

1-

- a- Protein and nucleic acid
- b- Bacteriophage
- c- Actinomycetes
- d- Epitheca, Hypotheca
- e- Mycelium

2-

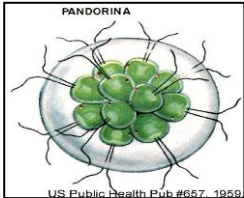
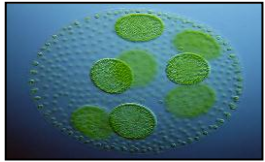
- a- ✓
- b- ✓
- c- ✓
- d- X
- e- X

3-

a-

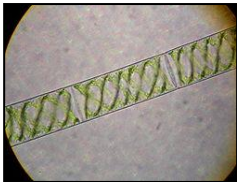
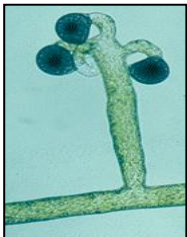
Cell wall	Capsule
<ul style="list-style-type: none"> <li>-It is rigid and elastic porous structure allowing the passage of solutes.</li> <li>-It's composition varies from one bacterial species to others ,but there is a basal structure in all species.</li> <li>-It protect the delicate cytoplasmic membrane and maintains the characteristic shape of the cell.</li> <li>-It play an important role in the cell division.</li> </ul>	<ul style="list-style-type: none"> <li>-It is a slime layer of low optical density.</li> <li>-It is not an integral part of the cell, but a result of its metabolic activity.</li> <li>-It is greatly influenced by the environment .</li> <li>-It is the outer part of the bacterial cell.</li> <li>-It affords the cell some protection against drying .</li> <li>-Not all bacteria are produce capsule.</li> </ul>

b-

<i>Pandorina</i>	<i>Volvox</i>
<ul style="list-style-type: none"> <li>-It is a spherical solid colony of 16 <i>chlamydomonas</i> cells closely packed together and surrounded by a mucous layer.</li> </ul>  <ul style="list-style-type: none"> <li>- They are motile colonies</li> <li>-There are no division of labour</li> <li>-Asexual reproduction takes place by formation of daughter colonies.</li> </ul>	<ul style="list-style-type: none"> <li>-It is a hollow sphere colony with a large number of cells.</li> </ul>  <p>The cells distinguished to</p> <ul style="list-style-type: none"> <li>Vegetative cells connected together by cytoplasm strands, the responsible for motility and nutrition.</li> <li>Gonidia, they are large in size than vegetative cells and smaller in number. They produce daughter colonies (Asexual reproduction)</li> </ul>

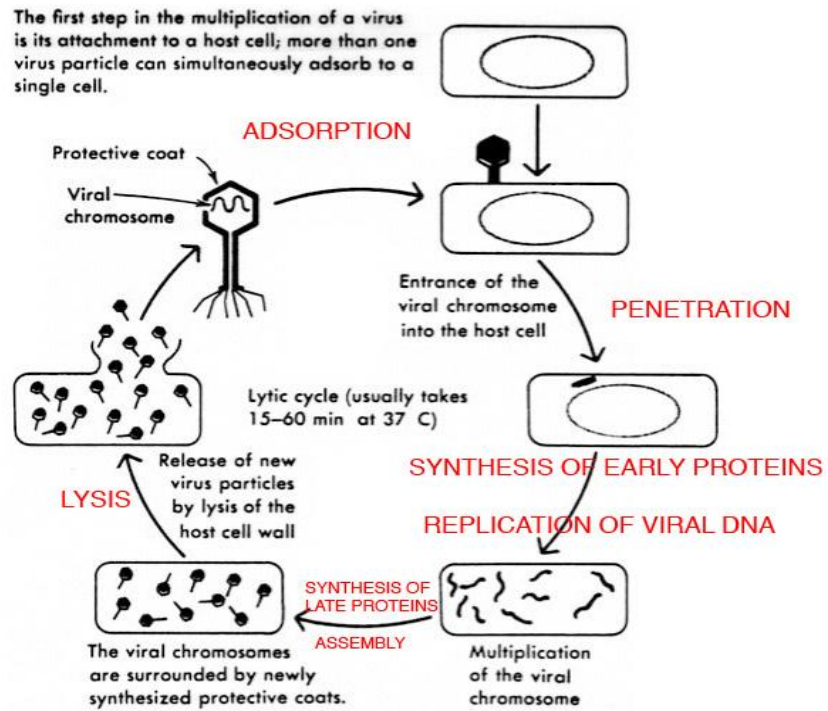
<p>-Sexual R-takes place by formation of isogametes or uni isogametes.</p>	<p>Sexual cell: they are antheridia and oogonia, the former are the male cells which produce antherozoids.</p> <p>The oogonia are the female cells which produce female gametes or eggs.</p> <p>-They are motile colonies</p> <p>-There are divisions of labour.</p>
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c-

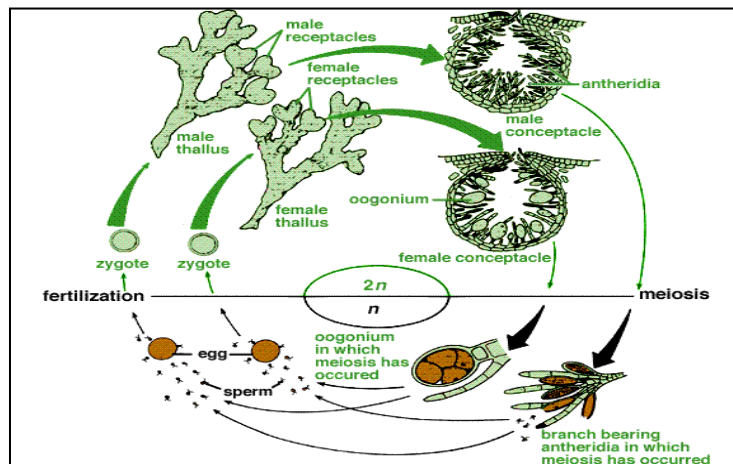
<i>Spirogyra</i>	<i>Vaucheria</i>
<p>-It is un branched filamentous divided into a number of similar cells.</p>  <p>-Each cell have a spiral shape chloroplast with many pyrenoids.</p> <p>-the nucleus is central and suspended by cytoplasm strands to the peripheral cytoplasm.</p> <p>-Asexual reproduction takes place by fragmentation</p> <p>-Sexual reproduction takes place by sclariform or lateral conjugation.</p>	<p>-It is a tubular branched filaments (non septate). The thallus attached to the substratum by means of a hold fast.</p>  <p>The cytoplasm is found towards the periphery containing numerous of plastids and small nuclei no pyrenoids.</p> <p>-Asexual R. takes place by formation of compound zoospores.</p> <p>-S.R. takes place by formation of antheridia and oogonia.</p>

#### 4-Life cycle of

##### a- Viruses



##### b- *Fucus*



##### c- Albugo

