

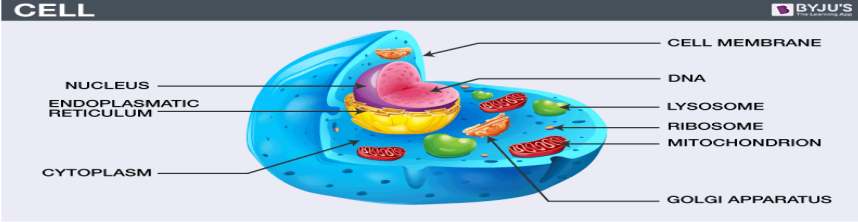


Internal Assessment Test 1– OCTOBER 2023

Scheme

Sub:	Biology for Engineers				Sub Code:	BBOC407	Branch:	CSE
Date:	03/06/2024	Duration:	90 mins	Max Marks:	50	Sem / Sec:	IV A,B,C	

1.	Highlighting the properties of cellulose (at least 5), Explain the steps involved in Construction of cellulose-based water filters.	10M
Scheme	Properties (any 5) <ol style="list-style-type: none"> 1. High Porosity 2. Biodegradability 3. Cost-effective 4. Renewable resource 5. Good mechanical strength 6. Chemical resistance 7. Large surface area 	[5M]
	Steps : <ol style="list-style-type: none"> 1. Cellulose Material Selection 2. Cellulose Preparation 3. Cellulose Layer Formation 4. Filter Medium Attachment 5. Chemical Treatment 6. Housing Assembly 7. Filter Testing 	[5M]

2	Define Cell. Write down the structure and functions of Cell.	10M
Scheme	<p>A cell is defined as the smallest, basic unit of life that is responsible for all of life's processes.</p> <p>Structure of Cell</p>  <p>Functions of Cell (any 4)</p> <ol style="list-style-type: none"> 1. Provides Support and Structure 2. Facilitate Growth Mitosis 3. Allows Transport of Substances 4. Energy Production 5. Aids in Reproduction 	<p>[2M]</p> <p>[4M]</p> <p>[4M]</p>
3	Write a short note on i) Meat analogs ii) Whey proteins	10M
Scheme	<p>i) Meat analogs Meat analogs, also known as meat substitutes or meat alternatives, are plant-based foods designed to mimic the taste, texture, and appearance of meat. They are made from a variety of ingredients, including soy protein, wheat protein, pea protein, and other plant-based ingredients, and are often fortified with vitamins and minerals to provide a similar nutritional profile to meat. Ex: Tofu, Tempeh, Seitan, Veggie burgers, Meatless meatballs, Plant-based sausages.</p> <p>ii) Whey proteins</p>	<p>[5M]</p> <p>[5M]</p>
4	What are carbohydrates? Illustrate different types of carbohydrates with examples.	10M

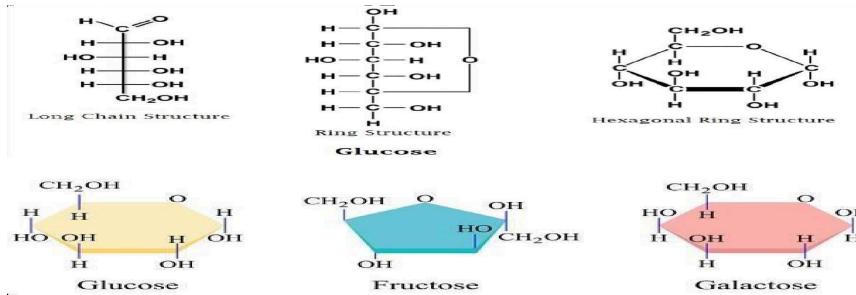
Scheme

Carbohydrates are a class of organic compounds that play a crucial role in biology and are an important source of energy for living organisms.

[1M]

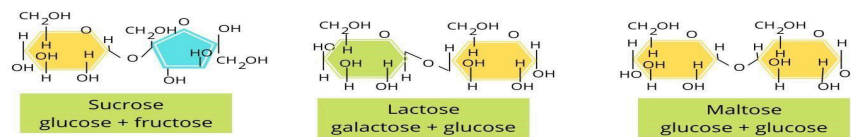
Monosaccharides : These are the simplest form of carbohydrates and include glucose and fructose. They are easily soluble in water and serve as the primary source of energy for the body.

[3M]



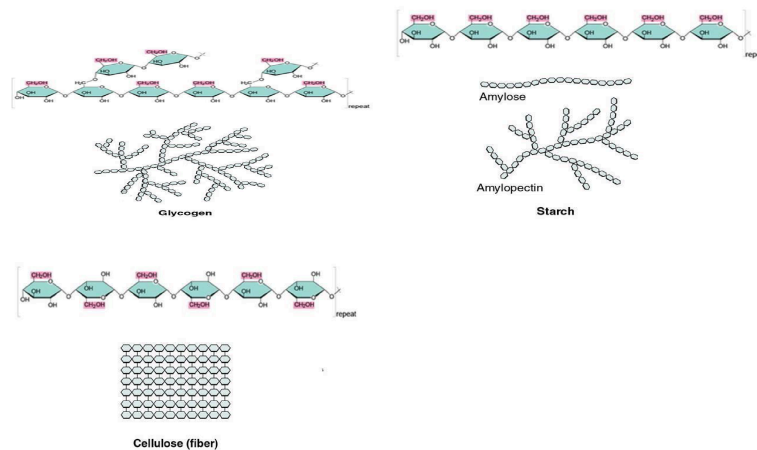
Disaccharides : These are formed by the condensation of two monosaccharides and include sucrose, lactose, and maltose. They are commonly found in sugar and are broken down into monosaccharides during digestion.

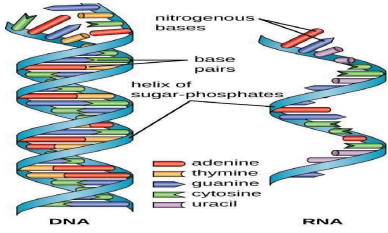
[3M]



Polysaccharides : These are long chains of monosaccharides linked together. They serve as storage molecules for energy, such as glycogen in animals and starch in plants, and also provide structure and support, such as cellulose in plant cell walls.

[3M]



5	<p>What are Nucleic acids? Explain the types of nucleic acids with a neat diagram.</p>	10M
	<p>Nucleic acids are biopolymers that play a crucial role in the storage and transfer of genetic information in all living organisms. There are two types of nucleic acids:</p> <p>Deoxyribonucleic acid (DNA): DNA is the genetic material that carries the instructions for the development, functioning, and reproduction of all living organisms. DNA is a double stranded helix structure composed of nucleotides, which consist of a sugar (deoxyribose), a phosphate group, and a nitrogenous base (adenine, guanine, cytosine, or thymine).</p> <p>Ribonucleic acid (RNA): RNA is involved in the expression of the genetic information stored in DNA by carrying the message from the DNA to the ribosome, where it is used to build proteins. RNA is a single-stranded molecule composed of nucleotides, which consist of a sugar (ribose), a phosphate group, and a nitrogenous base (adenine, guanine, cytosine, or uracil).</p> 	<p>[2M]</p> <p>[2M]</p> <p>[2M]</p> <p>[2M]</p>

6.	What is DNA fingerprinting? Explain the process involved in DNA fingerprinting.	10M
Scheme	<p>DNA fingerprinting, also known as DNA profiling or genetic fingerprinting, is a technique used in forensic science to identify an individual based on their unique DNA profile. The process involves analyzing specific regions of an individual's DNA, called markers, which can vary from person to person.</p> <ol style="list-style-type: none"> 1. Sample Collection: 2. DNA Amplification 3. DNA Analysis 4. DNA Comparison 	<p>[2M]</p> <p>[2M]</p> <p>[2M]</p> <p>[2M]</p>