Viruses

Viruses are a group of microscopic infectious agents which are distinct from the two basic forms of cellular life. They are non-cellular and have no associated metabolism so they enslave the cells they infect in order to replicate themselves. All viruses are obligate parasites of cellular organisms.
A few of the largest viruses are bigger than the smallest bacteria, although most are very much smaller and cannot be resolved using a light microscope.
The usual method of naming viruses is to describe the host and often the symptoms of the disease caused.
As soon as it became possible to view viruses in the electron microscope, three generalizations emerged.

1. A wide variety of different shapes and sizes occurred.
2. The individual particles of a particular virus were identical in size and shape.
3. Each virus particle (virion) consists of a core of nucleic acid enclosed by a coat or capsid. The capsid is in some cases surrounded by an envelope of lipid and protein.

There are two basic chemical components in viruses: protein and nucleic acid.
The system that has been generally used to study the reproduction of viruses is the attack of a bacterium by a bacteriophage (or phase, for short).
The multiplication of a phage can be considered in three phases:

1. Adsorption and penetration of the host.
2. Synthesis and assembly of new phage within the host.
3. Lysis and liberation from the host.

The majority of prokaryotes can be attacked by a suitable virus. Viruses also attack blue-green bacteria but they do not commonly attack yeasts since such infections would almost certainly have been observed as a result of the widespread use of yeast in industry.

(from: J.F. Wilkinson, *Introduction to Microbiology*, Blackwell Scientific Publications)

1 *Choose the right meaning of these words underlined in the passage.*

a. enslave: **1.** make a slave of ; **2.** subjugate
b. resolved: **1.** determined; **2.** seen distinctively
c. light microscope: **1.** microscope of little weight; **2.** microscope that uses light to make a specimen visible
d. core: **1.** centre; **2.** essence
e. coat: **1.** external layer; **2.** outer garment
f. envelope: **1.** enclosing covering; **2.** paper wrapper
g. host: **1.** guest entertainer; **2.** organism where a virus reproduces

2 *Answer the following questions.*

a. What are viruses?
b. What size are viruses?
c. How are viruses named?
d. Are all viruses the same shape and size?
e. What do virus particles consist of?
f. What are the basic chemical components of viruses?
g. What are the three phases of the multiplication of a phage?
h. Which microorganisms can viruses attack?