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Student name.....

Part I: Multiple Choice Questions: Choose the best correct answer (20 Marks)

1. One principal function of the Class I and Class II major histocompatibility complex proteins is to
a. Transduce the signal to the T-cell interior following antigen binding.
b. Mediate immunoglobulin class switching.
c. Present antigen for recognition by the T-cell antigen receptor.
d. Stimulate production of interleukins.
e. Bind complement.

2. T-cell receptors or antibodies react with antigens
a. Because both are made by lymphocytes.
b. Because of complementary of molecular fit of both with antigen.
c. Because both have light chain and heavy chain polypeptides.
d. Cause histamine release.
e. Facilitate perforin release.

3. All of the following are true of antigen except which one of the following?
a. They contain epitopes.
b. They will react with antibodies.
c. They contain antigenic determinants.
d. They can elicit an immune response.
e. They are necessary for activation natural killer cells.

4. All of the following are true with respect to IgE molecules, except which one?
a. They are the principal immunoglobulin class involved in allergic reactions.
b. They are involved in mediating anti-parasitic immune responses.
c. They will cross the placenta and fix complement.
d. They can effect the release of histamine and other chemical mediators.
e. They are the least abundant immunoglobulin in the serum.

5. The class of an immunoglobulin
a. Is determined by Class I and Class II major histocompatibility complex proteins.
b. Is determined by the carbohydrate attached to the light chain.
c. Is determined by the antigen.
d. Is determined by the heavy chain type.
e. None of the above.

6. Which of the following is NOT true of interleukins?

a. They are cytokines which can be produced by various cells of the immune system.
b. They allow one cell to communicate with another cell.
c. They are in need of receptors on the target cell in order to mediate their effects.
d. They are able bind antigen with a high level of specificity.

7. Which of the following statement is true of the ability of the T cell receptor (TCR) to specifically recognize antigen?

a. The antigen must be processed first by an accessory cell of immune system in order for it to bind to the TCR.
b. The recognition of the antigen by the TCR can mediate helper or cytotoxic function.
c. The recognition of antigen by the TCR can result in cytokine secretion and/or an increase in cell proliferation within the immune system.
d. The antigen is recognized by the TCR only when it is associated with a protein of the major histocompatibility complex.
e. All of the above are correct.

8. Cytokines

a. Are Produced by cells of the immune system in response to various physiological stimuli
b. Are lymphokines and monkines.
c. They are often redundant.
d. They act exclusively as stimulators for immune responses.
e. Able to activate T-cells and increase B-cell proliferation.

9. The major purpose of lymphokines is to

a. Bind to class I major histocompatibility molecules for cytotoxic function.
b. Specifically recognize antigens or their fragments.
c. Stimulate the production of complement.
d. None of the above is correct.

10. Immediate hypersensitivity reactions

a. Are experienced if the antigen is an allergen.
b. Result from histamine and other chemical mediator release.
c. Mediated through antigen specific IgE and mast cells.
d. Are a consequence of antigen-antibody reactions.
e. All of the above.

11. Which of the following statements about the immune response is <u>incorrect</u>?

a. Is mediated via the humoral and/or cellular components of the immune system.
b. Can be facilitated through antibodies.
c. Can be facilitated through T-cells.
d. Cells of the reticuloendothelial system have no role in the immune system.
e. Cytokines can help in regulating the immune response.

12. The inappropriate response of immune system towards a relatively harmless antigen causing harm to the host is referred as
a. Hypersensitivity.
b. Auto-immune diseases.
c. Immunodeficiency.
d. Tolerance.

13. Regarding the immune system
a. Humoral immunity is part of the innate immune system.
b. The classical pathway of complement activation is part of specific immunity.
c. mannose binding lectins are released by microbes, and are important for complement activation.
d. C reactive protein is a by-product of various adaptive immunity responses.
e. NK cells play a pivotal role in cell- mediated immunity.

14. B lymphocytes
a. Are the most common circulating lymphocyte.
b. Are activated independently of T helper cells.
c. Are integral to the cell mediated system of immunity.
d. May be activated by protein and non-protein antigens.

15. Mast cells
a. Are bone marrow derived cells.
b. Are the primary cell involved in type II hypersensitivity reactions.
c. Can phagocytose antigen.
d. They can degranulate with exposure to C5a.
e. They can be activated by IL-8.

16. Examples of primary mediators released by mast cells would be
a. Cytokines.
b. Leukotrienes.
c. Platelet activating factor.
d. Heparin.
e. Prostaglandin.

17. What is the behavior in which T cells and B cells constantly travel through the body seeking out and destroying foreign substances?
a. Antibody-mediated immune response.
b. Cell-mediated immune response.
c. Opsonization.
d. Chemotaxis.
e. Immune surveillance.

18. The inflammatory response includes all of the following except
a. Vessel constriction.
b. Temperatture increse.
c. Increase blood flow.
d. Increased capilalry permeability.
e. Phagocyte attack.

19. Cytotoxic T cells are called into action by the

a. Presence of interleukin-1.
b. Presence of interleukin-2.
c. Presence of neutrophils.
d. Decrease in the number of B cells.
e. Decrease in the number of antibodies.

20. Complement and antibody are similar in that both

a. Are produced by mast cells.
b. May make bacteria more attractive to phagocytes.
c. Have two identical antigen-binding sites.
d. Are activated in an inflammatory cascade.

<u>Part II:</u> Give the scientific phrase that best describes each statement below:

(20 Marks)

1.These molecules are surface molecules that are displayed by mature T and B cells and serve to define functionally distinct T cell subsets.

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2. Smaller substances that are unable to stimulate an adequate immune response by themselves unless they combine to body proteins.

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3. The discrete immunologically active sites on the antigens that bind specific antibodies.

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4. Results from the failure of the specific immunity to distiguish self from non-self.

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5. These are key recognition molecules essential for distiguish self from non-self.

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6. Is a combination of HLA genes that is usually inherited as a unit.

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7. Has an activity in serum that induce hemorragic necrosis in certain tumors and functions as a co-stimulator of T cells.

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8. Links the humoral immune response with the inflammatory response and the lysis and phagocytosis of a pathogen.

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9. Is a reaction of a vascularized tissue to local injury.

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10. Is a small lesion that results from chronic inflammation in which there is a massing of epitheloid cells.

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11. Represent the severe systemic manifestations of inflammation.

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12. A genetic mechanism whereby normal cells are transformed into cancer cells.

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13. Is a disorder that can result from IgE-mediated or T cell-mediated hypersensitivity response.

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14. These cells are involved in cell-mediated immune reactions of the skin, such as "delayed allergic contact hypersensitivity".

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15. Are specific immunoglobulins that are acquired by B cells during their maturation in the bone marrow.

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16. Is a mechanism by which a cytotoxic effector cell can kill an antibody-coated target cell.

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17. In this type of hypertension, the chronic elevation in blood pressure results from some other disorder.

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18. Is a stage of essential hypertension in which systolic blood pressure is in the range of 160-179 mm Hg and diastolic blood pressure of 100-109 mmHg.

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19. This disorder is closely interrelated with hypertension, and persons with both hypertension and this disorder have a greater risk of target organ damage.

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20. Is a tumor of chromaffin tissue that contributes to the development of hypertension as a result of a massive release of catecholamines.

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Part III: Answer the following questions: (20 Marks)

1."All forms of hypertension involve hemodynamic mechanisms". Explain this statement? Mention 2 major risk factors and 2 lifestyle factors that contribute to the development of hypertension?

2. Give the différences between essential hypertension and secondary hypertension?

3. What is meant by orthostatic hypotension? Explain the pathogenesis of this disorder?

4. Mention two important differences between Type I hypersensitivity and Type IV hypersensitivity disorders? Describe the immune mechanisms involved in the pathogenesis of allergic contact dermatitis?

5. How initiation and promotion as two stages for the development of cancer can be differentiated? Explain the role of proto-oncogenes in the process of oncogenesis?

6. Give the differences between acute and chronic inflammation?

7. Give the differences between the primary and secondary response of humoral immunity?

5 What are the functions of major histocompatibility complex molecules? Explain the role of MHC class I in performing these functions?

Good Luck!!!

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