General Instructions

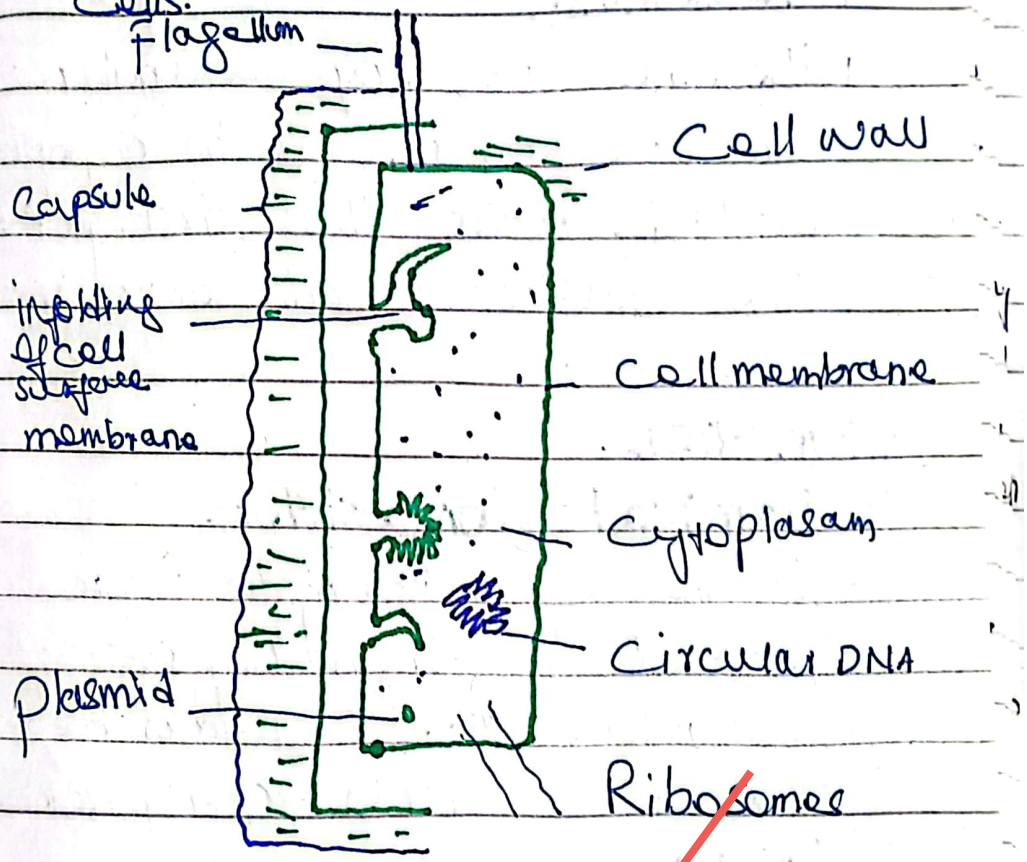
1. Give numbering to headings.
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions.
4. Draw figures/diagram/flowchart where needed.
5. Start new question from fresh page.
6. Write unit of the answer in ability section.
7. Explain mathematical steps and the reasoning for better score.
8. Change colour scheme for references to give them more visibility.
9. Manage time well.
10. Wide page borders are discouraged. Should be reasonable.
11. Avoid writing wrong references.
12. Give more weightage to expressedly asked part/s of the question.

Q #2. (a) Cell Structure.

Cell is the basic structure and function of all living things. The Cells that make our body are so small that one can not see a single Cell with naked eye. The word Cell is derived from latin word "Cellula" which means "a little room". Organism can be classified as unicellular (consisting of single cell, including bacteria) or multicellular (including plants and animals). The Cell was discovered by Robert hooke in 1665. Cytology is the Study of all aspects of a Cell.

Cell are often divided into particular groups based on major characteristics. Prokaryotic and eukaryotic Cells.

Prokaryotic Cells are much Smaller and Simpler than eukaryotic Cells.



Prokaryotes, which include all bacteria, and archea are the Simplest Cellular Organisms.

Subcellular Organelles.

Subcellular organelles include the following

Ribosomes. Nucleus. Endoplasmic reticulum.

Ribosomes.

Ribosomes are tiny granular structures. present in cytoplasm. palade was the first person who studies ribosomes in 1955.

Functions.

Chamical Composition.

Ribosomes of eukaryotes are composed of ribonucleoprotin. ribonucleoprotin contain equal amount of RNA and protein

polysome.

A group of Ribosomes attached to same RNA is known as polysome.

Formation of Ribosomes.

Ribosomes are synthesized in the nucleolus of the nucleus.

The nucleoli are factories of ribosomes. The ribosomes pass through pores in the nuclear membrane and enter the cytoplasm.

Nucleus.

Nucleus was discoverd by Robert brown in 1831. It is a prominent body in many cells. It looks dark than that of surrounding cytoplasm.

Functions.

Nucleus perform following functions.

1) It controls all the activities of the cells.
2) It controls the transfer of hereditary characters from parents to offspring.
3) The three types of RNAs i.e mRNA, rRNA, tRNA are

Too long for 5 marks part. Manage ti e efficiently.

Synthesized in the nucleus.

Endoplasmic Reticulum

It is the network of Channels present throughout the cell. On the inner side, they are in contact with the nuclear membrane. The entire system of Channels is called cisternae.

Functions.

1) Endoplasmic reticulum provides mechanical support to the cell. So the shape of cell is maintained.

2) The SER are involved in transport of material within the cell.

3) The SER detoxifies the harmful drugs and toxic materials.

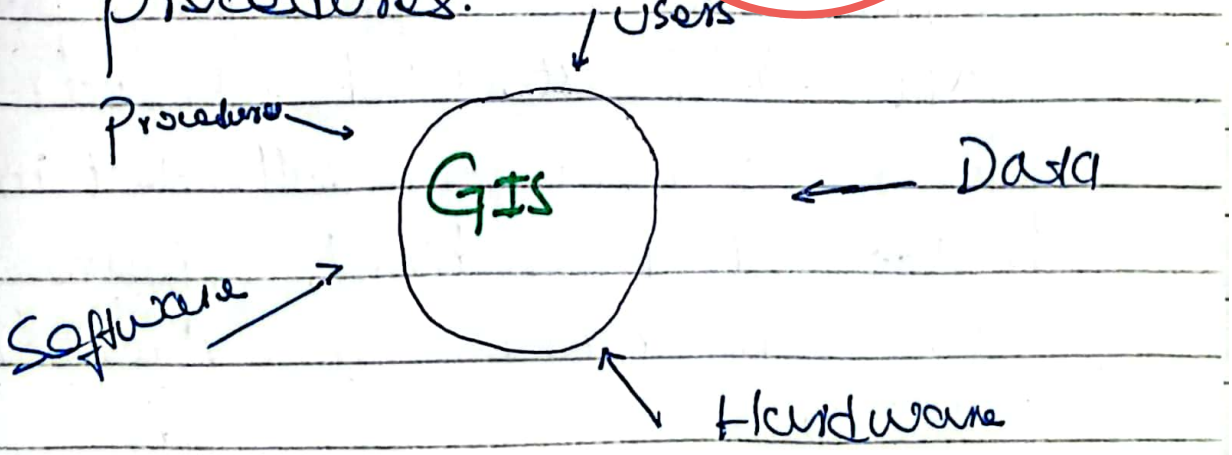
Q# 4 (B)

GIS

A GIS is an organized Collection of Computer hardware, Software geograpic data, and personnel designed to efficiently Capture, Store, update, manipulate, analyze, and display all forms of geographically referenced information" Redlands CA: Environmental System research Institute, 1990.

Components Of GIS.

A working GIS integrates five key components: hardware, Software, data people and procedures.



Hardware:

Hardware is the Computer on which a GIS operates. GIS software runs in a wide range of hardware types, from Centralized Computer Servers to desktop Computers used in Stand alone.

Software:

GIS Software provides the functions and tools needed to store, analyze, and display geographic information.

Data:

Data are the most important Components of GIS. Geographic data and related tabular data can be Collected in house or purchased from a Commercial data provider.

Users:

GIS technology is of limited without the users who manage the system and develop plans for applying it to real world problems.

procedures:

A successful GIS operates according to a well-designed plan and business rules, which are the models and operating practices unique to each organizations.

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