Answer the following questions:

1- A pregnant 21-year-old Rh-negative female is about to deliver. The baby’s father is determined to be Rh-positive. To reduce the chance for the development of hemolytic disease of the newborn, which of the following procedures should you order?

   a. Administration of anti-Rh antibodies to the fetus post-delivery
   b. Administration of anti-Rh antibodies to the mother post-delivery
   c. Immediate blood transfusion of the suspected father
   d. immediate blood transfusion of the mother with Rh-positive blood
   e. infusion of immune serum globulin into the fetus
   f. Intravenous infusion of the Rh antigen into the mother

This case belong hypersensitivity type .................................................................

To avoid this case we must be make ................................................................. test.
2- While walking through field, a 28-year-old woman is stung by a bee. Within 10 minutes she has asthmatic-like symptoms. This type of hypersensitivity reaction can be correctly characterized by which of the following sequences of steps?

a. Allergen, chemical mediators, sensitization, allergen, IgE, symptoms
b. Allergen. IgE, sensitization, allergen, chemical mediators, symptoms
c. Allergen, sensitization, IgE, allergen, chemical mediators, , symptoms
d. sensitization, allergen, chemical mediators, allergen, IgE, symptoms
e. sensitization, IgE, allergen, symptoms, allergen, chemical mediators

To avoid this case immunologically we should be:

3- A 21-year-old patient in severe kidney failure receives a kidney from his 30-year brother. This type of transplantation is best described by which of the following statements.

a. Autograft
b. Isograft
c. Allograft
d. Xenograft

To avoid hyper acute rejection we must be make ........................................
4- A reactive rapid plasma reagin (RPR) test suggests which one of the following diseases?
   a. Chronic infectious mononucleosis  b. Primary syphilis
   c. Primary atypical pneumonia  e. Immunity to rubella
   d. Immunity to rubella

5- Immunity may be natural or acquired. Which of the following best describes acquired immunity?
   a. Increase in CRP  b. Presence of natural killer cells
   c. Complement cascade  d. Maternal transfer of antibody

6- A 29-year-old woman presented with a 3-month history of increased sweating and palpitation with weight loss of 7kg. On examination, she was a nervous, agitated woman with an obvious diffuse, non-tender, smooth enlargement of her thyroid, over which a bruit could be heard. She had affine tremor of her finger and resting pulse rate of 150/minute. She had no evidence of exophthalmos. On investigation, she had a raised serum T3 of 4.8 nmol/L and a T4 of 48 nmol/L and TSH 0.4 mU/L. This disease is:
   a. Blood transformed reaction  b. Hashimoto’s disease
   c. SLE disease  d. Grave’s disease

Causes of this disease:

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7- Which of the following is the immunoglobulin that is initially seen on the primary immune response? It is present as a monomer on B cell surfaces but as a pentamer in serum.
   a. IgM  
   b. IgG  
   c. IgE  
   d. IgD

8- Which immunoglobulin immediate hypersensitivity and is involved in immune response to parasitic infections?
   a. IgM  
   b. IgE  
   c. IgA  
   d. IgG

9- A 23-year-old man presented with spontaneous bruising of his legs and arms. He had three recent epistaxis but no other bleeding. He was not taking any drugs and had no risk factors for HIV. There were no physical signs a part from bruises and scattered petechial on the legs. The spleen was not palpable. On investigation, he had normal hemoglobin and WBCs. While platelet count of 10 x 1000 / µl. Suggest the disease and the causes?

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10- A 10-year-old children presented with severe anemia with low hemoglobin level (6 gm %) and increase in bilirubin level with normal liver enzymes and no evidence of HBVs Ag, what is your opinion in this case and the causes of the disease?

11- A 13-year-old male had numerous absences from school in the spring due to cold symptoms that included head congestion and cough. He had been on antibiotics twice, but he seemed to go from one cold to the next. A complete blood cell (CBC) count showed no overall increase in white blood cells, but a mild eosinophilia was present. Because he had no fever or other signs of infection, his physician suggested that a total IgE screening test be run. The total IgE value was 250 IU/mL, which was within high-normal limits. What conclusions can be drawn from the total IgE value?
12- A 37-year-old woman received two units of packed red blood cells following a surgical procedure. She had been transfused once before. Five days after surgery, she experienced a slight fever and some hemoglobin in her urine, indicating a delayed transfusion reaction. Which of the following statements best describes this reaction?

a- The patient had IgM antibody to the red cells transfused.
b- Only IgE was coating the transfused red blood cells.
c- Autoimmune hemolytic anemia

13- 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

14- Which of the following would be considered a significant finding in Graves’ disease?  
   a. Increased TSH levels  
   b. Antibody to TSHR  
   c. Decreased T3 and T4  
   d. Anti-thyroglobulin antibody
15- A 19-year-old college student develops a rash. She works part-time in a pediatric AIDS clinic. Her blood is drawn and tested for specific antibody to the chickenpox virus (varicella-zoster). Which of the following antibody classes would you expect to find if she is immune to chickenpox?
   a- IgA                       b- IgG                       c- IgD                       d- IgE

16- Which of the following is associated with an increase in IgE production?
   a. Transfusion reaction
   b. Activation of Th1 cells
   c. Reaction to poison ivy

Good Luck
Question (1): Complete the following sentences:

1- .............................................................................................................. are immune response against self-antigen which classified into ............................................. and ......................................................, while .............................................................................................................. are immune response against harmless antigen.

2- In Myasthenia gravis disease, antibodies produce against .................................................................

3- Pernicious anemia mediated by .......................................................... while, .......................................................... mediated by complement mediated lysis

4- The systematic stage of allergy called .......................................................... while, prolonged exposure to allergen lead to .......................................................... 

5- The most common test for allergy is the .......................................................... which give .......................................................... in sensitive person.

6- The most common immunoglobulin produced during blood transfusion reaction is .................................................. while in newborn hemolytic disease is ..........................................................

7- Main effect of Hashimoto’s thyroiditis is .......................................................... while in IDDM is ..........................................................

8- Type III hypersensitivity reactions are caused by formation of .......................................................... which deposit on wall of small blood vessels where they activate .......................................................... lead to activate .......................................................... which release .......................................................... which cause vasodilatation and increase vascular permeability.
**Question (2): Choose the correct answer:**

1- A 21-year-old patient in severe kidney failure receives a kidney from his 30-year brother. This type of transplantation is best described by which of the following statements.
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   b. Allergen, IgE, sensitization, allergen, chemical mediators, symptoms
c. Allergen, sensitization, IgE, allergen, chemical mediators, symptoms
d. sensitization, allergen, chemical mediators, allergen, IgE, symptoms
e. sensitization, IgE, allergen, symptoms, allergen, chemical mediators

• To avoid this case immunologically we should be:

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Causes of this disease:
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Question (3): Answer the following cases:

1- A 23-year-old man presented with spontaneous bruising of his legs and arms. He had recent epistaxis but no other bleeding. He was not taking any drugs and had no risk factors for HIV. There were no physical signs a part from bruises and scattered petechial on the legs. The spleen was not palpable. On investigation, he had normal hemoglobin and WBCs. While platelet count of 10 x 1000 / µl. Suggest the disease and the causes?

2- A 10-year-children presented with severe anemia with low hemoglobin level (6 gm %) and increase in bilirubin level with normal liver enzymes and no evidence of HBVs Ag, what is your opinion in this case and the causes of the disease?

With my best wishes
Question: Choose the correct answer to complete the following sentences:

1- A 21-year-old man presents with cough, fever, and hemoptysis. Blood tests show significantly elevated BUN and creatinine. Immunofluorescent microscopy reveals a diffuse linear pattern of fluorescence along the basement membranes of alveolar septa and glomerular capillaries. Which type of hypersensitivity is associated with this disease?

a. Type I  
b. Type II  
c. Type III

Explanation:
2- A 42-year-old Nigerian in the United States visiting his brother comes to the clinic with complaints of several months of weight loss, night sweats, sputum production, and occasional spitting up blood. His physician places a tuberculin skin test and the results are positive. This positive tuberculin test indicates which of the following?

a. A cell-mediated immune response has occurred  
b. A humoral immune response to TB is positive  
c. The B and T cell systems are functional  
d. The B cell system is functional  
e. The phagocytic neutrophilic system is functional  

**Explanation:**

...
3- A 65-year-old woman is evaluated for symmetrical swelling of the proximal phalangeal joints. Physical examination also reveals large subcutaneous nodules over the extensor surfaces of both arms. Autoantibodies directed against which of the following antigens would most likely be demonstrated by serum studies and suggest the test you will do?

a. Acetylcholine receptor  
b. Double stranded DNA  
c. IgG  
d. IgD

**Explanation:**

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4- Cytotoxic T cells induced by infection with virus A will kill target cells

a. from the same host infected with any virus  
b. infected by virus A and identical at class I MHC loci to the cytotoxic T cells  
c. infected by virus A and identical at class II MHC loci to the cytotoxic T cells  
d. infected with any virus and identical at class I MHC loci to the cytotoxic cells  
e. infected with any virus and identical at class II MHC loci to the cytotoxic cell

**Explanation:**

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5- A 33-year-old single mother of two young children visits her physician because of an oral ulcer. A review of systems is significant for fatigue, myalgia, and joint pain. Laboratory results demonstrate leukopenia, and a high-titered antinuclear antibody. A speckled staining pattern due to anti-Sm is seen with immunofluorescence; urinary protein is elevated. Which of the following is the most likely diagnosis?

a. Generalized fatigue  
b. Goodpasture's syndrome  
c. Autoimmune thrombocytopenia  
d. IDDM disease  
e. Systemic lupus erythematosus

**Explanation:**

6- A 57-year-old female complains of cold intolerance and undue fatigue. Her hemoglobin is 13 gm/dL (normal is 12-14 gm/dL). Tests indicate autoantibodies to thyroglobulin and to microsomal antigens from thyroid epithelial cells. This patient likely has:

a. Rheumatoid arthritis  
c. Hashimoto’s thyroiditis  
d. Systemic lupus erythematosus  
e. Myasthenia gravis
7- A 19-year-old female with multiple episodes of sexually transmitted diseases presents to the emergency room bleeding per vagina. Her last period was 13 weeks ago. She is known to be Rh-ve. Ectopic pregnancy is diagnosed and she undergoes emergency surgery. This mother is at risk of developing:
   a. Type II Hypersensitivity, following sensitization from a possible Rh+ve fetus (now aborted)
   b. a transfusion reaction now, from spillover of fetal blood into the maternal circulation
   c. serum sickness from spillover of fetal blood into the maternal circulation
   d. a delayed type (Type IV) hypersensitivity reaction to fetal red blood cells

8- A positive Mantoux skin reaction involves the interaction of:
   a. antigen, complement, and lymphokines
   b. antigen-antibody complexes, complement, and neutrophils
   c. memory T cells, cytokines, and macrophages
   d. IgE antibody, antigen, and mast cells
   e. antigen, macrophages, and complement

9- Your patient has several attacks of sneezing, runny nose and itchy eyes every spring, due to allergy to some plant pollen. On the basis of skin testing, an allergis suggests a course of desensitization. The theory behind “desensitization” is that the dose of antigen and the mode of injection will lead to the generation of activated
   a. Th1 cells and secretion of Type 1 cytokines
   b. Th2 cells and the secretion of Type 2 cytokines
   c. tissue mast cells and histamine release
   d. basophils in the circulation and histamine release
   e. B cells and isotype switching to IgE
10- A 28-year-old female complains of fatigue, shortness of breath on exertion and general loss of appetite over the last 8-10 months, following a flu-like illness. Routine blood work shows a significant anemia (hemoglobin less than 50% normal) and a positive Coomb’s test. A likely diagnosis is:
   a. type I hypersensitivity
   b. type II hypersensitivity
   c. type III hypersensitivity
   d. autoimmune disease

11- A 34-year-old female complains of palpitations, sweats, and an increased appetite for the last 3 months. Her mother has diabetes and experienced an early menopause. Both are HLA-DR3+. Blood work reveals high levels of thyroid stimulating immunoglobulin (antibody that mimics the action of TSH). The likely diagnosis is:
   a. Factitious disease, caused by self-treatment with thyroxin (thyroid stimulating hormone)
   b. Early ovarian failure
   c. Type I diabetes (diabetes mellitus)
   d. Hashimoto’s thyroiditis
   e. Grave’s disease

12- A patient on your transplant service is enrolled in a study designed to investigate levels of cytokines produced during various stages of transplantation/acceptance/rejection. A patient showing elevated levels of IL-2 in the grafted organ would likely be undergoing:
   a. “A healing in” process associated with a graft acceptance
   b. Graft rejection
   c. Cytotoxic reaction to immunosuppressive drugs
   d. Infection
   e. None of the above
13- Jone received a kidney graft from her sister 6 years ago but lost the graft to rejection. This morning she underwent a further transplant from a younger brother. Ninety minutes following surgery she suffers severe cramps in the abdomen, is febrile, and looks quite unwell. She might be suffering from:

a. Chronic rejection  
b. Acute graft rejection  
c. Cytotoxic T-cell mediated graft damage  
d. Hyperacute graft rejection

Appropriate treatment for the patient would be:

a. Anti-T cell antibodies  
b. Immunosuppression  
c. Removal of the graft  
d. Analgesia

14- After successful engraftment, 3 weeks later the child has diarrhea and a rash on the palms and soles of the feet, spreading to the trunk, with jaundice. Administration of an anti-T cell serum plus cyclosporine produces improvement. The most likely cause is?

a. Inadequate numbers of donor cells were transfused  
b. Donor lymphocytes are reacting with antigens on the recipient’s cells  
c. Present symptoms are the long term effects of original drug ingestion  
d. There is a superimposed viral infection (CMV)  
e. There has been a failure of the graft to take

15- Immunological responses to extracellular bacteria in the lamina propria could include activation of all the following EXCEPT

a. CD8+ T cells  
b. CD4+ T cells  
c. Dendritic cells  
d. B cells

16- A heroin addict, in her last month of pregnancy is diagnosed with right lower lobe pneumonia. Response leads to the formation of IgG antibodies. The fetus would be protected when born due to

a. active artificial immunity  
b. active natural immunity  
c. passive natural immunity  
d. passive artificial immunity  
e. no protection of the fetus would occur
17- A cancer patient needs immunoprophylaxis against possible HepB exposure. You decide on antibody prophylaxis followed by active HepB immunization. All the following are correct EXCEPT
   a. This represents an example of “natural” passive immunization.
   b. IgM (high molecular weight aggregate) must be given by IM injection to avoid complement activation.
   c. HepB immune globulin is ineffective after acute exposure.
   d. HepB vaccine immunization must use a different site from administration of HepB immune globulin.
   e. Anti-Hep titers should be monitored after vaccination to check efficacy of immunization.

18- Mr. and Mrs. Webb come to visit you for their annual check-up. They are both in their early 70s. Which of the following would you NOT recommend as a routine immunization for them?
   a. pneumococcal vaccine
   b. tetanus
   c. measles/mumps/rubella
   d. influenza

19- Shigella sp. induce apoptosis in which of the following cells?
   a. M cells
   b. Epithelial cells
   c. Macrophages
   d. Only a and b

20- A full-term baby boy is delivered after an uneventful pregnancy, and is well for the first 2 years of his life. He receives all his immunizations without any complications. Starting around his 2\textsuperscript{nd} birthday, the mother begins to note frequent upper respiratory tract infections, and the child is hospitalized three times for pneumonia. Laboratory testing would most likely reveal a deficiency of which of the following immunoglobulins in this child?
   a. IgA
   b. IgD
   c. IgG
   d. IgM
21- A 15-month-old boy with recurrent episodes of ear, skin, and respiratory tract infections is found to have extremely low levels of serum IgG. Which of the following findings would support a diagnosis of common variable immunodeficiency in this child?
   a. Absent germinal centers in lymph nodes
   b. Depressed levels of IgA and IgM
   c. Depressed numbers of circulating B lymphocytes
   d. Hypocalcemia
   e. Reversal of CD4:CD8 ratio

22- A 45-year-old homeless man has a chronic cough, a cavitary lesion of the lung, and is sputum positive for acid-fast bacilli. Which of the following is the principal form of defense by which the patient's body fights this infection?
   a. Antibody-mediated phagocytosis
   b. Cell-mediated immunity
   d. IgE-mediated hypersensitivity
   e. Neutrophil ingestion of bacteria

23- A 26-year-old systems analyst presents for evaluation of a bee sting allergy. He describes an episode in which he was stung on the forearm by a bee and, within 5 minutes, experienced pruritus, urticaria, and mild wheezing. The effector cell in this type of hypersensitivity is a(n)
   a. eosinophil
   d. neutrophil
   e. TH1 CD4+ lymphocyte

24- A 20-year-old healthy married Caucasian male undergoes a splenectomy following a severe motorcycle accident. He is started on a prophylactic course of antibiotics following surgery, which he discontinues 3 months later. 9 months after the splenectomy, he presents to the emergency room with shortness of breath, pleuritic chest pain, chills and fever, and is diagnosed with lobar pneumonia. Which of the following is the most likely organism?
   a. Chlamydia pneumonia
   c. Pseudomonas aeruginosa
   e. Streptococcus pneumoniae