Botany department

Virology exam for 3rd year microbiology students

Answer the following questions:

1- Give notes on:
   a- Haemadsorption
   b- Immunoelectron microscopy
   c- Viral envelope
   d- Rickettsia
   e- The differences between Ab and IFN

2- Mention the uses of embryonated egg and tissue culture techniques.

3- choose the correct answer:
   a- Viroid is composed of (RNA only - RNA with coat protein - DNA only).
   b- Influenza virus is transmitted by (inhalation – contact – ingestion).
   c- Hepatitis B virus is transmitted by (arthropods – injection – inhalation).
   d- Formaldehyde affects (nucleic acid – coat protein – both of them)
   e- Homologous interference occurs between (one types of viruses - two viruses from the same group- unrelated types of viruses).
   f- Plant viruses may be transmitted by (contact – vectors – both contact and vectors).

Best wishes
Answer the following questions:

1-Give notes on:

a- **Haemadsorption** depends upon the ability of many viruses to attach to red cells of various animal species added to the cell culture, e.g. influenza virus.

b- **Immunoelectron microscopy** in which specific antisera is added to a clinical material leads to aggregation of virus, so it can be detected more readily than separate virus particles.

c- **Viral envelope** many viruses are surrounded by membrane structure consists of lipids, proteins and glycoproteins. The envelope may be partially or completely derived from host membrane during release from the cell by budding.

d- **Rickettsia** are intermediate between bacteria and virus and non motile, contain DNA and RNA, obligatory intracellular parasites, replicate by binary fission, very sensitive for antibiotic but not to IFN, possess metabolic activity, insects is the vector for transmission of Rickettsia.

e- The differences between Ab and IFN

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<thead>
<tr>
<th></th>
<th>antibody</th>
<th>interferon</th>
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<tr>
<td>1-</td>
<td>Appear several days after infection.</td>
<td>Produced soon less than 48 hours after viral infection.</td>
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<td>2-</td>
<td>It is produced by specialized cells; B-lymphocytes.</td>
<td>Can be produced by any type of cell following suitable stimulation.</td>
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<td>3-</td>
<td>It is directed only to its</td>
<td>Its activity is not specific.</td>
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<tr>
<td>specific antigen</td>
<td>Can penetrate living cells.</td>
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<td>4- Cannot penetrate living cells.</td>
<td>5- Is not species specific</td>
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<td>Is species specific</td>
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2- Mention the uses of embryonated egg and tissue culture techniques.

- **Uses of embryonated egg** virus cultivation, for studying the pathogenesis of diseases and in immunological investigations.
- **Uses of tissue culture** isolation of viruses from pathological material, identification of different types of viruses, serum neutralization test and attenuation of viruses and production of vaccines.

3- Choose the correct answer:

a- viroid is composed of RNA only.
b- Influenza virus is transmitted by inhalation.
c- Hepatitis B virus is transmitted by injection.
d- Formaldehyde affects nucleic acid.
e- Homologous interference occurs between two viruses from the same group.
f- Plant viruses may be transmitted by both contact and vectors.