**LEBANESE AMERICAN UNIVERSITY**

**SCHOOL OF ARTS AND SCIENCES**

**NATURAL SCIENCE DIVISION**

**BIO 420 : Virology and Immunology**

**ExamII- Spring 2011**

Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ID : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Grade:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Select the most appropriate answer(s)  **(2 points)**

1. The genus Lyssavirus belongs to the family……………
2. Orthomyxoviridae
3. Paramyxoviridae
4. Rhabdoviridae
5. Picornaviridae
6. Influenza virus belongs to the family…………..
   1. Orthomyxoviridae
   2. Paramyxoviridae
   3. Rhabdoviridae
   4. Picornaviridae
7. Mumps virus belongs to the family…………..
   1. Poxviridae
   2. Parvoviridae
   3. Paramyxoviridae
   4. Picornaviridae
8. Members of the family ……………… are icosahedral, non-enveloped DNA viruses.
   1. Poxviridae
   2. Orthomyxoviridae
   3. Paramyxoviridae
   4. Adenoviridae
9. Adenoviruses cause the following diseases *except:*
   1. Upper respiratory tract infections
   2. Lower respiratory tract infections
   3. Acute haemorrhagic conjunctivitis
   4. CNS disease and Paralysis
10. Adenoviruses have …………….:
    1. Circular dsDNA genome
    2. Linear dsDNA genome
    3. dsRNA genome
    4. ssRNA genome
11. Upper respiratory tract infections are caused by three different viruses:
    1. Adeno, Mumps, Rhino viruses
    2. Corona, Rhino, Picorna viruses
    3. Adeno, Corona, Rhino viruses
    4. Corona, Rhino, Herpes viruses
12. Acute haemorrhagic conjunctivitis is caused by Adenovirus type……..
    1. 11
    2. 21, 6 and 7
    3. 3 and 4
    4. 27, 41 and 40
13. The RNA genome of paramyxoviruses is.........................
    1. Negative sense single stranded
    2. Positive sense single stranded
    3. Negative sense segmented
    4. Positive sense segmented
14. The recurrent wheezing and asthma are more common among individuals who suffered severe infection with.............
    1. Polio virus
    2. Influenza viruses
    3. Respiratory syncytial virus
    4. Rhino virus
15. The causative agent of mumps, a well known common childhood disease characterised by swelling of the………..
    1. Adrenal glands
    2. Parotid glands
    3. Smooth muscles
    4. The kidneys
16. Viruses causing Gastroenteritis are:
    1. Rotavirus, Adenovirus 40
    2. Astrovirus, Calcivirus
    3. Adenovirus 41
    4. All of the above
17. At least 50% of the cases of gastroenteritis due to food-borne illness are caused by:
    1. Rotavirus
    2. Norovirus
    3. Adenovirus
    4. Astrovirus
18. Most of the gastrointestinal tract infections are due to:
    1. Highly controlled diet
    2. Good hygiene practice
    3. Poor hygiene standards
    4. None of the above
19. Viruses infecting the respiratory tract are:
    1. Influenza virus
    2. Herpes virus
    3. Rhinovirus
    4. Papilloma virus
20. Rotavirus attacks the..........….cells of the duodenum and upper ileum, that result in mal absorption.
    1. Fibroblast
    2. Squamous epithelial
    3. Columnar epithelial
    4. All of the above
21. The pathology of Parvoviruses is shaped by their dependence on cellular functions for replication - cell tropism is broad, they tend to infect rapidly dividing tissues, most commonly:
    1. The foetus
    2. The intestinal epithelium
    3. The haematopoetic system
    4. All of the above
22. The epic of the three “Firsts”: (i) the first vaccine, (ii) the first to be eradicated by vaccination, (iii) the first treatable by chemotherapy was given to:
    1. Rabies virus
    2. Influenza virus
    3. Poliovirus
    4. Poxvirus
23. Name poxviruses that infect humans:
    1. Variola
    2. Vaccinia
    3. Molluscum
    4. All of the above
24. A rash develops on the skin 24 to 48 hours after lesions on the mucous membranes appear. Typically the macules first appear on the forehead, then rapidly spread to the whole face, proximal portions of extremities, the trunk, and lastly to distal portions of extremities. The symptoms in humans are caused by:
    1. Cow pox
    2. Adenovirus
    3. Smallpox
    4. All of the above
25. The icosahedral capsid of herpesviruses is wrapped in a protein layer called the …………..containing both viral proteins and viral mRNAs and a lipid bilayer membrane called the…………..
    1. Tegument, envelope
    2. Cytosol, lipid layer
    3. Nucleocapsid, Lipid membrane
    4. All of the above
26. All Herpesviruses replicate in …………., the viral DNA is transcribed to RNA within the infected cell.
    1. The nucleus
    2. The site of infection
    3. The cytoplasm
    4. None of the above
27. In some host cells, a small number of viral genes termed …………… accumulate instead. In this fashion the virus can persist in the cell (and thus the host) indefinitely.
    1. Transcription factor
    2. RNA polymerase
    3. DNA polymerase
    4. Latency associated transcript
28. The *Lyssaviruses* are…………, traveling quickly along the neural pathways into the central nervous system (CNS), and then further into other organs.
    1. Hepatotropic
    2. Pleomorphic
    3. Genetically instable
    4. Neurotropic
29. The RNA genome of the rabies virus encodes five genes whose order is highly conserved:
    * 1. phosphoprotein (P)
      2. nucleoprotein (N),
      3. glycoprotein (G)
      4. matrix protein (M),
      5. viral RNA polymerase (L).

In the following order:

* 1. 1, 3, 4, 5, 2
  2. 2, 1, 4, 3, 5
  3. 3, 4, 5, 2, 1
  4. 5, 3, 4, 2, 1

1. Rabies is transmitted by animals, most commonly by a bite from an infected animal. The virus is therefore:
   1. Zoonotic
   2. Zootic
   3. Zoolotic
   4. Zoomatic
2. The rabies virus travels to the brain by…………...
   1. Spinal cord
   2. Muscular tissues
   3. Skin
   4. The peripheral nerves
3. Rabies vectors are mainly………….:
   1. Omnivores
   2. Birds
   3. Carnivores
   4. Horses

**True or False (1 point)**

1. Norovirus causes approximately 90% of epidemic non-bacterial outbreaks of gastroenteritis around the world.
   1. True
   2. False
2. Norovirus viruses are transmitted by faecally contaminated food or water, by person-to-person contact,and via aerosolization of the virus and subsequent contamination of surfaces.
   1. True
   2. False
3. Parvoviruses are spread by faecally contaminated food or water route.
   1. True
   2. False
4. The large poxvirus genome codes for more than 100 polypeptides, including a DNA-depandent RNA polymerase and other enzymes.
   1. True
   2. False
5. Poxvirus transports many essential enzymes (transcriptase, transcription factors, capping and methylation and a *poly A*).
   1. True
   2. False
6. Lady Mary Wortly Montague saw variolation practiced in Turkey, in 1717 she had her son inoculated (she had been scarred by the disease).
   1. True
   2. False
7. Once inhaled, variola major virus invades the oropharyngeal (mouth and throat) or the respiratory mucosa, migrates to regional lymph nodes, and begins to multiply.
   1. True
   2. False
8. The members of the herpesviridae family are also known as herpesviruses. The family name refers to the latent, recurring infections typical of this group of viruses.
   1. True
   2. False
9. All Herpesviruses replicate in the cytoplasm***,*** the viral DNA is transcribed to RNA within the infected cell's nucleus.
   1. True
   2. False
10. While primary herpes virus infection is often accompanied by a self-limited period of clinical illness, long-term latency is symptom-free.
    1. True
    2. False
11. Llike smallpox, chickenpox usually affect the palms and soles.
    1. True
    2. False

**Fill in the blanks (3 points)**

1. Conjunctivitis is **………………………………………………….**

Symptoms include **…………………………………….** and the feeling that there's something in the eye.

1. Pharyngoconjunctival fever, often seen in small outbreaks among school-age kids, occurs when **………….** affects both the lining of the **……..** and **…………** tract.
2. Keratoconjunctivitis,is a more severe infection that involves both **………………** and **……………** (the transparent front part of the eye).
3. Reye syndromeis sudden, sometimes fatal, disease of the **…….**. This syndrome may be caused by taking medications containing **…………..**
4. Rhinovirus is a species in the genus **……………….** of the **………………..** family. The viral genome is **……………** .
5. MMR is a trivalent vaccine against:
   1. …………………
   2. …………………
   3. …………………
6. List three ways for Rhinovirus transmission:
   1. ……………………………
   2. …………………………...
   3. ……………………………
7. Orthomyxoviridae includes 3 genera of human significance:
   1. ……………
   2. ……………
   3. ……………
8. Influenza A viruses have been designated on the basis of the **……………………..** of the external spike, **……….** and **…………..** envelope proteins.
9. Severe complication of Influenza A infection includes **………………….**
10. **…………** caused "Spanish Flu" in 1918, "Swine flu" in 2009. **………….** caused "Asian Flu". **……………** caused "Hong Kong Flu"
11. Although unrelated to influenza, gastroenteritis is also known as:
    1. **…………………**,
    2. **…………………**,
    3. **…………………**,