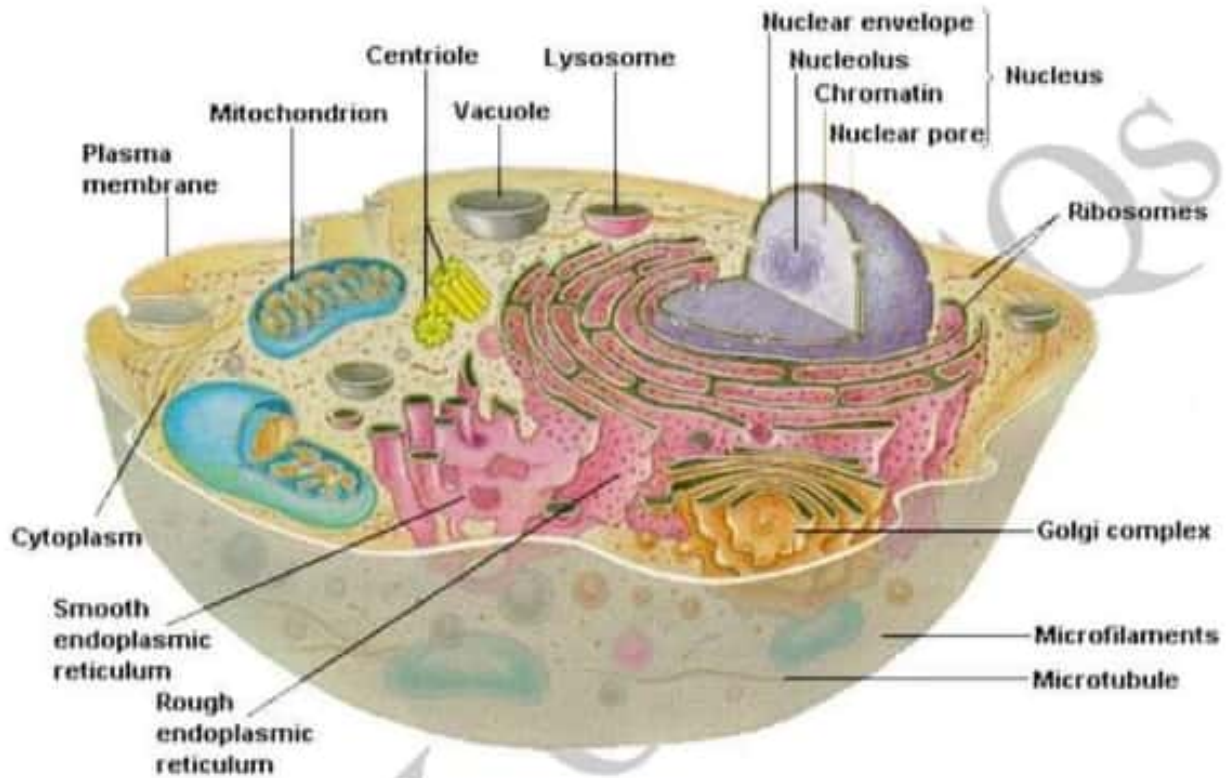


CHAP# 1 The cell



S.No	QUESTIONS	ANSWERS															
TECHNIQUE USED IN BIOLOGY																	
1.	TEM can magnify an object upto	10 lac times															
2.	SEM produce	3D image ETEA-2017 & 2018															
3.	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Objective lens</th> <th>Eye piece lens</th> <th>Magnification</th> </tr> </thead> <tbody> <tr> <td>10 x</td> <td>6x</td> <td>60x</td> </tr> <tr> <td>40x</td> <td>6x</td> <td>240x</td> </tr> <tr> <td>10x</td> <td>10x</td> <td>100x</td> </tr> <tr> <td>40 x</td> <td>10x</td> <td>400x</td> </tr> </tbody> </table>	Objective lens	Eye piece lens	Magnification	10 x	6x	60x	40x	6x	240x	10x	10x	100x	40 x	10x	400x	
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4.	Methylene and neutral red are	Vital stains															
5.	Aniline sulphate, iodine solution and schultz's solution are	Temporary stains															
6.	Chlorine, zinc and iodine are present in	Schultz's solution															
7.	Stain suitable for DNA is	Feulgen's stain															
8.	Stain suitable for nuclei and obelia coloni is	Borax caraim															
9.	Stain suitable forfor cellulose and cytoplasm is	Eosin															
10.	Stain suitable for blood cells	Leishman's stain															
11.	Aniline sulphate is used for	lignin															

12.	Iodine solution is used for	Starch																	
13.	Schultz's solution is used for	lignin, starch, cellulose and cutin																	
14.	Hemocytometer, cryostorage container and autoclave are	Tissue culture apparatuses																	
15.	Multiplication of explant give rise to	Callus																	
16.	Selection, sterilization, callus formation, root formation and shoot formation are main steps of	Tissue culture																	
PLASMA MEMBRANE																			
17.	The first wall formed in developing cell is	Primary wall																	
18.	primary and secondary walls are	Optically active																	
19.	Nitrocellulose is an	Explosive																	
20.	Integral proteins which are carriers are also know as	Permeases ETEA-2014																	
21.	Glycoprotein and glycolipid are also known as	Permeases																	
22.	Often the outer region of cytosol is more	Gel like																	
23.	Hormone corticosteroids made in adrenal cortex and sex hormones testosterone, estrogen are initiated by	Endoplasmic reticulum																	
24.	Plasma membrane are 7nm wide and its structure is	Dynamic																	
25.	Primary cell wall is mainly made of	Polysaccharides cellulose ETEA-2013																	
26.	Secondary cell wall mainly contain	Pectin ETEA-2011																	
27.	The soluble part of cytoplasm which forms ground substances are called	Cytosol																	
28.	Nucleus was discovered by Robert brown in	1838 ETEA-2013																	
29.	The attachment of two sub-units of ribosomes along mRNA is controlled by	Magnesium ions																	
30.	Secondary wall, primary wall and middle lamella	Layers in plant cell from inside to outside ETEA-2009																	
31.	The ability of an instrument to reveal the minor details of an object is its	Resolving power																	
CELL WALL, CELL MEMBRANE, ER AND RIBOSOMES																			
32.	Function of rough endoplasmic reticulum	Protein synthesis ETEA-2005																	
33.	Fuction of smooth endoplasmic reticulum	Lipid syntheises ETEA-2012																	
34.	Ribosomes are attached to endoplasmic reticulum hence called	Rough edoplasmic reticulum ETEA-2019																	
35.	Growth movement of pollen tube towards the egg is	Chemotropism																	
36.	Size of ribosome in prokaryotic cell is	70S																	
37.	Size of ribosome in eukaryotic cell is	80S																	
38.	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Ribosomes</th> <th>Smaller unit</th> <th>Larger unit</th> <th>Total size</th> <th></th> </tr> </thead> <tbody> <tr> <td>Prokaryotic</td> <td>30 S</td> <td>50 S</td> <td>70 S</td> <td>ETEA-2009</td> </tr> <tr> <td>Eukaryotic</td> <td>40 S</td> <td>60 S</td> <td>80 S</td> <td>ETEA-2015</td> </tr> </tbody> </table>				Ribosomes	Smaller unit	Larger unit	Total size		Prokaryotic	30 S	50 S	70 S	ETEA-2009	Eukaryotic	40 S	60 S	80 S	ETEA-2015
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39.	In paper chromatography we use	Water absorbed on papers								
40.	For separation of compounds from mixture use a technique called	Chromatography								
41.	The growth and reproduction of eukaryotic cell is dependent upon its	Nucleus								
42.	Special protein carrier in plasma membrane	Protoplastids								
43.	Cell wall of cells are held together by	Middle lamella								
44.	The membrane is like sea of lipids in which proteins are floating	Fluid mosaic model								
45.	<table border="1"> <thead> <tr> <th>Wall</th> <th>Thickness</th> </tr> </thead> <tbody> <tr> <td>Middle lamella</td> <td>1 μ m</td> </tr> <tr> <td>Primary wall</td> <td>1 – 3 μ m</td> </tr> <tr> <td>Secondary wall</td> <td>5 – 10 μ m</td> </tr> </tbody> </table>		Wall	Thickness	Middle lamella	1 μ m	Primary wall	1 – 3 μ m	Secondary wall	5 – 10 μ m
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46.	Chronological developments towards fluid mosaic model of plasma membrane									
	1	Gorter & Grendel 1925	Two layers of lipids molecule only							
	2	J f Danielle & Davon 1935	Lipid bilayer is covered with protein and protein pores							
	3	Roberston 1959	Unit membrane model							
	4	S J Singer & G L Nicholson 1972	Fluid mosaic model							
LYSOSOMES, GLYOXISOMES, PEROXISOME										
47.	The cisternae together with vesicles are called	Golgi-complex								
48.	Lysosomes contain variety of enzymes called	Hydrolases								
49.	Protein extending from in double layer of lipids completely are called	Intrinsic protein								
50.	Some protein are on one side of membrane called	Extrinsic protein								
51.	Carbohydrates attached to lipids are called	Glycolipid								
52.	Carbohydrates attached to proteins are called	Glycoprotein								
53.	Channels of endoplasmic reticulum are separated from one another by spherical or tubular membranes one above another called	Cisternae								
54.	Circulation, syntheses, detoxification, mechanical support and communication	ER functions ETEA-2006								
55.	In cytoplasm, small ions and molecules form	True solution								
56.	In cytoplasm, some large molecules form	Colloidal solution								
57.	Active mass movement of cytoplasm is called	Cyclosis								
58.	The unit of Golgi apparatus	Dictyosomes								
59.	Stacks of flattened, membrane bounded sacs called	Cisternae								
60.	Cisternae associated vesicles are called	Golgi-complex								
61.	Storage of secretory products and packaging and modification of the secretory products	Functions of Golgi apparatus								
62.	The food digestive enzyme of lysosome are called	Hydrolases								
63.	Enzymes are budded off as Golgi vesicles and are called	Primary lysosomes								
64.	Metamorphosis in animals are example of	Lysosomal activity								
PLASTIDS										

88.	Prokaryotic Cell wall is made of	Murein																				
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112.	Small knob present in inside of mitochondrial wall is known as Elementary particles	Or F1 particles
113.	Two subunits of ribosomes are attached by	Mg ⁺⁺ ETEA-2012
114.	Chlorophyll contain	Mg ⁺⁺
115.	Haemoglobin contains	Fe ⁺⁺ ETEA-2011
116.	Chromoplast helps in pollination and dispersal of	Seeds
117.	The place where spindle fibers are attached is	Centromere
118.	Sedberg is unit of	Ultracentrifugation
119.	Metamorphosis of animals is example of	Lsosomal activity
120.	In glycogenesis type II , the liver and muscles appear filled with	Glycogen ETEA-2012
121.	Tay-Sach's disease is involved in the catabolism of	Lipids
122.	Diameter of peroxisome is	5 micrometer
123.	In animal, peroxisome is also known as	Microbodies
124.	Photorespiration may occur in	Peroxisome
125.	Spindle structure formation is due to	Microtubules
126.	Cycolosis and amoeboid movemetns are due to	Microfilament
127.	Cell shape is maintained by	Intermediate filament
128.	Centriole is present in	Lower plant
129.	Protein, ribosome and small circular DNA is present in	Chloroplast
130.	Chloroplast is	Self replicating organelle
131.	Nucleopores present in egg	30000
132.	Nucleopores present in erythrocytes are	3-4
133.	Cel wall of bacteria is made of	Murein
134.	Cell of plant is made of	Cellulose
135.	Polysaccharide bonded with amino acid are called peptidoglycan or	Murein ETEA-2019
136.	Single, circular and double stranded DNA molecule is present in the	Bacteria ETEA-2016
137.	The two prominent structure present in the nucleus are	Chromosome and nucleous
138.	The largest and more concepicuous structure or cell organelle is the double membrane bounded	Nucleus

THE FOLLOWING TABLE IS EXTRA BUT CONTAIN SIMPLE AND IMPORTANT INFO

139.	CELL WALL	CELL MEMBRANE
140.	Present only in plants, and in some fungi, bacteria, algae.	Present in all types of cells, in humans, animals, plants, bacteria, etc.
141.	It is the outer non-living part of the cell but not an organelle which encloses cell membrane and provides a fixed shape.	It is an outermost, flexible, living organelle of the cell which provides shape to the cell.
142.	It is made up of pectin, chitin, lignin, glycol proteins, glycolipids, sugar, and cellulose.	It is a lipid bilayer. And is composed of lipoproteins and carbohydrates.
143.	The structure of the cell wall is 20-	The structure of the cell membrane is 7.5–10 nm in

	80nm in thickness	thickness
144.	It is the thick and rigid structure with a fixed shape.	It is thin and delicate structure. It is flexible to change the shape as needed.
145.	It protects the cell from the external environment.	It protects and maintains the internal environment of the cell.
146.	The cell wall is elastic.	The cell membrane is non-elastic.
147.	The cell wall is metabolically inactive	The cell membrane is metabolically active.
148.	Cell wall lack receptors.	The cell membrane has receptors to receive signals from external chemicals.
149.	The cell wall grows in thickness over time. Further, it occupies the whole cell in the plant as the cell ages and dies.	It is of the same thickness for the whole lifetime of the organism.
150.	The cell wall is semi-permeable. It allows passage of substances with the size of 30-60 kD.	The membrane is permeable and controls the movement of the substance into and outside the cell. That is, it can allow water and other substance to pass through selectively.
151.	Functions include protection from the external environment.	Functions include permeability, signal reception, motility conduction, cell division, sexual reproduction etc.

Microscope:

152. Light microscope → 500X
 153. TEM → 10 lac times
 154. SEM → 3D **ETEA**

Permanent stains

155. Aniline blue → fungal hyphae and spores
 156. Borax carmine → nuclei and obelia colony
 157. Eosin → cytoplasm and cellulose
 158. Feulgen's stain → DNA
 159. Leishman's Stain → blood cells
 160. Methylene blue → nuclei
 161. Safranin → nuclei lignin and plant tissues **ETEA-2019**
 162. Aniline sulphate → lignin

Temporary stains

163. Iodine solution → starch
 164. Schltz solution → starch, lignin, protein and cellulose
 165. Automated cell counter → hemocytometer
 166. Liquid nitrogen freezer or cryostorage container
 167. Chromatography depends on solubility and molecular masses
 168. Column chromatography for photosynthetic pigment, sugar and amino acids.
 169. Many cell have only primary wall

Cell wall components use

170. Itrocellulose → explosive
 171. Rayan → textile fibre

172. Cellophane → partially permeable membrane
Plastics including celluloid and cinematography
Paper making

173. Microtubule → spindle structure **ETEA**

174. Microfilament → cytolysis and amoeboid movement **ETEA**

175. Intermediate structure → cell shape

176. Centriole → low plant and microorganism

177. Cilia and flagella → 20 micro tubule **ETEA**

178. Centriole → 27 microtubule **ETEA**

179. Free ribosome → haemoglobin in new RBCs formation

180. S → ultracentrifugation unit

181. Spindle fibre attached to centromere

182. Bacteria → single, circular and double stranded DNA **ETEA**

183. Bacteria = 10 times of body cells

184. Prokaryotes → no mitosis

185. Prokaryotes → binary fission occurs **ETEA**

In Bacteria

186. Sexually → conjugation **ETEA**

187. Asexually → binary fission or multiple fission (spore formation)

70S ribosomes is of

188. Prokaryotes

189. Chloroplast **ETEA**

190. Mitochondria

Dimeter

191. Peroxisome → 0.5 micro m **ETEA**

192. Centriole 0.2 micro m

193. Chloroplast → 4-6 micro m **ETEA**

194. Nucleus → 10 micro m

Pore per nucleus

195. Undifferentiated cell/egg → 30,000

196. Differentiated cell/erythrocytes → 3-4

Prokaryotes

197. Bacteria

198. Blue green algae (cyanobacteria) **ETEA**

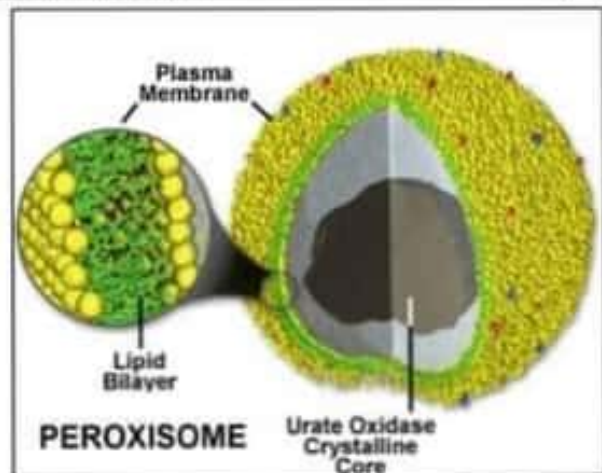
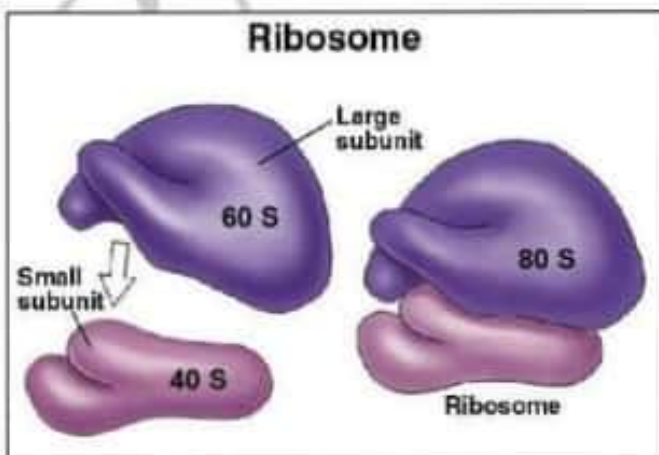
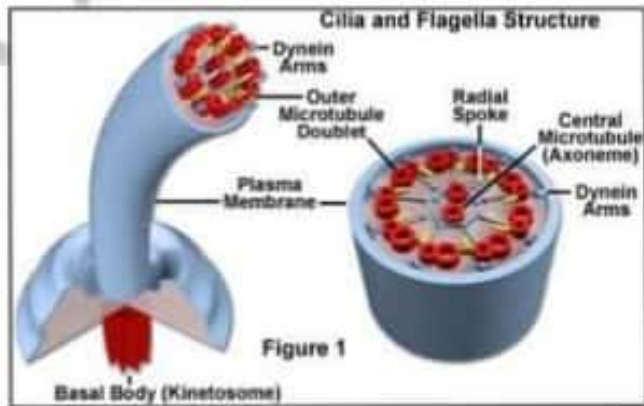
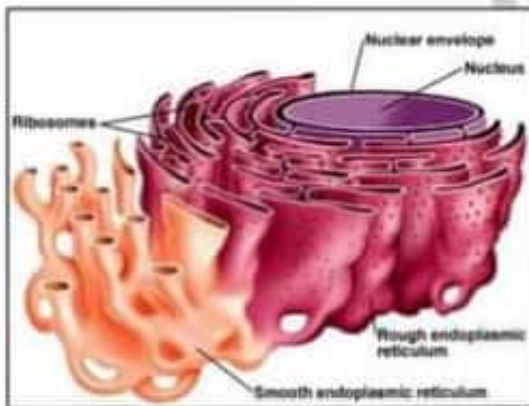
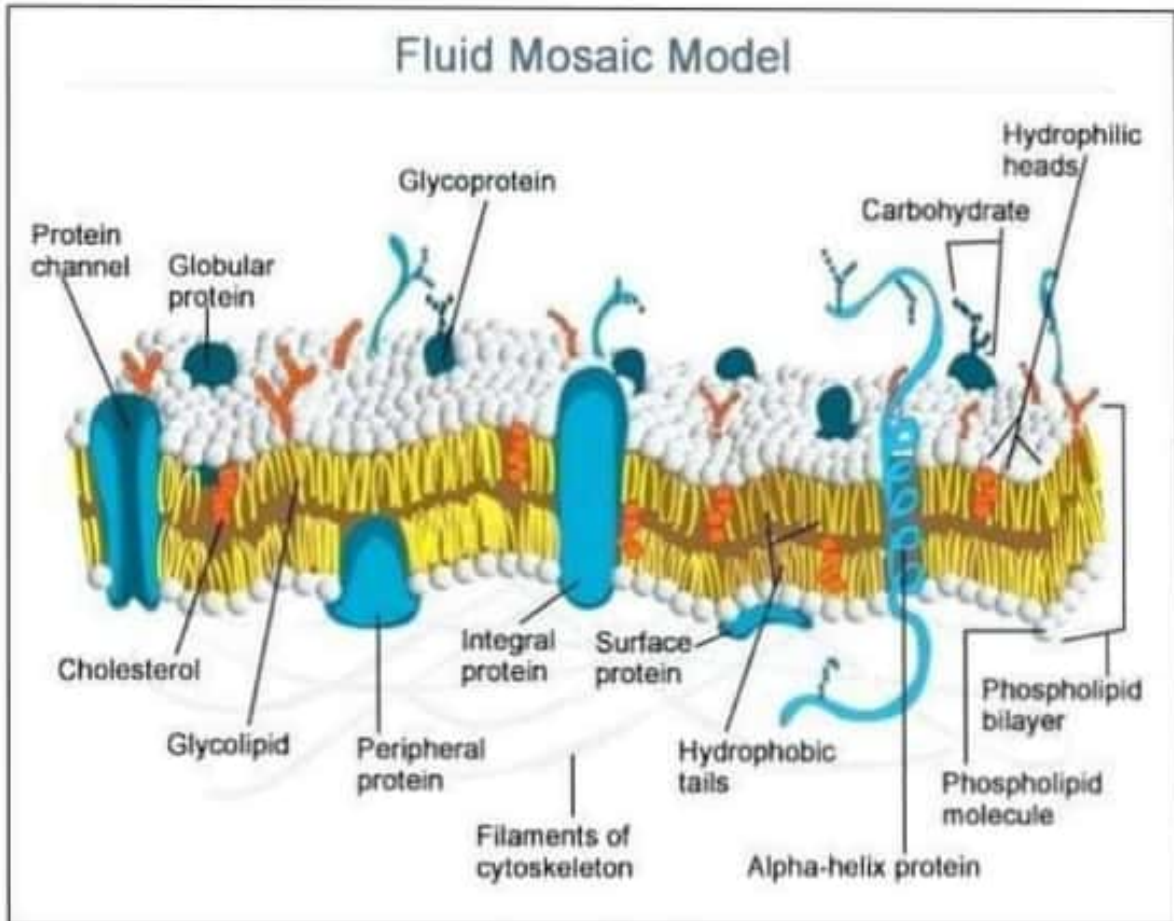
Eukaryotes

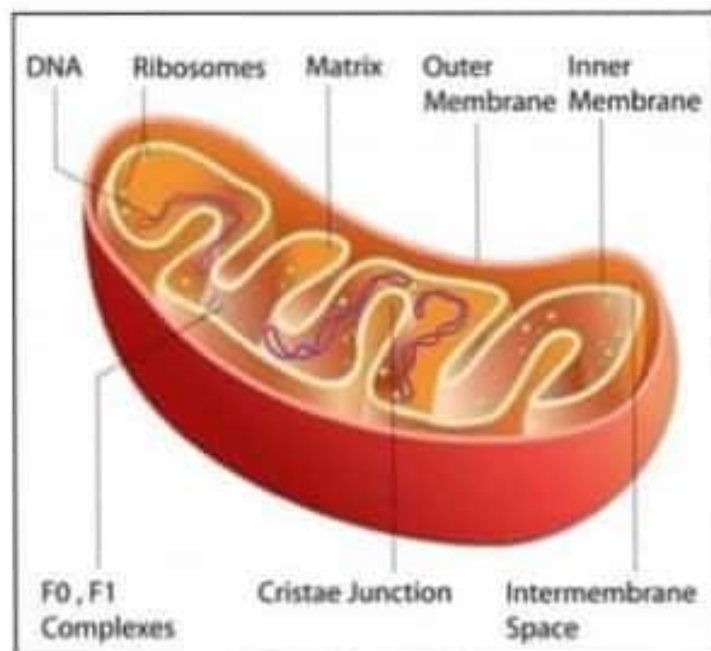
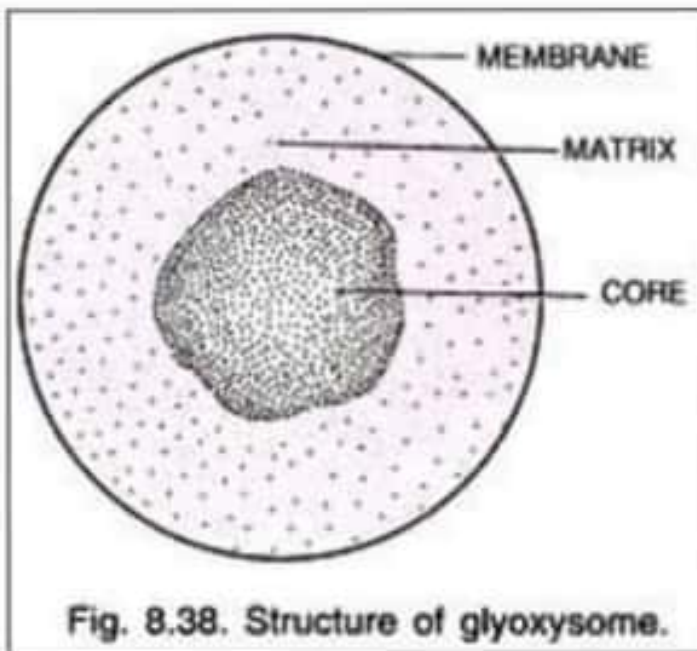
199. Protists (amoeba, paramecium and euglena)

200. Animals

201. Plants

202. fungi



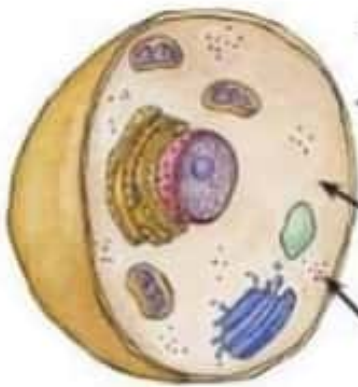


A cross-sectional diagram of a chloroplast. It shows an outer membrane and an inner membrane. Inside, there are stacks of green, disc-like structures called granum. Individual discs are labeled as thylakoids, and the space inside them is the lumen. The fluid-filled space between the membranes is the stroma.

Chloroplast

- Found only in **plant cells**
- Chloroplasts contain a green pigment called **chlorophyll**
- Chlorophyll is essential for photosynthesis, the process by which plants make food

Animal Cell Organelles



1. Each cell has a protective outer layer – the plasma membrane. The plasma membrane lets certain things into the cell that it needs, but keeps other things out. This is called semipermeable.

2. Inside the cell is a watery medium that everything floats in called cytoplasm. The cytoplasm contains all the working parts of the cell, the organelles.

3. Little grains floating around inside the cell are ribosomes, where proteins are made.



4. The nucleus has our DNA that contains all our genetic information. The DNA is found on structures in the nucleus called chromosomes. There are 23 pairs (46 total) of chromosomes in each nucleus of each cell.

5. The nucleus is surrounded by a nuclear membrane, which controls what goes in and out.



6. Rough endoplasmic reticulum (rough ER) is a series of folded membrane pathways spotted with ribosomes. Together the ribosomes and the rough ER make new proteins and new membranes that the cell needs.



7. Smooth Endoplasmic Reticulum (smooth ER) has no ribosomes on it and forms containers called transport vesicles that are used to move things around inside the cell.



8. Golgi apparatus are made up of sacculi that package up things to be transported around the cell or that need to leave the cell, like hormones.

9. Lysosomes are vesicles that have digestive enzymes inside them and break down the things that the cell doesn't need. They also kill bacteria that invades the body.



10. Vacuoles are membrane large membranous sacs for storing things. Vesicles are smaller sacs.



11. Mitochondria have a double membrane that folds in on itself forming little finger-like projections called cristae. Inside is a gel-like matrix with enzymes that break down sugars to make ATP, which is used by the cell as energy. These very important organelles contain their own DNA and ribosomes, reproduce by division and can even produce some of their own proteins.