug is used as an immunosuppressive agent in transplantation by preventing cell division due to its alkylation of DNA:

A) Azathioprine
B) Methotrexate
C) Cyclosporin A
D) Cyclophosphamide

141. Blood groups O and B can be differentiated by:

A) The presence of fucosyl group in O, but its absence in B
B) The presence of a galactosyl- group in addition to fucosyl group in B
C) Group O being a universal donor, but group B is not
D) Presence of N-acetyl galactose group as well as fucosyl group in B

142. **Which of the following is <u>not</u> a strong evidence of graft rejection being an immunological response?**
   A) Memory created against a rejected transplant cannot protect against a different transplant
   B) A recipient rejecting a transplant will have high antibody titre against the rejected tissue
   C) A recipient will normally mount more rapid reaction against a second transplant of same tissue
   D) The recipient normally shows delayed hypersensitivity to the transplanted tissue

143. **Goitre is a result of immune system dysfunction because:**
   A) The response takes between 2 – 8 hours to be manifested
   B) Medications taken by such individuals disrupt their normal immune functions
   C) The individual destroys his/her own thyroid tissue by an autoimmune response
   D) All the above are good reasons

144. **Broncho-dilators are able to control anaphylactic hypersensitivity by:**
   A) Continually removing mediators when produced
   B) Preventing influx of Calcium ions into the cell
   C) Blocking the conversion of histidine to histamine in the cell
   D) Preventing mast cell degranulation through stabilization of cAMP levels in cells

145. **The major reason for the success of organ transplants in recent times is due to:**
   A) Better typing of the HLA locus
   B) Availability of more organ donors
   C) More dependence on xenograft transplants
   D) None of the above

146. **Which of the following is not a factor used in the classification of hypersensitivity reactions?**
   A) Time taken for reaction to occur
   B) Effector mechanism involved in the reaction
   C) Site at which reaction occurs
   D) The type of response

147. **Identify the <u>odd</u> one among the following mediators with respect to their time of action:**
   A) Bradykinin,
   B) Leukotrienes,
   C) Eosinophil chemotactic factor
   D) Cytokines

148. **It is never advisable to use universal donor blood if there is adequate time for typing the blood. This precaution is necessary mainly because:**
   A) Recipient and donor minor groups may differ significantly
   B) Donor blood can sensitize recipient by the ABO incompatibility

C) The universal donor blood might not have been typed adequately
D) None of the above is a good reason

149. Hashimoto's thyroiditis can best be differentiated from Graves' disease on the basis of which of the following?

A) Decrease in thyroid hormone levels
B) Presence of thyroid peroxidase antibodies
C) Enlargement of the thyroid
D) Presence of lymphocytes in the thyroid

150. Detection of recipient alloantigens against donor alloantibodies will normally describe:

A) General blood typing procedure
B) Minor cross-match procedure in blood typing
C) Detection of adulterated meat through blood typing
D) Major cross-match procedure in blood typing

151. An erythroblastosis baby will be best served by receiving transfused blood from:

A) The mother
B) The father
C) A sibling
D) Any individual who is Rh-

152. A good example of a type II isoimmune reaction is:

A) Pneumonitis
B) Pernicious anemia
C) Reactions to transfused blood
D) All the above are type II isoimmune reactions

153. Which of the under-listed can be classified both as Type III hypersensitivity as well as an autoimmune disease?

A) Rheumatoid arthritis
B) Serum sickness syndrome
C) Addison's disease
D) None of the above

154. One of the following is <u>not</u> an effective means to control type I immediate hypersensitivity:

A) Administration of human monoclonal anti-IgE antibodies
B) Administration of epinephrine
C) Stimulation of phosphodiesterase activity
D) Administration of drugs to decrease adenyl cyclise activity

155. All the following are potential contact allergens except:

A) Metals such as nickel
B) Some types of antibiotics
C) Ragweed pollen
D) Some types of hair dyes

156. Although a fetus is an allograft and therefore subject to rejection, this does not happen most times because:

A) The fetus induces tolerance at the embryonic stage of pregnancy
B) The fetus is normally located at a privileged site
C) The mother benefits from general immune-suppressive therapy
D) None of the above

157. Production of lymphoblasts, Killer cells and cytokines typically describe:

A) Type II autoimmune hypersensitivity reaction
B) Type IV delayed hypersensitivity reactions
C) Type I atopic hypersensitivity reaction
D) None of the above

158. The mechanism involved in type I hypersensitivity reactions requires release of primary mediators, some of which are the under-listed except:

A) Bradykinin
B) Heparin
C) Histamine
D) Proteases

159. Coomb's serum describes:

A) Antibodies produced in rabbits against human immunoglobulins
B) Antibodies raised in rabbits against any protein from humans
C) Antibodies raised in rabbits against human gamma globulins
D) All the above will appropriately describe Coomb's serum

160. Hyperacute Tissue Graft Rejection is most often due to:

A) Improper typing of the HLA locus
B) Pre-existing Abs from multiple transfusions
C) Monocyte infiltration of the blood vessels
D) None of the above

161. Reactions to blood transfusion by haemolytic transfusion reaction can often be identified by:

A) Presence of haemoglobin in serum

B) Increase in serum bilirubin
C) Bacterial contamination of the transfused blood
D) Only A and B are correct

162. The alloantigens can incorporate all of the following characteristics except:
A) Act as cell surface antigens in mammalian blood
B) Genetic Segregation within a species is possible
C) They are richer in carbohydrates than proteins
D) The protein or carbohydrate component confers specificity to each alloantigen

163. A graft undergoing rejection will show all the following symptoms *except:*
A) Revascularization of blood vessels
B) Infiltration of blood vessels by monocytes
C) Thrombosis
D) Healing process

164. An intravenously administered allergen will give rise to:
A) Atopic allergic reaction
B) Anaphylactic reaction
C) Arthur's reaction
D) Rheumatoid arthritis reaction

165. A young guy usually suffers from allergic conjunctivitis during the summer months. Such an individual could benefit from treatment with any of the following drugs:
A) Cyclosporin
B) Coomb's serum
C) Sodium cromoglycate
D) Rapamycin

166. During blood transfusion, a blood considered suitable for use must of necessity satisfy the following criteria:
A) Must have only the major ABO allo antigens as that of recipient
B) Must have both the major allo antigens and Rh antigens as that of recipient
C) All the major and minor allo antigens of both donor and recipient must be same
D) None of the above is critical enough

167. These are all features of serum sickness syndrome except:
A) Reactions often triggered by inhalation from mouldy hay
B) Complexes formed always have antibodies in excess
C) Reaction can lead to inflammation of affected areas
D) Symptoms are often observed at the peak of immune complex formation

168. Autoimmunity can arise from all the following mechanisms, *except:*

A) Clonal deletion of self-reactive T cells
B) Molecular mimicry
C) New expression of class II MHC antigens
D) Polyclonal activation of B cells

169. Hashimoto's thyroiditis can best be differentiated from Graves' disease on the basis of which of the following?
A) Decrease in thyroid hormone level
B) Presence of thyroid peroxidase antibodies
C) Enlargement of the thyroid
D) Presence of lymphocytes in the thyroid

170. The following responses are examples of Arthurs' hypersensitivity reactions:
A) Antigen-Antibody complexes formed are mainly Ag_3Ab_4, AgAb, Ag_4Ab_5
B) Antigen-Antibody complexes are formed with attraction of C to reaction site
C) Reaction involves inhalation of fungal or bacterial spores into the lungs
D) None of the above describes an Arthur's reaction

In the following sets of questions (171 – 200) indicate A (True) or B (False) for each statement.

171. An erythroblastosis child can be treated by exchange transfusion with blood containing mainly cDe/cde genotype .....
172. Secondary mediators of hypersensitivity normally come into play after target cell activation.....
173. All alloantibodies to ABO alloantigens are of IgM class.....
174. The mechanism by which monoamine oxidase works in preventing type I hypersensitivity is to prevent influx of Ca ions into the cells.....
175. The distinction between ABO and Histocompatibility antigens is that ABO reactivity is protein specific while the histocompatibility reactivity is carbohydrate specific.....
176. When the clonal selection breaks down in an individual, autoimmune diseases will be prevalent.....
177. In the RIST test for IgE measurement, the allergen is initially bound to an adsorbent followed by the patient's serum to bind.....
178. A 25 year old lady needed an emergency blood transfusion, but in the ward the doctor insisted she must be given only type O^+ blood.....
179. When a patient needs liver transplant, the process will likely be more successful if the doctors use Cyclosporin A in combination with corticosteroids compared to when they use azathioprine in combination with corticosteroids as the immunosuppresant.....
180. Bronchiospasm, reddening and swelling of the eyes are indications of atopic allergic reactions.....

181. Systemic Lupus Erythematosus (SLE) is an autoimmune disease characterized by antibody production against the individual's red blood cells as well as the DNA.....
182. Antihistamines, vasoconstrictors, epinephrine, etc. are effective ways of treating allergic reactions to penicillin.....
183. A strong evidence of graft rejection having an immunological basis is that the memory created by a particular donor in a recipient is specific.....
184. The major chemical difference between the ABO and Histocompatibility alloantigens is their different molecular weights .....
185. Hashimoto thyroiditis is an example of systemic autoimmune reactions.....
186. All Secondary Mediators of hypersensitivity come into play only after target cell activation.....
187. The most effective and practical method to prevent tissue graft rejection is complete matching of donor and recipient HLA.....
188. Both methotrexate and azathioprine are used to suppress graft rejection. Their mechanisms of action are to block purine biosynthesis and cell division, respectively.....
189. Reaction to mosquito bite is classified as cutaneous allergy while that to ordinary house dust is referred to as atopic allergy.....
190. P. K. test can be most beneficial to atopic individuals as well as people who are allergic to some types of food.....
191. In type II cytotoxic hypersensitivity, cell damage is a result of destruction of surface antigens by cytotoxic killer cells.....
192. Molecular mimicry can contribute to the incidence of autoimmunity in man.....
193. Identification of adulterated meat using Blood typing procedure is possible.....
194. A person experiencing sudden death due to vascular collapse (shock) shortly after antigen injection or its ingestion is most likely experiencing Type I hypersensitivity to this antigen.....
195. Penicillin as a drug can induce both Types II and IV hypersensitivity in some individuals.....
196. In transplantation immunology, acute graft rejection is mediated by pre-existing antibodies specific for the antigens on the grafted tissue.....
197. Use of anti-lymphocyte sera is a general immunosuppressive approach to prevent graft rejection in patients.....
198. In serum sickness syndrome (SSS), severity of the disease is seen at a time when free antibodies in serum have also reached their peak level.....
199. Systemic Lupus Erythematosus (SLE) is very debilitating because the immune response is directed towards one important organ in the body.....
200. Routine Mantoux test guarantees protection against tuberculosis.....

26) The first to study Vaccines is Edward Jenner.
27) A paratope is part of an antibody.
28) Immunogeniaty is ability to eliait immune response
29) Phagocytosis is ingestion of foreign entities.
30) MHC class I is normally found on nucleated cells
31) Activation of T-lymphocytes depends on binding of enough TCR-pMHC (peptide - MHC TCR)
32) Jenner said intensity increases after second exposure to foreign entities.
33) Monocytes are myeloid cells
34) MHC II + CD4 → CD4+ T cells.
35) Lysozymes attack bacterial cell walls.
36) Both humoral and cell-mediated immune response
37) Th1 Transcription factor is T-bet.

- degranulation of mast cells result in release of mediators such as Leukotriene
- In type I diabetes, antibodies are absent in immune response FALSE
- In diagnosis, antinuclear antibody (ANA) test is done with Collection of CSF and blood to diagnose. Lupus (Systemic lupus erythematosus)
- which disease causes a decrease uptake of Vitamin B12 caused by blocking on intrinsic factor ... Pernicious anaemia
- Mechanisms of peripheral tolerance include all except - negative selection
- mutations in lymphocytes would result in production of Autoantibodies
- which antibody is an excellent complement fixing antibody IgM.

1. Bean shaped structure in immune system is the lymph node
2. PBMC is peripheral blood mononuclear cells.
3. Toll gene originally discovered in Drosophila melanagaster.
4. Toll-like receptors (TLSs) activated by PAMPS
5. There are 10 TLR genes in humans
6. Myeloid produces monocytes, dendritic cell, eosinophils, Basophils
7. Dendritic cells is produced by myeloid.
8. Immunity mediated by antibodies is humoral immunity
9. Activated B cells differentiate into plasma cells
10. STATS mediate action of Cytokines and growth factors.
11. STAT - Signal transducer and activator of transcription
12. Interferons are mostly known for their antiviral activity/ ability/ property
13. Dendritic cells are the ones that educate (prime) naive T cells
14. Process of putting weakened strains of disease causing microorganism in healthy people.. Vaccination
15. Signature molecule for Th2 is IL-4 or IL-5
16. T cells arise from the Lymphoid progenitor
17. So lymphoid - B and T cells
    Myeloid - DC, basophils, esinophils, monocyte.
18. Just remember the endo ones are 3, 7, 8, 9
19. Monoclonal antibodies are a single clone of multiple antibody producing cells.
20. IgA provides mucosal immunity.
21. Linear epitope has a single chain.
22. DAMPS
23. Damage - associated molecular patterns.
24. First to study macrophages was Elie Metchnikoff (who proposed the phagocytic theory in a previous question)
25. The question will ask for which one ISN'T endosomal bound
    TLR-4

Which toll-like receptor is activated by lipopolysaccharide (LPS)
TLR-4
CTLA-4's role in immunology is to
~~Eha~~ Enhance Stimulation.
CD69 is a marker of
T cell activation
MHC classes I and II are
membrane bound hetero dimers
Which Vaccine has sparked a lot of Controversy recently in Europe?
The AstraZeneca Vaccine
Which about these immunoglobulins is True?
IgM is a pentamer
Fab stands for Fragment antigen-binding
Fc region has a ... Constant heavy chain
What pathway: acquire proteins from outside the host cell?
Exogenous
Blocking in Elisa prevents non-Specific binding
From which of the pathways is there transfer from the exogenous pathway to the endogenous?
Cross-presentation.
Which is an intracellular pathogen?
Look for a Virus (maybe Coronavirus)
What does not elicit an immune response unless bound to a larger molecule?
Hapten.
B and T cells are formed from the Bone marrow.
Monoclonal antibodies recognise a Single Antigen
Humoral immunity is carried out by T Cell while cell mediated is carried out by Monocytes.

Antibodies produced against a particular pathogen are Monoclonal.
Proteins are highly immunogenic TRUE
IgG has 5 subclasses TRUE
IgA is a dimer FALSE
The first Vaccine from Louis Pasteur was against Rabies.
Management of autammune diseases requires non-steroidal anti-inflammatory drugs (TRUE)
In genetically predisposed people, autoimmunity is caused by —— Failure of intrinsic tolerance mechanisms.
- Plant pollen, insect Venom are common sources of Allergens.
- Initial dose of an antigen in a hypersensitivity reaction is called Sensitising
- TLR-9 is extracellular is extracellular bound FALSE
- MHC class I are generally endosomal TRUE
- Nude mice have no Hair
- T cell education occurs in the Thymus.
- Proportion of CD4 to CD8 T cells is 2:1
- Opsonization is FCR mediated TRUE.
- Antibody affinity during primary response is Lower
- Release of granule content from a cell is called Degranulation
- The membrane attack system which comprises C5b, C6, C7, C8, C9 to form a Cylindrical complex
- Delivery System for Astra Zeneca Vaccine is DNA dependent.
- Preferred antigen presenting cells of memory T cells include Dendritic cells.
- antigen Variation allows Organisms to evade host immune response TRUE.