

Name _____

Date _____

Max marks-35

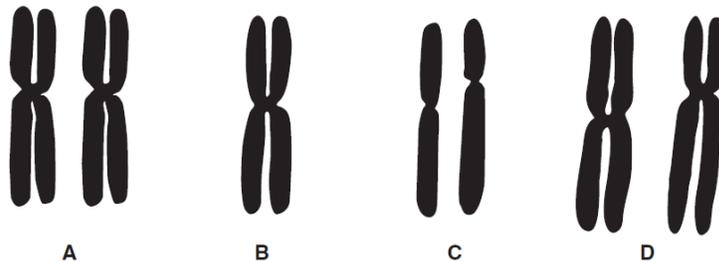
Time 1 hr

I. Choose the correct option.

[5]

1. Which feature is a characteristic of prokaryotic organisms?
 - a. a cell wall
 - b. circular DNA
 - c. mitochondria
 - d. rough endoplasmic reticulum
2. What is meant by *resolution* in light microscopy?
 - a. the product of the magnifications of the eyepiece and the objective lenses
 - b. the shortest distance between two objects that can be seen as separate
 - c. the size of the smallest object that can be seen
 - d. twice the wavelength of the light used to illuminate the specimen
3. The diagram shows chromosomes taken from the nucleus of a cell.

Which diagram represents a pair of homologous chromosomes?



4. An actively growing cell is supplied with radioactive amino acids.

Which cell component would first show an increase in radioactivity?

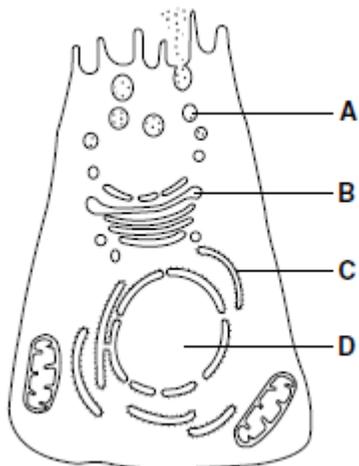
 - a. Golgi body
 - b. mitochondrion
 - c. nucleus
 - d. rough endoplasmic reticulum

5. What occurs in mitosis?

	homologous chromosomes pair	chromosome number remains the same
A	X	✓
B	✓	X
C	X	X
D	✓	✓

6. The diagram is taken from an electron micrograph of a cell which secretes digestive enzymes.

Where are these enzymes made?



7. What is the resolution, in nanometres, of an electron microscope and of a light microscope?

	electron microscope	light microscope
A	0.5	20
B	0.5	200
C	5.0	20
D	5.0	200

8. The diagram shows a diploid cell during mitosis



Which stage of mitosis is shown?

- a. anaphase
 - b. metaphase
 - c. prophase
 - d. telophase
9. What is a difference between a cell in the G1 phase and a cell in the G2 phase of the cell cycle?
- a. A cell in the G2 phase would be smaller than a cell in the G1 phase.
 - b. A cell in the G2 phase would have more mitochondria than a cell in the G1 phase.
 - c. A cell in the G1 phase would have more DNA in its chromosomes than a cell in the G2 phase.
 - d. DNA replication occurs in the G1 phase but not in the G2 phase.
10. Colchicine is a chemical that stops chromatids from separating during mitosis.

Which phase will the cell reach and then stop dividing?

- a. anaphase
- b. metaphase
- c. prophase
- d. telophase

II. Give the correct term for following:

[3]

1. Deposition of thin wall on the inner surface of original wall during secondary growth.
2. Proteinaceous granule like structure associated to centromere.
3. Mass of calcium carbonate contained in leaves of Ficus.
4. Process by which cell divide without spindle formation.
5. Cells where meiosis occurs.
6. Separation of the homologous chromosomes to reach the opposite poles.

III. Name the scientist:

[3]

1. Observed mitochondria
2. Discovered golgi complex
3. Named lysosomes
4. Coined the term mitosis
5. Discovered and described meiosis
6. Discovered electron microscope

IV. Fig. 1.1 shows drawings of a cell at various stages in the mitotic cell cycle.

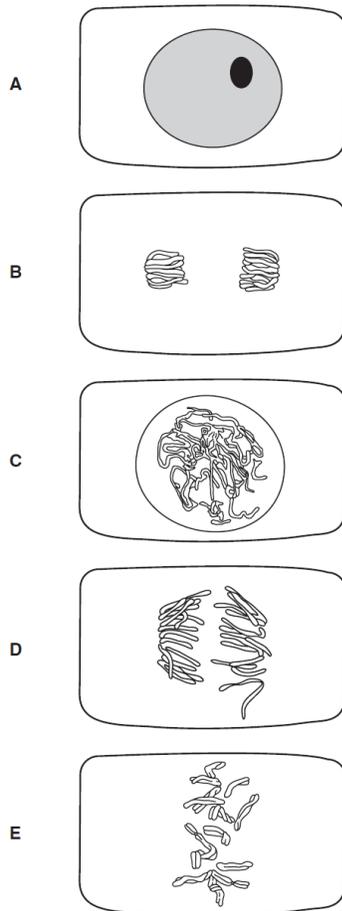


Fig. 1.1

(a) List the letters shown in Fig. 1.1 in the order in which these stages occur during a mitotic cell cycle. The first stage has been entered for you. [1]

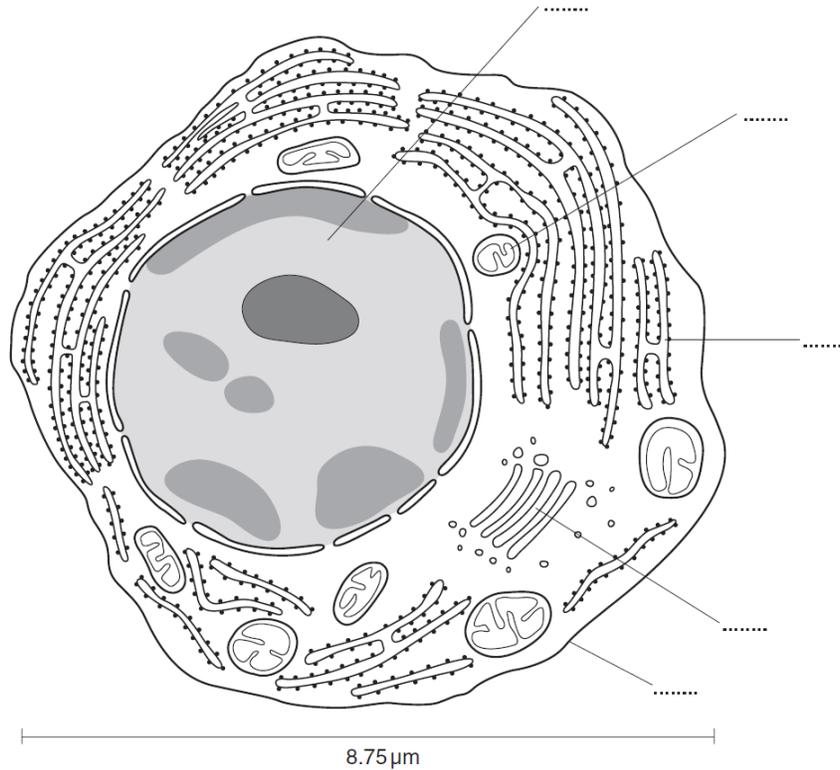
(b) Explain what is happening in stage **D** in Fig. 1.1. [2]

(c) Describe in outline what happens to the DNA in the nucleus during stage A to the next stage.[3]

(d) State the importance of mitosis in the growth of a multicellular organism, such as a flowering plant or a mammal. [1]

V. During an immune response, some B lymphocytes change into plasma cells. [2]

Fig. 3.1 is a drawing made from an electron micrograph of a plasma cell.



Use the label lines and the letters A to E to identify where the following processes occur. (Mark in the paper)

- A transcription
- B polypeptide synthesis
- C aerobic respiration
- D formation of secretory vesicles

VI. Answer the following-

1. What is cyclosis? [1]
2. What is the function of plasmodesmata? [1]
3. What are leucoplasts? [1]
4. What is function of microbodies? [1]

5. Differentiate between euchromatin and heterochromatin. [1]
6. What is karyoplasmic ratio? [1]
7. Give two differences and two similarities between mitochondrion and chloroplasts. [2]
8. State two properties of microscope. [2]
9. Write the chemical composition of cell wall. [2]
10. Differentiate between metaphase I and metaphase II of meiosis. [3]