

YAKEEN NEET 2.0

2026

Cell - The Unit of Life

Botany

Lecture - 10

Rupesh Chaudhary Sir



Physics Wallah



Topics to be covered

1

NUCLEUS

2

CYTOSKELETON

3

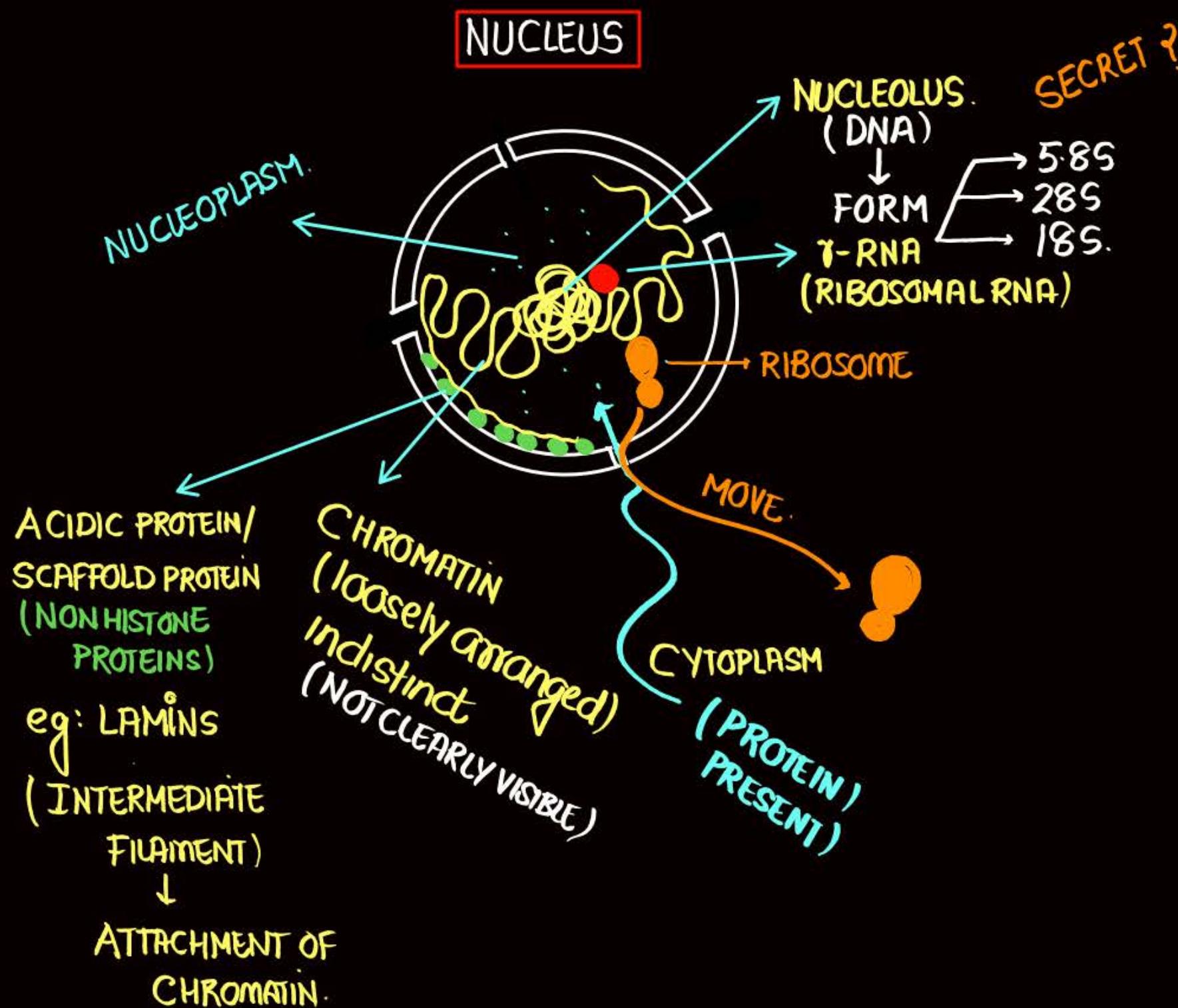
MICROBODIES

4

PYQ (2014-2025)

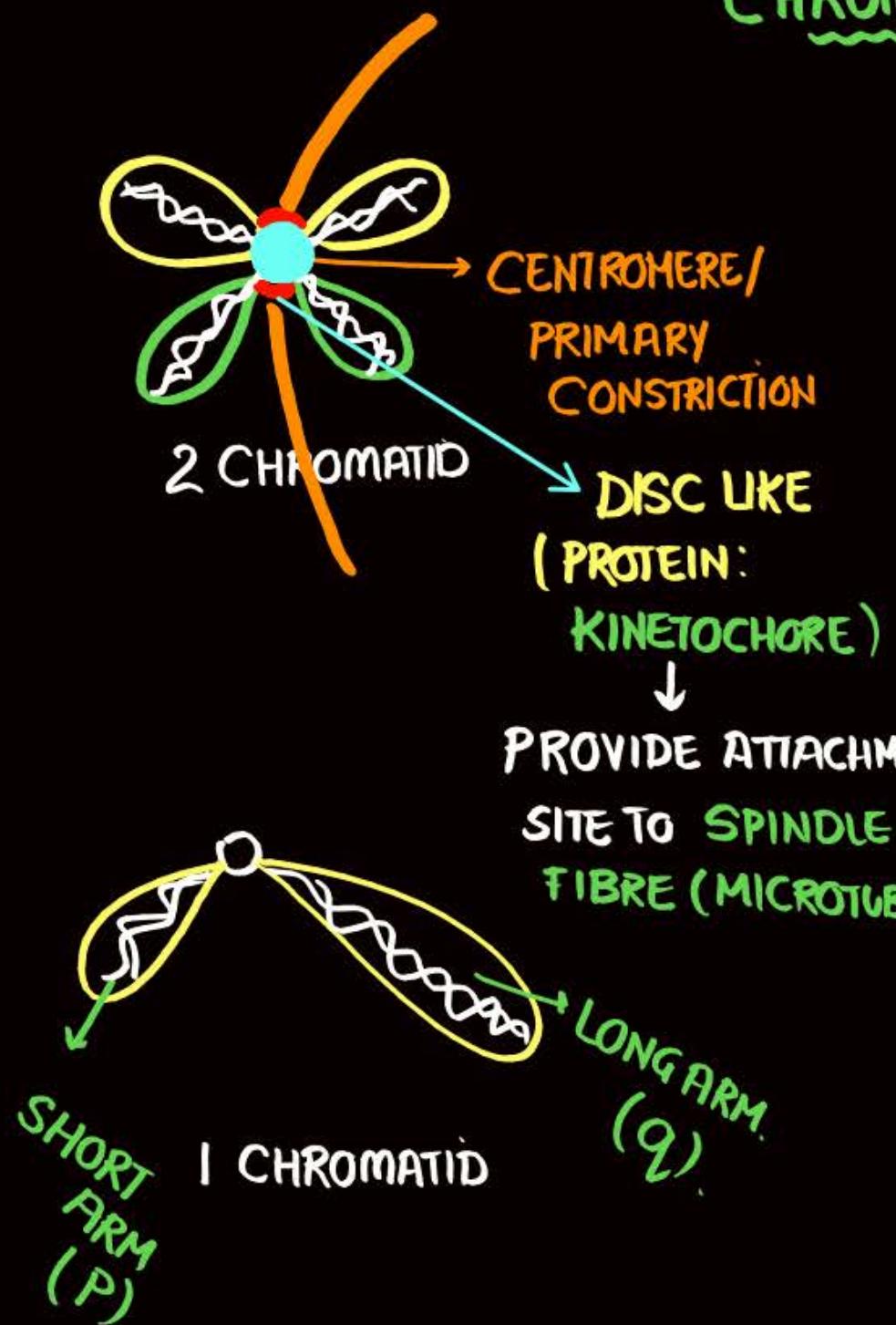
+ PYQ.

- * आज शाम तक 200 QUESTION (LEVEL-1 & LEVEL-2) की PDF FILE WITHOUT ANSWER KEY मिलेगा।
- * ANSWER KEY का UPLOAD करेंगा, पहले में सुधूर solve करेंगा।
- * इनमें से 100 QUESTION में DISCUSS करेंगा (1 HOUR) का RECORDED VIDEO दृष्टि (VERY IMPORTANT BEFORE SATURDAY).
- * SATURDAY से NEW CHAPTER.



- * CYTOPLASM $\xrightarrow[\text{MOVE}]{\text{PROTEIN}}$ NUCLEUS.
- * PROTEIN + γRNA \longrightarrow RIBOSOME FORMATION (NUCLEUS)
- * NUCLEUS $\xrightarrow[\text{MOVE}]{\text{RIBOSOME}}$ CYTOPLASM.
- * NUCLEOLUS IS MEMBRANLESS (NO SEPARATION B/W NUCLEOPLASM & CONTENT OF NUCLEOLUS)
- * CELL: INVOLVED IN PROTEIN SYNTHESIS
LARGE & NUMEROUS NUCLEOLUS PRESENT.
- * CHROMATIN: TERM: FLEMMING
(STAIN: BASIC DYE)
- * GENERALLY ONE NUCLEUS IN CELL.

CHROMOSOME

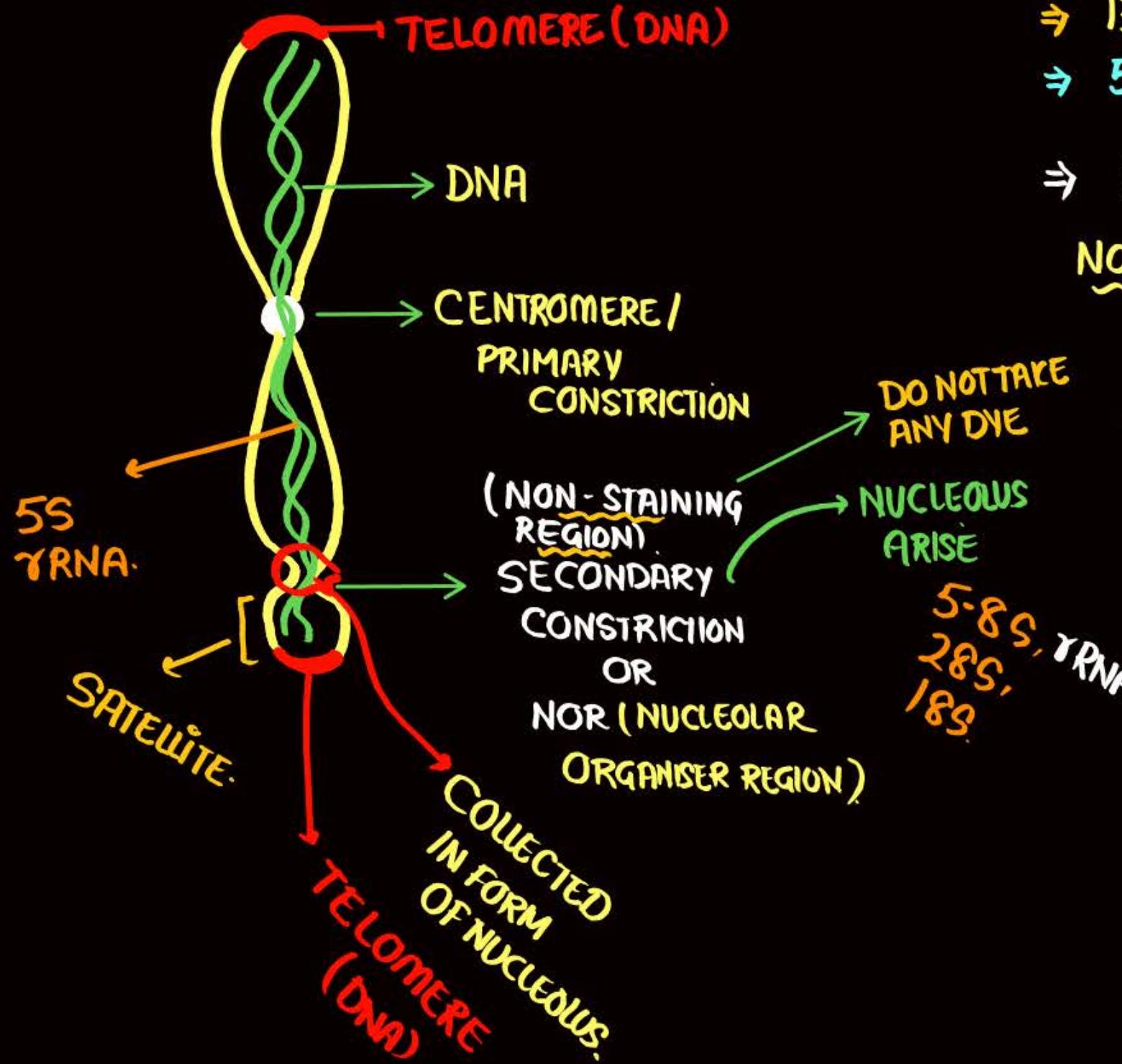


NOTE: 2m DNA DISTRIBUTED IN 46 CHROMOSOME IN ONE CELL

TYPES OF CHROMOSOME (ON BASIS OF POSITION OF CENTROMERE).

| CENTROMERE | SHAPE |
|--|-------|
| MIDDLE/CENTRE, BOTH ARMS EQUAL (METACENTRIC) | V |
| SLIGHTLY AWAY FROM CENTRE, BOTH ARMS UNEQUAL. (SUB-METACENTRIC) | L |
| CLOSE TO ONE END (SUB-TERMINAL) (ACROCENTRIC) | T |
| PRESENT AT TIP (TERMINAL) (TELOCENTRIC) | I |

CHROMOSOME STRUCTURE



⇒ 13, 14, 15, 21, 22 PAIRS: SECON. CONSTRICTION ✓
⇒ 5 PAIRS / 10 CHROMOSOME.

⇒ 5S rRNA SYNTHESIS: OTHER PART OF CHROMATIN.

NOTE: PROKARYOTE:

rRNA SYNTHESIS BY **DNA** IN CYTOPLASM.

NOTE: PART OF CHROMOSOME BEYOND SECONDARY CONSTRICKTION: SATELLITE.

NOTE: TELOMERE: PROTECT THE END OF CHROMOSOME.
(DNA).

5-8S,
28S,
18S

MICROBODIES

eg: PEROXISOMES.
(CATALASE).
ENZYME .

- ⇒ SINGLE MEMBRANE STRUCTURE
- ⇒ PRESENT IN PLANTS, ANIMALS.
- ⇒ ENZYMES PRESENT

MITOCHONDRIA
CHLOROPLAST
PEROXISOMES

→ PHOTORESPIRATION

?

CYTOSKELETON.

⇒ ELABORATE PROTEINAEOUS STRUCTURE, FILAMENTOUS ONLY IN EUKARYOTE.
(COMPLEX)

MICROTUBULE
(TUBULIN PROTEIN)

CENTRIOLE,
BASAL BODY,
CILIA, FLAGELLA,
SPINDLE FIBRE

INTERMEDIATE
FILAMENT
(LAMINS)

MICROFILAMENT
(ACTIN,
MYOSIN)

- * MOTILITY,
- * MAINTAIN SHAPE OF CELL
- * MECHANICAL SUPPORT

8.5.7 Cytoskeleton

~~EXTRA~~ → ~~EXTRA~~

An elaborate network of filamentous proteinaceous structures consisting of microtubules, microfilaments and intermediate filaments present in the cytoplasm is collectively referred to as the **cytoskeleton**. The cytoskeleton in a cell are involved in many functions such as mechanical support, motility, maintenance of the shape of the cell.

Correct statement

- (A) Elaborate network of filament ~~non~~ protein structure in cytoplasm called cytoskeleton
- (B) Microtubule, micro filament, intermediate filament called cytoskeleton
- (C) Helps in mechanical support, maintain shape and helps in motility
- (D) B & C are correct

8.5.10 Nucleus

Nucleus as a cell organelle was first described by Robert Brown as early as 1831. Later the material of the nucleus stained by the basic dyes was given the name **chromatin** by Flemming.

TERM.

Acetocarmine
methylene Blue
fuelgen DYE .

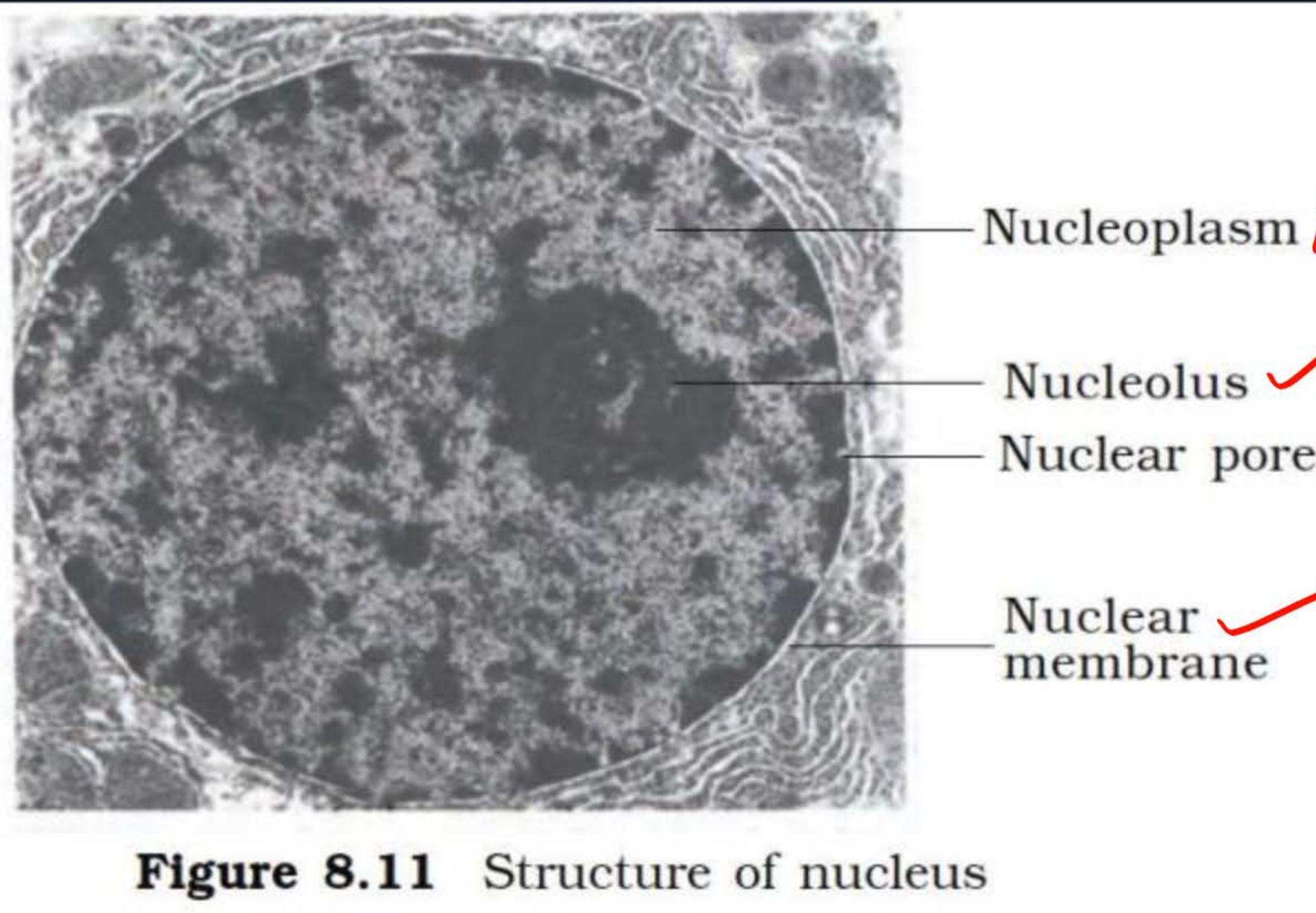
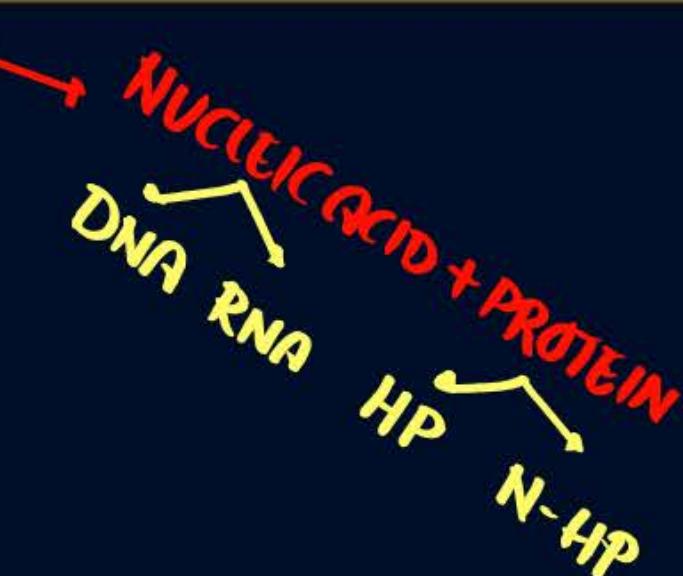


Figure 8.11 Structure of nucleus

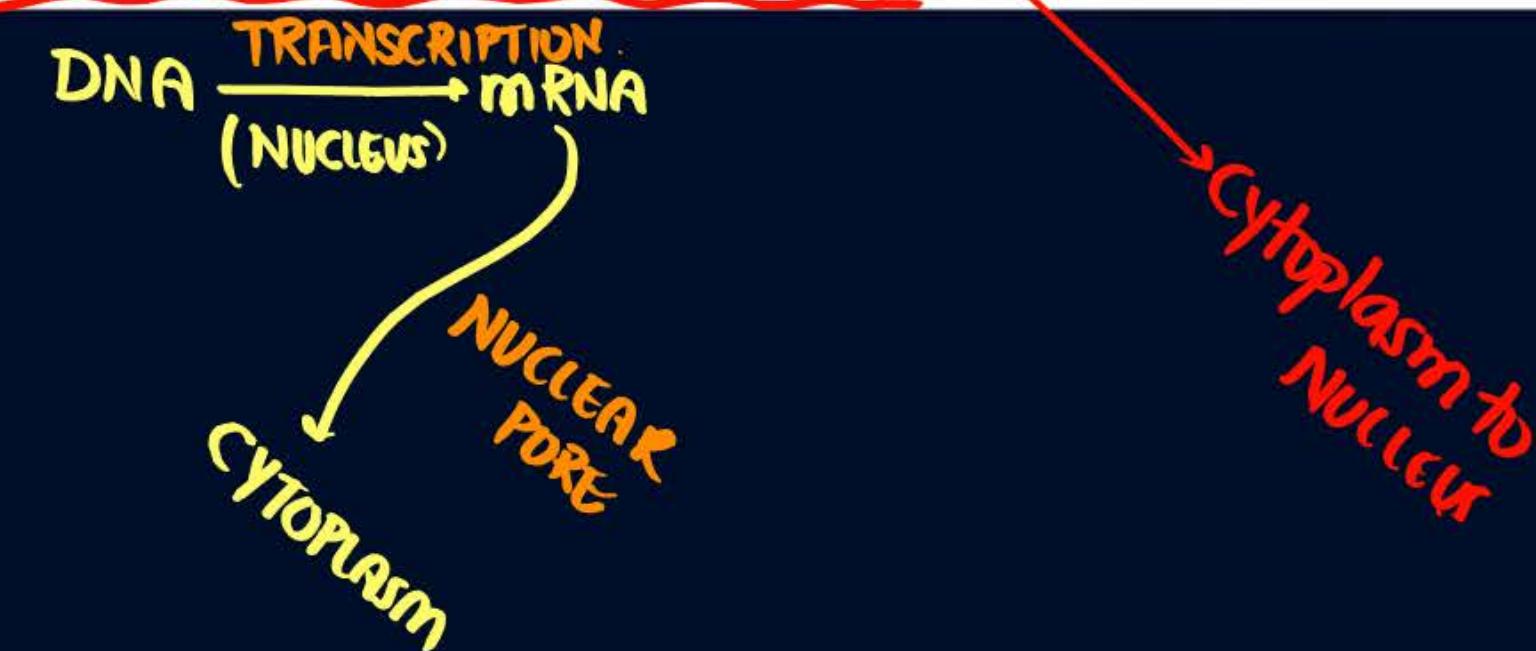
The interphase nucleus (nucleus of a cell when it is not dividing) has highly extended and elaborate nucleoprotein fibres called chromatin, nuclear matrix and one or more spherical bodies called **nucleoli** (sing.: nucleolus) (Figure 8.11). Electron microscopy has revealed that the nuclear envelope, which consists of two parallel membranes with a space between (10 to 50 nm) called the **perinuclear space**, forms a barrier between the materials present inside the nucleus and that of the cytoplasm.

Correct statement

- (A) Nucleus discovered by Robert brown in 1841
- (B) Nucleus material stained by acidic dye by Fleming
- (C) Interphasic nucleus contain extended. Elaborate nucleoprotein fibre called chromatin
- (D) Nucleus contain one or ^{more} spherical bodies called Nucleolus



The outer membrane usually remains continuous with the endoplasmic reticulum and also bears ribosomes on it. At a number of places the nuclear envelope is interrupted by minute pores, which are formed by the fusion of its two membranes. These nuclear pores are the passages through which movement of RNA and protein molecules takes place in both directions between the nucleus and the cytoplasm.



PARAMECIUM (2).

Normally,

there is only one nucleus per cell, variations in the number of nuclei are also frequently observed. Can you recollect names of organisms that have more than one nucleus per cell? Some mature cells even lack nucleus, e.g., erythrocytes of many mammals and sieve tube cells of vascular plants. Would you consider these cells as 'living'? **RBC** **(Phloem)**

Incorrect statement

- (A) Nucleus consist of two parallel membrane having a peri nuclear space (10 to 50 nm)
- (B) this space is a barrier between nucleus & cytoplasm
- (C) outer membrane continuous with ER and devoid of ribosome
- (D) nuclear pore formed due to fusion of nuclear membrane

Correct statement

- (A) movement of RNA, protein through nuclear pore & it is unidirectional
- (B) normal two nucleus present in cell
- (C) Mature erythrocyte of mammalian RBC & sieve tube lack nucleus but these cells are not living
- (D) all Are incorrect

YES

The nuclear matrix or the **nucleoplasm** contains nucleolus and chromatin. The nucleoli are spherical structures present in the nucleoplasm. The content of nucleolus is continuous with the rest of the nucleoplasm as it is not a membrane bound structure. It is a site for active ribosomal RNA synthesis. Larger and more numerous nucleoli are present in cells actively carrying out protein synthesis.

Correct statement

- (A) nuclear matrix contain nucleolus ~~not~~ chromatin
- (B) nucleolus is spherical & its content is in continuous with nucleoplasm because it is membrane structure ~~X~~
- (C) it is site for r-RNA synthesis
- (D) Large and more nucleolus present in cell which ~~not~~ actively involving in protein synthesis

NOT

You may recall that the interphase nucleus has a loose (NOT CONDENSED) and indistinct network of nucleoprotein fibres called **chromatin**. But during different stages of cell division, cells show structured **chromosomes** in place of the nucleus. Chromatin contains DNA and some basic proteins called **histones**, some non-histone proteins and also RNA. A single human cell has approximately two metre long thread of DNA distributed among its forty six (twenty three pairs) chromosomes. You will study the details of DNA packaging in the form of a chromosome in class XII.

Prop, meta, anap.

absorb

Arginine &
lysine

Correct statement

loose

Indistinct

- (A) Interphase nucleus has compact & distinct nucleoprotein fibre called chromatin
- (B) Chromatin - DNA, histone (Basic protein), non histone (acidic protein) but not RNA
- (C) A single cell have 2m DNA Distributed in 23 ^{PAIRS} chromosomes
- (D) During different stages of cell division cell show chromosome in place of nucleus

Every chromosome (visible only in dividing cells) essentially has a primary constriction or the **centromere** on the sides of which disc shaped structures called **kinetochores** are present (Figure 8.12). Centromere holds two chromatids of a chromosome. Based on the position of the centromere, the chromosomes can be classified into four types (Figure 8.13). The **metacentric** chromosome has middle centromere forming two equal arms of the chromosome. The **sub-metacentric** chromosome has centromere slightly away from the middle of the chromosome resulting into one shorter arm and one longer arm. In case of **acrocentric** chromosome the centromere is situated close to its end forming one extremely short and one very long arm, whereas the **telocentric** chromosome has a terminal centromere.

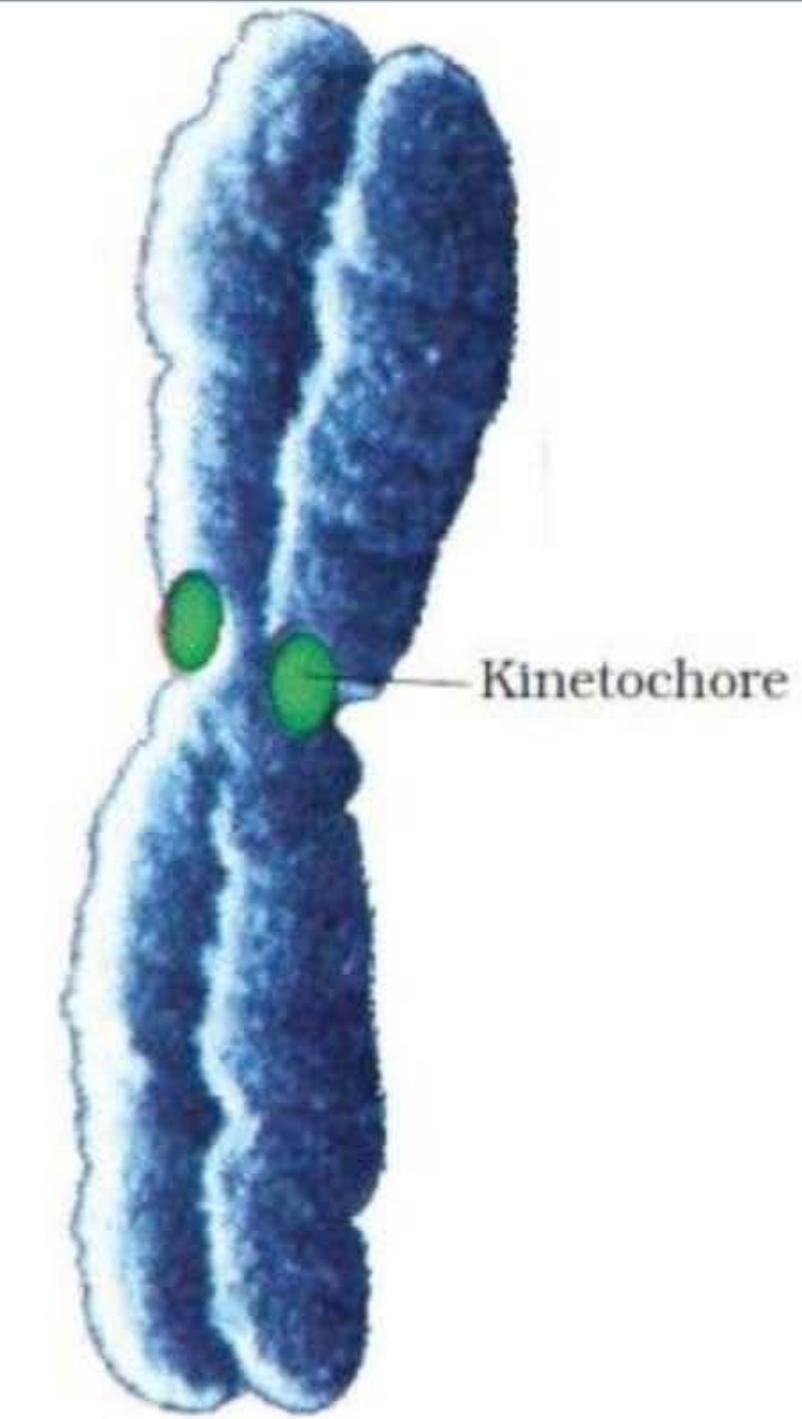


Figure 8.12 Chromosome with kinetochore

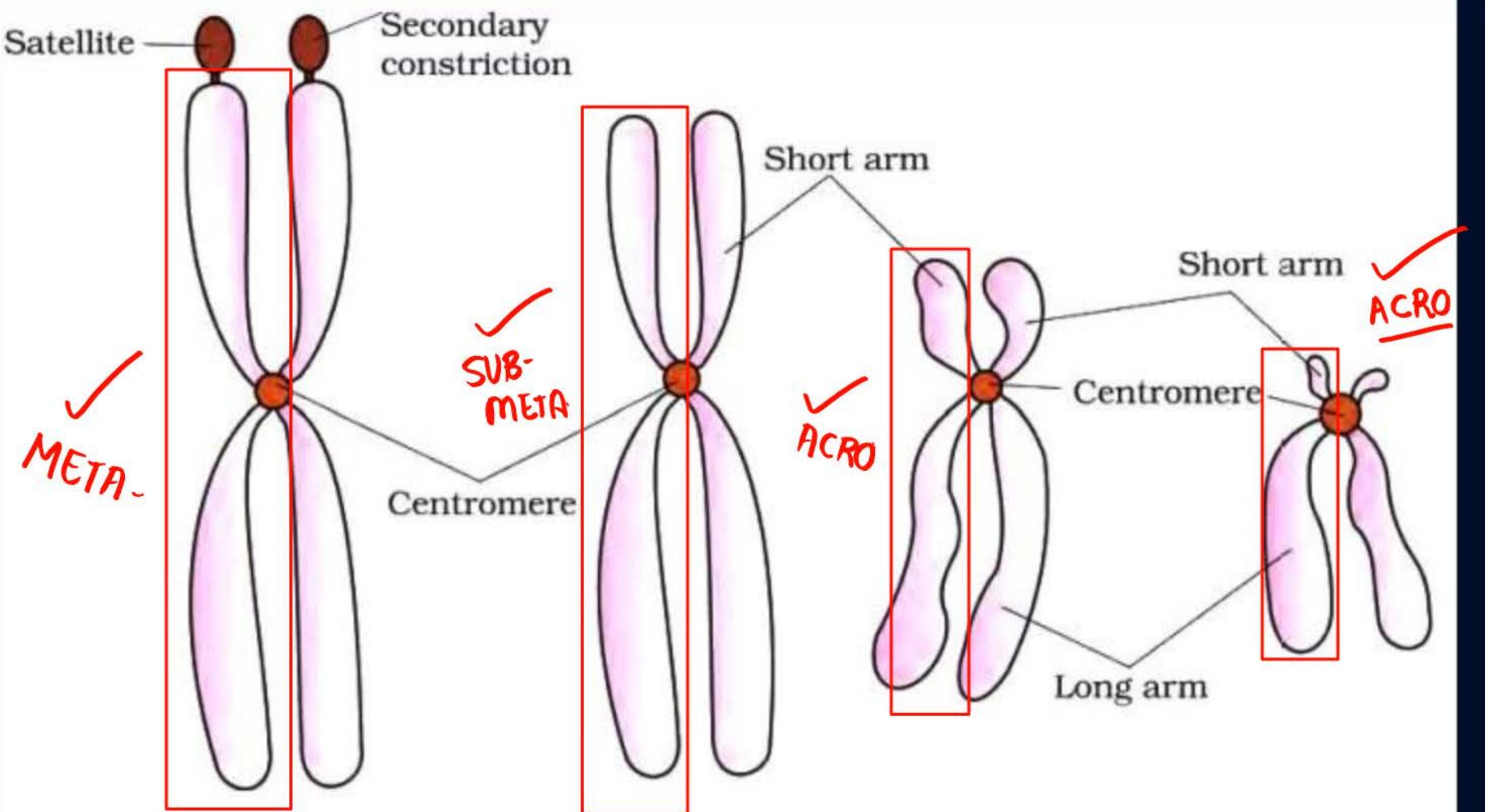


Figure 8.13 Types of chromosomes based on the position of centromere

Incorrect statement

- (A) Every chromosome (visible in dividing cell) has Primary construction / centromere which have disc shape lipid structure called kinetochore
- (B) Centromere hold two chromatid of chromosome
- (C) Metacentric : middle centromere forming two equal arms
- (D) Submetacentric : centromere slightly away from middle so one arm is shorter & other arm is longer

Correct statement

- (A) Acrocentric: centromere Close to one end form one arm extremely short and one very long and J shape
- (B) Telocentric : terminal centromere, and I shape
- (C) Sub meta centric -L shape & meta centric -V shape
- (D) All Are correct

13/14, 15, 21, 22.

Sometimes a few chromosomes have non-staining secondary constrictions at a constant location. This gives the appearance of a small fragment called the **satellite**.

8.5.11 **Microbodies**

Many membrane bound minute vesicles called microbodies that contain various enzymes, are present in both plant and animal cells.

Incorrect statement

- (A) Few chromosome have non staining secondary constriction at constant location
- (B) This give the appearance of small fragment - satellite
- (C) Many membrane bound vesicle present ~~only~~ in plant called micro bodies
- (D) All are correct

All organisms are made of cells or aggregates of cells. Cells vary in their shape, size and activities/functions. Based on the presence or absence of a membrane bound nucleus and other organelles, cells and hence organisms can be named as eukaryotic or prokaryotic.

ABSENT

PRES

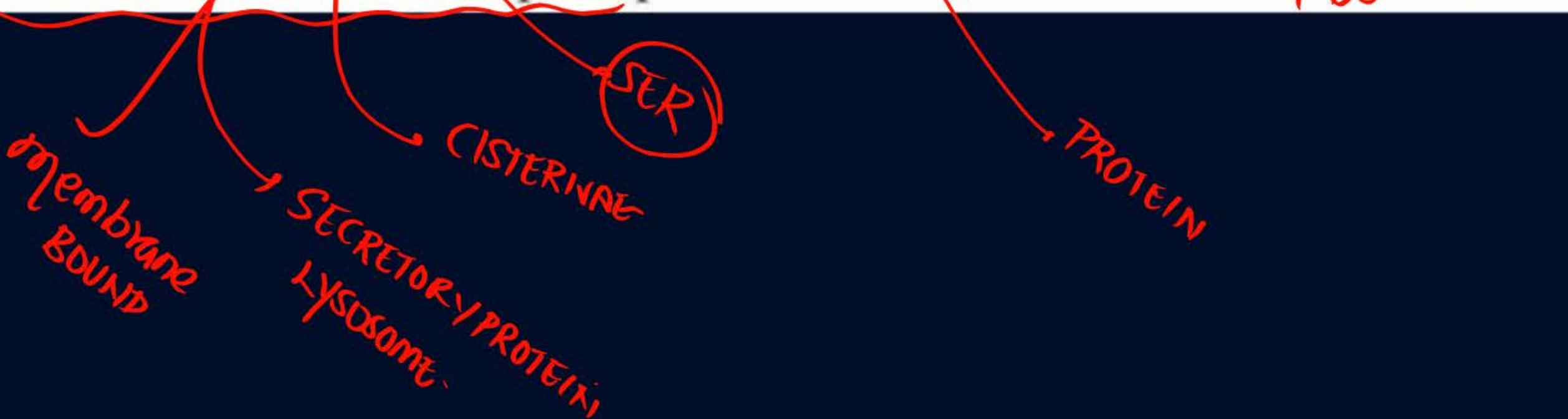
A typical eukaryotic cell consists of a cell membrane, nucleus and cytoplasm. Plant cells have a cell wall outside the cell membrane. The plasma membrane is selectively permeable and facilitates transport of several molecules. The endomembrane system includes ER, golgi complex, lysosomes and vacuoles. All the cell organelles perform different but specific functions. Centrosome and centriole form the basal body of cilia and flagella that facilitate locomotion. In animal cells, centrioles also form spindle apparatus during cell division. Nucleus contains nucleoli and chromatin network. It not only controls the activities of organelles but also plays a major role in heredity.

DNA

A

↓
DIRECTOR OF
CELL.

Endoplasmic reticulum contains tubules or cisternae. They are of two types: rough and smooth. ER helps in the transport of substances, synthesis of proteins, lipoproteins and glycogen. The golgi body is a membranous organelle composed of flattened sacs. The secretions of cells are packed in them and transported from the cell. Lysosomes are single membrane structures containing enzymes for digestion of all types of macromolecules. Ribosomes are involved in protein synthesis. These occur freely in the cytoplasm or are associated with ER. Mitochondria help in oxidative phosphorylation and generation of adenosine triphosphate.



They are bound by double membrane; the outer membrane is smooth and inner one folds into several cristae. Plastids are pigment containing organelles found in plant cells ~~only~~ ^{Q. PLASTOIDS}. In plant cells, chloroplasts are responsible for trapping light energy essential for photosynthesis. The grana, in the plastid, is the site of light reactions and the stroma of dark reactions. The green coloured plastids are chloroplasts, which contain chlorophyll, whereas the other coloured plastids are chromoplasts, which may contain pigments like carotene and xanthophyll. The nucleus is enclosed by nuclear envelope, a double membrane structure with nuclear pores. The inner membrane encloses the nucleoplasm and the chromatin material. Thus, cell is the structural and functional unit of life.

Question

From the statements given below choose the correct option:

(2025)

- A. The eukaryotic ribosomes are 80 S and prokaryotic ribosomes are 70S.
- B. Each ribosome has two sub-units.
- C. The two sub-units of 80 S ribosome are 60 S and 40 S while that of 70 S are 50 S and 30 S .
- D. The two sub-units of 80 S ribosome are 60 S and 20 S and that of 70 S are 50 S and 20 S.
- E. The two sub-units of 80 S are 60 S and 30 S and that of 70 S are 50 S and 30 S

1 A, B, C are true

2 A, B, D are true

3 A, B, E are true

4 B, D, E are true

Which one of the following statements refers to Reductionist Biology?

(2025)

- 1** Physico-chemical approach to study and understand living organisms.
- 2** Physiological approach to study and understand living organisms.
- 3** Chemical approach to study and understand living organisms.
- 4** Behavioural approach to study and understand living organisms.

Question

Match List-I with List-II.

(2025)

Choose the correct answer from the options given below:

- 1** A-I, B-II, C-III, D-IV
- 2** A-II, B-I, C-IV, D-III
- 3** A-IV, B-II, C-III, D-I
- 4** A-II, B-III, C-I, D-IV

| | List-I | | List-II |
|----|---------------|------|----------------------|
| A. | Centromere | I. | Mitochondrion |
| B. | Cilium | II. | Cell division |
| C. | Cristae | III. | Cell movement |
| D. | Cell membrane | IV. | Phospholipid Bilayer |

A specialized membranous structure in a prokaryotic cell which helps in cell wall formation, DNA replication and respiration is: (2025)

- 1** Mesosome
- 2** Chromatophores
- 3** Cristae
- 4** Endoplasmic Reticulum

Question

Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A): The primary function of the Golgi apparatus is to package the materials made by the endoplasmic reticulum and deliver it to intracellular targets and outside the cell.

Reason (R): Vesicles containing materials made by the endoplasmic reticulum fuse with the cis face of the Golgi apparatus, and they are modified and released from the trans face of the Golgi apparatus. In the light of the above statements, choose the correct answer from the options given below:

(2025)

- 1** Both A and R are true and R is the correct explanation of A
- 2** Both A and R are true but R is not the correct explanation of A
- 3** A is true but R is false
- 4** A is false but R is true

Match List I with List II:

(2024)

Choose the correct answer from the options given below:

- 1** A-IV, B-III, C-II, D-I
- 2** A-IV, B-II, C-III, D-I
- 3** A-II, B-IV, C-I, D-III
- 4** A-II, B-I, C-IV, D-III

| | List I | | List II |
|----|-------------------|------|--------------------|
| A. | Axoneme | i. | Centriole |
| B. | Cartwheel pattern | II. | Cilia and flagella |
| C. | Crista | iii. | Chromosome |
| D. | Satellite | IV. | Mitochondria |

The DNA present in chloroplast is:

(2024)

- 1** Linear, double stranded
- 2** Circular, double stranded
- 3** Linear, single stranded
- 4** Circular, single stranded

Match List I with List II :

(2024)

Choose the correct answer from the options given below:

1 A-IV, B-III, C-II, D-I

2 A-IV, B-II, C-III, D-I

3 A-II, B-IV, C-I, D-III

4 A-II, B-I, C-IV, D-III

| | List-I | | List-II |
|----|-----------------|------|---|
| A. | Nucleolus | I. | Site of formation of glycolipid |
| B. | Centriole | II. | Organization like the cartwheel |
| C. | Leucoplasts | III. | Site for active ribosomal RNA synthesis |
| D. | Golgi apparatus | IV. | For storing nutrients |

Movement and accumulation of ions across a membrane against their concentration gradient can be explained by (2023)

- 1** Facilitated Diffusion
- 2** Passive Transport
- 3** Active Transport
- 4** Osmosis

Question



How many different proteins does the ribosome consist of?

(2023)

- 1** 60
- 2** 40
- 3** 20
- 4** 80

Question

Which of the following are NOT considered as the part of endomembrane system?(2023)

- A. Mitochondria
- B. Endoplasmic reticulum
- C. Chloroplasts
- D. Golgi complex
- E. Peroxisomes

Choose the most appropriate answer from the options given below:

- 1** A, C and E only
- 2** A and D only
- 3** A, D and E only
- 4** B and D only

Which of the following functions is carried out by cytoskeleton in a cell?

(2023)

- 1** Protein synthesis
- 2** Motility
- 3** Transportation
- 4** Nuclear division

Question

Given below are two statements:

(2023 manipur)

Statement-I: In bacteria, the mesosomes are formed by the extensions of plasma membrane.

Statement-II: The mesosomes, in bacteria, help in DNA replication and cell wall formation.

In the light of the above statements, choose the most appropriate answer from the options given below:

- 1** Statement-I is correct but Statement-II is incorrect.
- 2** Statement-I is incorrect but Statement-II is correct.
- 3** Both Statement-I and Statement-II are correct.
- 4** Both Statement-I and Statement-II are incorrect.

Question

Which of the following statements are correct with respect of Golgi apparatus?

- A. It is the important site of formation of glycoprotein and glycolipids. (2023 manipur)
- B. It produces cellular energy in the form of ATP.
- C. It modifies the protein synthesized by ribosomes on ER.
- D. It facilitates the transport of ions.
- E. It provides mechanical support.

Choose the most appropriate answer from the options given below:

- 1** B and C only
- 2** A and C only
- 3** A and D only
- 4** D and E only

Question

Match the List-I with List-II.

(2022)

Choose the correct answer from the options given below:

- 1** A-Q, B-P, C-S, D-R
- 2** A-S, B-R, C-Q, D-P
- 3** A-P, B-R, C-S, D-Q
- 4** A-R, B-Q, C-P, D-S

| | List-I | | List-II |
|----|------------------------|------|---|
| A. | Metacentric chromosome | I. | Centromere situated close to the end forming one extremely short and one very long arms |
| B. | Acrocentric chromosome | II. | Centromere at the terminal end |
| C. | Submetacentric | III. | Centromere in the middle forming two equal arms of chromosomes |
| D. | Telocentric chromosome | IV. | Centromere slightly away from the middle forming one shorter arm and one longer arm |

Which of the following statements with respect to Endoplasmic Reticulum is incorrect?

(2022)

- 1** SER are the sites for lipid synthesis
- 2** RER has ribosomes attached to ER
- 3** SER is devoid of ribosomes
- 4** In prokaryotes only RER are present

Which type of substance would face difficulty to pass through the cell membrane?

2022 (Phase 2)

- 1** Substance with hydrophobic moiety
- 2** Substance with hydrophilic moiety
- 3** All substance irrespective of hydrophobic and hydrophilic moiety
- 4** Substance soluble in lipids

Question



If the pH in lysosomes is increased to alkaline, what will be the outcome? 2022 (Phase 2)

- 1** Hydrolytic enzymes will function more efficiently
- 2** Hydrolytic enzymes will become inactive
- 3** Lysosomal enzymes will be released into the cytoplasm
- 4** Lysosomal enzymes will be more active

Which of the following is an incorrect statement?

(2021)

- 1** Microbodies are present both in plant and animal cells.
- 2** The perinuclear space forms a barrier between the materials present inside the nucleus and that of the cytoplasm.
- 3** Nuclear pores act as passages for proteins and RNA molecules in both directions between nucleus and cytoplasm.
- 4** Mature sieve tube elements possess a conspicuous nucleus and usual cytoplasmic organelles.

Question

Match the List-I with List-II

(2021)

Choose the correct answer from the options given below.

1 (A)-(I); (B)-(IV); (C)-(III); (D)-(II)

2 (A)-(III); (B)-(IV); (C)-(I); (D)-(II)

3 (A)-(II); (B)-(III); (C)-(IV); (D)-(I)

4 (A)-(IV); (B)-(III); (C)-(II); (D)-(I)

| | List-I | | List-II |
|----|------------|------|---|
| A. | Cristae | I. | Primary constriction in chromosome |
| B. | Thylakoids | II. | Disc-shaped sacs in Golgi apparatus |
| C. | Centromere | III. | Infoldings in mitochondria |
| D. | Cisternae | IV. | Flattened membranous sacs in stroma of plastids |

When the centromere is situated in the middle of two equal arms of chromosomes, the chromosome is referred as: (2021)

- 1** Telocentric
- 2** Sub-metacentric
- 3** Acrocentric
- 4** Metacentric

The organelles that are included in the endomembrane system are:

(2021)

- 1** Endoplasmic reticulum, Golgi complex, Lysosomes and Vacuoles.
- 2** Golgi complex, Mitochondria, Ribosomes and Lysosomes.
- 3** Golgi complex, Endoplasmic reticulum, Mitochondria and Lysosomes.
- 4** Endoplasmic reticulum, Mitochondria, Ribosomes and Lysosomes.

Which of the following statements about inclusion bodies is incorrect?

(2020)

- 1** These are involved in ingestion of food particles.
- 2** They lie free in the cytoplasm
- 3** These represent reserve material in cytoplasm
- 4** They are not bound by any membrane

Which is the important site of formation of glycoproteins and glycolipids in eukaryotic cells?
(2020)

- 1** Peroxisomes
- 2** Golgi bodies
- 3** Polysomes
- 4** Endoplasmic reticulum

The biosynthesis of ribosomal RNA occurs in:

(2020 Covid)

- 1** Golgi apparatus
- 2** Microbodies
- 3** Nucleolus
- 4** Ribosomes

Inclusion bodies of blue-green, purple and green photosynthetic bacteria are:(2020 Covid)

- 1** Gas vacuoles
- 2** Centrioles
- 3** Microtubules
- 4** Contractile vacuoles

Question

Match the following Lists and select the correct option;

(2020 Covid)

- | | (A) | (B) | (C) | (D) |
|----------|------------|------------|------------|------------|
| 1 | (III) | (I) | (II) | (IV) |
| 2 | (IV) | (II) | (I) | (III) |
| 3 | (I) | (II) | (III) | (IV) |
| 4 | (II) | (I) | (III) | (IV) |

| | List-I | | List-II |
|----|------------------------------------|------|----------------------|
| A. | Smooth Endoplasmic Reticulum | I. | Protein synthesis |
| B. | Rough endoplasmic reticulum | II. | Lipid synthesis |
| C. | Golgi complex | III. | Glycosylation |
| D. | Centriole | IV. | Spindle formation |

Question



The size of Pleuropneumonia - like Organism (PPLO) is:

(2020 Covid)

1 1 - 2 μm

2 10 - 20 μm

3 0.1 μm

4 0.02 μm

Question



Which of the following pair of organelles does not contain DNA?

(2019)

- 1** Mitochondria and Lysosomes
- 2** Chloroplast and Vacuoles
- 3** Lysosomes and Vacuoles
- 4** Nuclear envelope and Mitochondria

Question

The shorter and longer arms of a sub-metacentric chromosome are referred to as (2019)

- 1** s-arm and l-arm respectively
- 2** p-arm and q-arm respectively
- 3** q-arm and p-arm respectively
- 4** m-arm and n-arm respectively

Which of the following statements is not correct?

(2019)

- 1** Lysosomes have numerous hydrolytic enzymes.
- 2** The hydrolytic enzymes of lysosomes are active under acidic pH.
- 3** Lysosomes are membrane bound structures.
- 4** Lysosomes are formed by the process of packaging in the endoplasmic reticulum.

The concept of “*Omnis cellula-e cellula*” regarding cell division was first proposed by(2019)

- 1** Rudolf Virchow
- 2** Theodor Schwann
- 3** Schleiden
- 4** Aristotle

Which of the following statements regarding mitochondria is incorrect?

(2019)

- 1** Outer membrane is permeable to monomers of carbohydrates, fats and proteins.
- 2** Enzymes of electron transport are embedded in outer membrane.
- 3** Inner membrane is convoluted with infoldings.
- 4** Mitochondrial matrix contains single circular DNA molecule and ribosomes.

Which of the following cell organelles is present in the highest number in secretory cells?

(2019 odisha)

- 1** Mitochondria
- 2** Golgi complex
- 3** Endoplasmic reticulum
- 4** Lysosomes

Non-membranous nucleoplasmic structures in nucleus are the site for active synthesis of
(2019 odisha)

- 1** protein synthesis
- 2** mRNA
- 3** rRNA
- 4** tRNA

Which of the following nucleic acids is present in an organism having 70 S ribosomes only?

(2019 odisha)

- 1** Single stranded DNA with protein coat
- 2** Double stranded circular naked DNA
- 3** Double stranded DNA enclosed in nuclear membrane
- 4** Double stranded circular DNA with histone proteins

Question

Match the List-I with List-II.

(2019 odisha)

Choose the right match from options given below:

- 1** A-R, B-S, C-Q, D-P
- 2** A-S, B-R, C-P, D-Q
- 3** A-R, B-Q, C-S, D-P
- 4** A-P, B-Q, C-S, D-R

| | List-I | | List-II |
|----|--------------------|----|--|
| A. | Golgi apparatus | P. | Synthesis of protein |
| B. | Lysosomes products | Q. | Trap waste and excretory |
| C. | Vacuoles | R. | Formation of glycoproteins and glycolipids |
| D. | Ribosomes | S. | Digesting biomolecules |

Which among the following is not a prokaryote?

(2018)

- 1** *Saccharomyces*
- 2** *Mycobacterium*
- 3** *Nostoc*
- 4** *Oscillatoria*

Question

Many ribosomes may associate with a single mRNA to form multiple copies of a polypeptide simultaneously. Such strings of ribosomes are termed as

(2018)

- 1** Polysome
- 2** Polyhedral bodies
- 3** Plastidome
- 4** Nucleosome

The Golgi complex participates in

(2018)

- 1** Fatty acid breakdown
- 2** Formation of secretory vesicles
- 3** Respiration in bacteria
- 4** Activation of amino acid

Question

Which of the following events does not occur in rough endoplasmic reticulum? (2018)

- 1** Protein folding
- 2** Protein glycosylation
- 3** Cleavage of signal peptide
- 4** Phospholipid synthesis

Which of the following is true for nucleolus?

(2018)

- 1** Larger nucleoli are present in dividing cells.
- 2** It is a membrane-bound structure.
- 3** It takes part in spindle formation.
- 4** It is a site for active ribosomal RNA synthesis

Which of the following components provides sticky character to the bacterial cell?

[OS] (2017-Delhi)

- 1** Cell wall
- 2** Nuclear membrane
- 3** Plasma membrane
- 4** Glycocalyx

Question

Which of the following cell organelles is responsible for extracting energy from carbohydrates to form ATP? (2017-Delhi)

- 1** Lysosome
- 2** Ribosome
- 3** Chloroplast
- 4** Mitochondrion

A complex of ribosomes attached to a single strand of RNA is known:

(2016 - I)

- 1** Polysome
- 2** Polymer
- 3** Polypeptide
- 4** Okazaki fragment

Question



Mitochondria and chloroplast are

- A. Semi-autonomous organelles
- B. Formed by division of pre-existing organelles and they contain DNA but lack protein synthesizing machinery

Which one of the following options is correct?

(2016-I)

- 1** Both (A) and (B) are correct
- 2** (B) is true but (A) is false
- 3** (A) is true but (B) is false
- 4** Both (A) and (B) are false

Microtubules are the constituents of:

(2016-I)

- 1** Cilia, Flagella and Peroxisomes
- 2** Spindle fibres, Centrioles and Cilia
- 3** Centrioles, Spindle fibres and Chromatin
- 4** Centrosome, Nucleosome and Centrioles

Select the wrong statement:

(2016 - II)

- 1** Cyanobacteria lack flagellated cells.
- 2** Mycoplasma is a wall-less microorganism
- 3** Bacterial cell wall is made up of peptidoglycan.
- 4** Pili and fimbriae are mainly involved in motility of bacterial cells

Select the mismatch:

(2016 - II)

- 1** Protists-Eukaryotes
- 2** Methanogens-Prokaryotes
- 3** Gas vacuoles-Green bacteria
- 4** Large central vacuoles-Animal cells

A cell organelle containing hydrolytic enzymes is:

(2016 - II)

- 1** Ribosome
- 2** Mesosome
- 3** Lysosome
- 4** Microsome

Question



Which one of the following is not an inclusion body found in prokaryotes?

(2015)

- 1** Glycogen granule
- 2** Polysome
- 3** Phosphate granule
- 4** Cyanophycean granule

Select the correct matching in the following pairs:

(2015)

- 1** Rough ER – Synthesis of glycogen
- 2** Rough ER – Oxidation of fatty acids
- 3** Smooth ER – Oxidation of phospholipids
- 4** Smooth ER – Synthesis of lipids

The structures that are formed by stacking of organized flattened membranous sacs in the chloroplasts are: (2015)

- 1** Stroma lamellae
- 2** Stroma
- 3** Cristae
- 4** Grana

DNA is not present in:

(2015)

- 1** Nucleus
- 2** Mitochondria
- 3** Chloroplast
- 4** Ribosomes

Question

The chromosomes in which centromere are situated close to one end are: (2015)

- 1** Telocentric
- 2** Sub-metacentric
- 3** Metacentric
- 4** Acrocentric

Nuclear envelope is a derivative of:

(2015)

- 1** Microtubules
- 2** Rough endoplasmic reticulum
- 3** Smooth endoplasmic reticulum
- 4** Membrane of Golgi complex

Cellular organelles with membranes are:

(2015 Re)

- 1** Chromosomes, ribosomes and endoplasmic reticulum
- 2** Endoplasmic reticulum, ribosomes and nuclei
- 3** Lysosomes, Golgi apparatus and mitochondria
- 4** Nuclei, ribosome and mitochondria

Question



Which of the following structures is not found in a prokaryotic cell?

(2015 Re)

- 1** Ribosome
- 2** Mesosome
- 3** Plasma membrane
- 4** Nuclear envelope

Which of the following is not membrane-bound?

(2015 Re)

- 1** Ribosomes
- 2** Lysosomes
- 3** Mesosomes
- 4** Vacuoles

Chromatophores take part in:

(2015 Re)

- 1** Growth
- 2** Movement
- 3** Respiration
- 4** Photosynthesis

Question



The structures that help some bacteria to attach to rocks and or host tissues are: (2015 Re)

- 1** Fimbriae
- 2** Mesosomes
- 3** Holdfast
- 4** Rhizoids

Balbiani rings are sites of:

[OS] (2015 Re)

- 1** Nucleotide synthesis
- 2** Polysaccharide synthesis
- 3** RNA and protein synthesis
- 4** Lipid synthesis

Question

Match the columns and identify the correct option.

(2015 Re)

1 A-(iii) B-(iv) C-(i) D-(ii)

2 A-(iii) B-(i) C-(iv) D-(ii)

3 A-(iii) B-(iv) C-(ii) D-(i)

4 A-(iv) B-(iii) C-(i) D-(ii)

| | Column-I | | Column-II |
|----|-----------------|------|-------------------------------------|
| A. | Thylakoids | i. | Disc-shaped sacs in Golgi apparatus |
| B. | Cristae | ii. | Condensed structure of DNA |
| C. | Cisternae | iii. | Flat membranous sacs in stroma |
| D. | Chromatin | iv. | Infoldings in mitochondria |

The motile bacteria are able to move by:

(2014)

- 1** Pili
- 2** Fimbriae
- 3** Flagella
- 4** Cilia

Question

The osmotic expansion of a cell kept in water is chiefly regulated by:

(2014)

- 1** Ribosomes
- 2** Mitochondria
- 3** Vacuoles
- 4** Plastids

Which structures perform the function of mitochondria in bacteria?

(2014)

- 1** Mesosomes
- 2** Nucleoid
- 3** Ribosomes
- 4** Cell wall

Question

The solid linear cytoskeleton elements having a diameter of 6 nm and made up of a single type of monomer are known as:

[OS] (2014)

- 1** Lamins
- 2** Microtubules
- 3** Microfilaments
- 4** Intermediate filaments

Question

Match the following and select the correct answer:

(2014)

1 A-iv B-iii C-i D-ii

2 A-iv B-ii C-i D-iii

3 A-i B-ii C-iv D-iii

4 A-i B-iii C-ii D-iv

| | | | |
|----|-------------|------|------------------------------|
| A. | Centriole | i. | Infoldings in mitochondria |
| B. | Chlorophyll | ii. | Thylakoids |
| C. | Cristae | iii. | Nucleic acids |
| D. | Ribozymes | iv. | Basal body cilia or flagella |



Homework from YAKEEN NEET 2.0 2026 Module

Revision planner

- (T) → L-10 to L-5., Question solve (100)
- (W) → L-1 to L-4., " (100)
- (T) → All TEST & NCERT BOOSTER: SOLVE.
- (F) → NCERT READ. + WRONG QUESTION (SOLVE AGAIN).

**THANK
YOU**