	Final Exam:	January	Course Code:	A82	Percentage of Degree%:	60 %	
	Academic Year:	2018/2019	Program Name:	Master	The number of exam bulletin:	4	
	Semester:	1st	Department:	Elective course	Date of Exam:	/1 /2018	
	Course title:	virology	Degree	60	Time of Exam:	3 hours	

Exam instructions:

1. Answer questions only prescribed others will not be considered excess to questions.
2. Use only blue pen and pencil on answer sheet.
3. Disposal of paper and one for each student.
4. Trading instruments is not allowed (pens, ruler, calculators, etc.).
5. Mobiles, smart phones, taps, and calculator application on mobile phone are not allowed.

Answer the following Questions:

First question **Total score (20)**

1- Explain the basis and considerations for general methods of viral purification?

Second question: **Total score (10)**

2- **Define:**

a- Capsomere, Core, Envelope, Virion?

b- Describe the different virus – Cell Interactions?

c- Summarize the different basics of virus classification?

Third question: **(14 points)**

1. **Each type of virus can only affect a certain type of cell.**

A.True B.False

2. **A virus has two basic parts, they are?**

A. Heredity Material and Molecules

B.Bacteria and Protein Coat

C.Heredity Material and Protein Coat

D.Bacteria and Molecules

3. **Some viruses are super strong, they can survive after being dried and frozen for years.**

A.True B.False

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Examination committee:	Prof. Dr. Omaima Khamiss Assoc Prof. Dr. Osama Badr Assoc.Prof. Dr. Medhat Hashem		

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4. Put the following reproduction pattern of viruses in order. A. Host cell makes more virus particles B. New virus particles burst from host. C. Virus gets heredity material into a host cell.

a-.A, B, C

b-B, A, C

c-.C, A, B

d-.C, B, A

5. Viruses cause disease in organisms in the five kingdoms with a large number of human diseases like the common cold.

A.True B.False

6. Weakened or killed viruses are used to make __A__, which helps the body to reproduce __B__ that prevent infection.

1-.A: Antibiotics, B: Vaccine

2-.A: Medicine, B: Vaccine

3-.A: Vaccine, B: Antibodies

4-.A: Vaccine, B: Medicine

7. Viruses can also be used to wage germ warfare on disease causing bacteria and insects and on other agricultural pests.

A.True B.False

8. What is the outside, protein coat on a virus called?

A.Genetic material

B.Capsid

C.Envelope

D.Tail fibers

9. Virulent viruses reproduce by

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A.Mitosis

B.The lysogenic cycle

C.The lytic cycle

D.Binary fission

10. Viral DNA that is incorporated into a host cell's chromosome is called a

A. Provirus

B. Plasmid

C. Party animal

D. Bacteriophage

11. Viruses require this for replicatio.

A. Tail fibers B. A mate

C. Cell membrane D. Host cell

12. Viruses are destroyed by antibiotics.

A.True B.False

Fourth question: **(16 points)**

A- How is the protein arranged around the nucleic acid; that is, what are the symmetry and dimensions of the viral capsid? Are there other components of the virion? Is there an envelope?

B- Which of the following methods can be directly applied to investigate the properties and characteristics of a viral protein?
(a) Electrophoresis in a sodium dodecyl sulfate polyacrylamide gel.
(b) Western blot analysis with specific antibodies.
(c) In situ hybridization with a specific antibody.
(d) Immunohistochemistry with a cloned DNA fragment.

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(e) Determination of the sequence of the viral gene encoding it.
(f) Nucleic acid hybridization.

C- You isolate virus particles and resuspend them in 2 ml of a buffered solution containing a total of $6x10^9$ latex beads. After doing laborious and careful dilutions, shadowing, and other things necessary for electron microscopic examination, you view a number of equal fields and determine that you have 3 beads for every 9 virions. What is the approximate number of virions present in each milliliter of your beginning stock solution?

---------- *Best wishes* ----------

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