

2020-2019

Name \_\_\_\_\_

Date \_\_\_\_\_

## امتحان تنافسي / ماجستير احياء مجهرية

الاجابة على جميع الاسئلة

1. The first virus infects vertebrates discovered *points: 1*

- Aphthovirus
- Pox virus
- Mosaic tobacco virus
- Herpis virus

2. Virus differ than anther unicell microorganism in lose of *points: 1*

- Nucleic acid
- Lose of protein synthesis system
- Protein wall
- Intracellular organism

3. In the virus , the genetic information kept in *points: 1*

- DNA and RNA
- Only in DNA
- Only in RNA
- DNA or RNA

4. All virus nucleotides contain *points: 1*

- Thymine
- Uracil
- Adenine
- All of them

5. Helical symmetry appear in *points: 1*

- RNA Virus
- DNA virus
- Both of them
- No one

6. Cubical symmetry appear in *points: 1*

- DNA virus
- RNA Virus
- Both of them
- No one



**7. The chemical properties of interferon** *points: 1*

- Nucleic acid
- CHO
- Lipid
- protien

**8. The arrangement between the viral nucleic acid genome call** *points: 1*

- viral membrane
- peplomers
- Nucleocapsid
- Enveloped

**9. Main better character of kill vaccine in compare with live vaccine** *points: 1*

- potency
- fast action
- long action
- safety

**10. Influenza vaccine** *points: 1*

- Recombinant Vaccine
- toxid
- live vaccine
- killed vaccine

**11. Enveloped viruses like** *points: 1*

- Paramyxo
- Orthomyxo
- Both of the above
- none of the above

**12. Interferon un like antiviral in** *points: 1*

- Specialized to causative agent
- Mode of action
- Chemical composition
- no thing

**13. Viruses characterized by** *points: 1*

- Cause latent infection
- Sensitive to interferon
- Cannot grow on artificial media
- All of the above



14. Herpes classified as *points: 1*

- Single-stranded DNA
- Single stranded RNA
- d-Double stranded DNA
- Double-stranded RNA

15. Give the main properties of interferon *points: 2*

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16. Write briefly about (Assembly) as stage of viral replication *points: 2*

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17. Describe Recombinant Vaccine in (production , character , example) *points: 2*

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18. Mention the mode of action of rimantadine and acyclovir *points: 2*

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19. Which of the followings IS NOT TRUE according to antigen: *points: 1*

- A substance that induces a specific immune response known as immunogen.
- A substance that reacts with the products of a specific immune response (B-cell receptor or T-cell receptor) known as antigen.
- A substance that is non-immunogenic but which can react with the products of a specific immune response known as adjuvants.
- Epitope or Antigenic Determinant is that portion of an antigen that combines with the products of a specific immune response.

20. All of the following factors influencing the immunogenicity of an antigen EXCEPT: *points: 1*

- Foreignness.
- Chemical composition.
- Degradability
- shape
- physical form

21. The vast majority of immunogens are: *points: 1*

- proteins
- polysaccharides
- nucleic acid
- lipids

22. Which of the following IS NOT TRUE according to immunoglobulins (antibodies): *points: 1*

- They are glycoprotein molecules which are produced by T cells
- Immunoglobulins bind specifically to one or a few closely related antigens.
- All immunoglobulins have a four chain structure as their basic unit composed of two identical light chains and two identical heavy chains.
- The heavy and light chains and the two heavy chains are held together by inter-chain disulfide bonds and by non-covalent interactions

23. Immunoglobulins in human divided into 5 classes which include the followings EXCEPT: *points: 1*

- IgB
- IgD
- IgG
- IgE
- IgA

24. The effector functions of immunoglobulins are mediated by: *points: 1*

- FC portion
- Fab portion
- Both of the above
- None of the above



25. According to the Valency of an antibody, which of the followings IS NOT TRUE: *points: 1*

- The valency of antibody refers to the number of antigenic determinants that an individual antibody molecule can bind.
- The valency denotes the intensity of attraction between antigen and antibody.
- The valency of all antibodies is at least two and in some instances more.
- IgM has the highest valency among the antibody classes.

26. One of the followings IS NOT TRUE in regard to Haptens: *points: 1*

- Haptens are small molecules which could never induce an immune response when administered by themselves.
- Haptens have the property of antigenicity but not immunogenicity.
- Hapten can induce an immune response when coupled to a carrier molecule.
- Haptens do not contain antigenic determinants.

27. Type I hypersensitivity initiated by interaction between: *points: 1*

- Insoluble (cell-bound or connective tissue bound) antigens with preformed IgG.
- Preexisting IgG antibodies with soluble antigen, giving rise to antigen-antibody complex that are not easily cleared by the immune system.
- Antigen and preformed IgE antibody that are bound to mast cells and basophiles
- None of the above

28. Which type of hypersensitivity known as cell mediated hypersensitivity: *points: 1*

- Type I
- Type II
- type III
- Type IV

29. The C1 of the complement consists of three subunits: *points: 1*

- C1a, C1b, C1c
- C1r, C1s, and C1q
- C1r, C1b, C1s
- C1k, C1m, C1n

30. T-independent Antigens are: *points: 1*

- Antigens which can directly stimulate the B cells to produce antibody.
- Antigens which can directly stimulate the T cells to produce antibody.
- Antigens that need the help of T cells.
- Antigens that cannot stimulate immune system



31. What are the main differences between innate and adaptive immune response *points: 4*

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32. Explain how the complement system defends against the pathogenic bacteria and mention the components of membrane attack pathway? *points: 4*

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33. *Giardia trophozoite* multiples by *points: 1*

- schizogony
- binary fission
- endodyogeny

34. *Trypanosoma bruci* transmitted by *points: 1*

- Glossina
- Anophles
- Triatoma

35. C.N.S. manifestations appear with *points: 1*

- early stage with African trypanosomiasis
- last stage with American trypanosomiasis
- last stage with African trypanosomiasis

36. Pernicious Malaria caused by *points: 1*

- P. ovale*
- P. falciparum*
- P. vivax*

37. Reservoir hosts for *Trypanosoma gambiens* are *points: 1*

- small mammals
- sheep and goat
- game animals

38. *Giardia* possesses unique biochemical pathways that involve *points: 1*

- B vitamins , bile salts and glucose
- ethanol, acetate and carbon dioxide
- none of the above

39. *P. vivax* and *P. falciparum* need .... Days as incubation period *points: 1*

- 10 - 15 days
- 21 days
- 3 days

40. Site of giardiasis infection in *points: 1*

- large intestine
- duodenum
- liver

41. The infective stage of *Plasmodium* is *points: 1*

- cyst
- trypomastigote
- sporozoites



42. Mode of transmission of *T. cruzi* by points: 1

- contamination of skin abrasion by bug faeces
- contamination of skin abrasion by bug saliva
- injection the parasite with saliva

43. In malaria tropica fever is points: 1

- irregular high fever
- 72 hrs. high fever
- 48 hrs. high fever

44. Damage in heart muscle fibers with Chagas disease due to points: 1

- increasing the numbers of the parasite
- pernicious anemia
- auto-antibodies production

45. diarrhea or greasy floating stools with giardiasis due to points: 1

- the impaired absorption in the damaged intestinal wall
- the damage in gall bladder
- the lack of B12-vitamin

46. In highly endemic areas with malaria and high mortality among children due to points: 1

- severe anemia
- very high fever
- Respiratory distress syndrome

47. Black Water Fever occurs because points: 1

- the parasite infects the kidneys
- the infection with Babesia
- the red blood corpuscles are destroyed

48. Anopheles' female plays as a vector for points: 1

- P. vivax*
- Leishmania* sp.
- E. histolytica*



49. define the following 1-Winterbottom's sign 2- ookinete *points: 2*

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50. Mention the clinical signs with acute Chagas disease? *points: 2*

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51. Explain briefly the asexual life cycle of Plasmodium sp.? *points: 2*

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52. Enumerate the stages of malaria clinically? *points: 2*

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53. Fungi characterized by *points: 1*

- Eukaryotic cell
- Contain chitin
- Resistant to penicillin
- All of the above

54. Fungi cell differ than human cell in : *points: 1*

- Contain Ergosterol
- Type of cell (prokaryotic - eukaryotic)
- No one
- all of them



55. formed by fragmentations of the ends of hyphae, resulting in rectangular thick-walled spores *points: 1*

- Arthrospores
- Blastospores
- Conidiospores
- Chlamydospore



56. rounding and thickening of hyphal segments *points: 1*

- Chlamydospores
- Arthrospores
- Blastospores
- Conidiospores

57. spores formed within a sac called *points: 1*

- Sporangiospores
- Conidiospores
- Arthrospores
- all of them

58. imperfect fungi *points: 1*

- Fungi lack sexual reproduction
- Fungi lack asexual reproduction
- Fungi have mold and yeast form
- all of them

59. Pseudhyphae is *points: 1*

- Consist from budding of yeast
- Hyphea carried reproduction spore
- Hyphae found in the matrix
- no one

60. Fungi diagnosed in the laboratory by *points: 1*

- Cultivation on media like sabarod dextrose agar and stain by lactophenol cotton blue
- Cultivation on media MacConkey agar and stain by lactophenol cotton blue
- Cultivation on media like sabarod dextrose agar and stain by gram stain
- all of them

61. Dermatophyton characterized by *points: 1*

- Grows at 25C
- Infected skin and hair
- Reproduction by sexual methods
- all of the above



62. *Coccidioides* characterized by *points: 1*

- Dimorphic
- Systemic fungi
- Ascomycete phylum
- all the above

63. In regard to *Staphylococcus aureus*, which of the followings is true *points: 1*

- Protein A is an important virulence factor for *Staphylococcus aureus* since it has non-specific interaction with Fab portion of the immunoglobulin G (IgG).
- Most *S. aureus* strains of clinical importance have polysaccharide capsules, which inhibit phagocytosis by polymorphonuclear leukocytes
- Toxic Shock Syndrome Toxin yields the generalized desquamation of the skin by dissolving the mucopolysaccharide matrix of the epidermis.
- Catalase is an enzyme-like protein that clots oxalated or citrated plasma

64. What is the chemical nature of endotoxins? *points: 1*

- protein
- polysaccharide
- lipopolysaccharide
- lipid

65. Which of the following has the ability to bind antibodies? *points: 1*

- coagulase
- streptokinase
- protein A
- hydrogen peroxide

66. The identification of bacteria by serologic tests is based on the presence of specific antigens. Which of the following bacterial components is least likely to contain useful antigens? *points: 1*

- capsule
- cell wall
- flagella
- ribosome

67. An outbreak of sepsis caused by *Staphylococcus aureus* has occurred in the newborn nursery. You are called upon to investigate. According to your knowledge of the normal flora, what is the most likely source of the organism? *points: 1*

- nose
- colon
- hand
- throat

68. Peptidoglycan layer is present in large quantity in? *points: 1*

- gram positive bacteria
- gram negative bacteria
- fungi
- viruses



69. Peptidoglycan is made up of \_\_\_\_\_ points: 1

- N-acetylglucosamine
- N-acetylmuramic acid
- N-acetylglucosamine, N-acetylmuramic acid
- N-acetylglucosamine, N-acetylmuramic acid, amino acids

70. Gram-negative bacteria are more resistant to antibiotics due to the presence of? points: 1

- Thin peptidoglycan wall
- Outer lipopolysaccharide layer
- Porin proteins
- Teichoic acid

71. Enteric bacteria are mainly classified based on their ability to ferment various sugars including lactose. Which of the following bacteria is a non-lactose fermenter? points: 1

- Klebsiella spp
- Salmonella spp
- Enterobacter spp
- Citrobacter Spp

72. Enterobacteriaceae expresses a variety of virulent antigens, all of the following are antigens, EXCEPT? points: 1

- O antigen
- K and Vi antigen
- H antigen
- D antigen



73. Passive transport characterized by the followings EXCEPT: points: 1

- This mechanism uses no energy, and operates only when the solute is at higher concentration outside than inside the cell.
- Simple diffusion provides neither speed nor selectivity
- greater than what exists outside the cell.
- Facilitated diffusion is selective. Channel proteins form selective channels that facilitate the passage of specific molecules. Facilitated diffusion is common in prokaryotes microorganisms but is rare in eukaryotic.

74. . All are the general characteristics of Enterobacteriaceae EXCEPT: points: 1

- catalase positive
- Non spore forming
- grow in media with bile
- Nitrate negative

75. Which of the following virulence factors of E. coli is important in attachment for host epithelial cells in the pathogenesis of urinary tract infections? *points: 1*

- aerobactin
- alpha hemolysin
- urease
- pili

76. Characteristics of bacterial capsule includes: *points: 1*

- All bacteria have one
- It is composed of peptidoglycan
- It is an important mechanism for protecting a bacterium against ingestion by PMNs.
- It is what causes the gram stain reaction.

77. The coagulase test is used to differentiate: *points: 1*

- Staphylococcus epidermidis from Neisseria meningitides
- Staphylococcus aureus from Staphylococcus epidermidis
- Streptococcus pyogenes from Staphylococcus aureus
- Streptococcus pyogenes from Enterococcus faecalis



78. . Sometimes E. coli O157 is given a longer name O157:H7> What does the H represent? *points: 1*

- An antigen on the E. coli flagellum
- An antigen on the E. coli cell surface.
- A capsule antigen.
- It is just a random letter of no significance.

79. The strains of E. coli that causes gastroenteritis are classified into six groups. Enumerate these groups. *points: 4*

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80. Mention the main function of the cell membrane. *points: 4*

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