BIOLOGY

BOOKS - CHETAN BIOLOGY (TAMIL ENGLISH)

LIFE PROCESSES IN LIVING ORGANISMS PART-1

Fill In The Blanks And Explain The Statement

1. After complete oxidation of a glucose molecule, _____ number of ATP molecules are formed.

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2. At the end of glycolysis , _____ molecule are obtained.

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3. Genetic recombination occurs in_____ phase of prophase of meiosis I.

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4. All chromosomes arc arranged parallel t‹› equatorial plane of cell in _____ phase of mitosis.

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5. For formation of plasma membrane, _____ molecules are necessary.

6. Our muscles cells perform _____ type of respiration during exercise.

7. Energy from food is obtained in the form of _____ .

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8. Process of glycolysis occurs in _____ .

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9. Pyruvic acid formed in glycolysis is converted into two molecules of _____ .

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10. Kreb's cycle takes place in

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11. Chemically ATP is triphosphate molecules formed from _____.

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12. ATP is called as _____ of the cell.

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13. Process of glycolysis was discovered by _____.

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14. The cylical reactions of tricarboxylic acid were discovered by _____.

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15. _____ and _____ are two steps of anaerobic respiration.

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16. During exercise, _____ accumulates in the muscles due to which we feel tried.

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17. We get _____ energy for gram of carbohydrates and per gram of protein.

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18. Electron transfer chain reaction is operated in_____ .

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19. Excess of carbohydrates are stored in liver and muscles in the form of _____.

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20. Proteins are the macromolecules formed by bonding together many _____.

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21. _____ are obtained after digestion of proteins.

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22. Excess protein are converted into glucose by the process of _____.

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23. An enzyme _____ present in the plant chloroplasts is most abundant protein found in nature.

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24. The substances formed by specific chemical bond between fatty acids and alcohol are called as _____.

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25. _____ are required to form the covering around the axons of nerve cells.

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26. We get _____of energy per gram of lipids.

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27. Excess of lipids are stored in _____ in the body.

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28. _____ are mainly utilized for production of energy required for daily need.

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29. There is about _____ water in our body.

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30. _____ occurs in formatic cells and stem cells.

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31. The two main steps of cell division are _____ and _____

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32. Condensation of thin thread like chromosomes starts in _____.

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33. Nuclear membrane completely disappears in _____.

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34. Special type of flexible protein fibres called _____ are formed between centromere of each chromosomes and both centrioles.

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35. Chromosomes complete their condensation and become clearly visible along with their sister chromatids during _____.

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36. The chromosomes reach opposite poles of the cell and starts to decondense during _____.

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37. _____ is essential for growth , restoration of emaciated body wound healing, formation of blood cells, etc.

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38. In _____ , recombination/crossing over occurs between homologous chromosomes.

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39. Process of gamete formation and spore formation occurs by _____.

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40. Proteins of animal origin are called _____ proteins.

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Complete The Correlation

1. Carbohydrates : 4 Kcal of energy :: Lipids : _____.

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2. Glycolysis: Cytoplasm : : Tricarboxylic acid cycle: _____.

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3. $NADH_2$: 3molecules of ATP:: $FADH_2$: _____

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4. $NADH_2$: Nicotinamide Adenine Dinucleotide : : $FADH_2$: _____ .

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5. Glycolysis: Cytoplasm : : Tricarboxylic acid cycle: _____.

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6. Fats : Fatty acids : : Proteins : _____

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7. Vitamins A, D, E, K , Fat-soluble : : Vitamins B and C : _____.

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8. Mitosis : Somatic cells : : Meiosis : _____

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9. Nuclear division : karyokinesis : : Cytoplasmic division : _____

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10. Blood : Haemoglobin : : Bones : _____.

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11. Vitamin B :Nicotinamide::Vitamin B_2 : _____.

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12. Fermentation of yeast : Alcohol : : Fermentation of erythrocytes: _____.

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Match The Following

1. Match the following columns

Column A	Column B
(1) Aerobic respiration	(a) Nuclear division
(2) Anaerobic respiration	(b) Oxygen is involved
(3) Karyokinesis	(c) Cytoplasmic division
(4) Cytokinesis	(d) Oxygen is not involved

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2. Match the following columns

(2)

Column A	Column B
(1) Formation of spindle fibres	(a) Prophase
(2) Sister chromatids are pulled apart	(b) Telophase
(3) Nuclear membrane and nucleolus reappear	(c) Metaphase
(4) Centrioles duplicate and move to opposite poles	(d) Anaphase

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3. Match the following columns

Column A	Column B
(1) Actin and Myosin	(a) Pancreas
(2) Ossein	(b) Skin
(3) Insulin	(c) Bones
(4) Melanin	(d) Muscles

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True And False

1. Only food stuff is sufficient for energy production

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2. Process of glycolysis occurs in _____ .

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3. _____ are obtained after digestion of proteins.

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4. Meiosis occurs in somatic cells and stem cells of the body.

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5. Nucleolus does not appear in each daughter nucleus.

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6. Meiosis II is .....

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7. We get 9 Kcal of energy per gram of carbohydrates

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8. Tricarboxylic acid cycle (Kreb's cycle) occurs in mitochondria.

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9. Glycolysis is also called Kreb's cycle.

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10. During anaerobic respiration of muscles, citric acid accumulates in the muscles due to which we feel tired.

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11. Glucose is incompletely oxidised in anaerobic respiration.

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12. Proteins of plant origin are called as first class proteins

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13. Excess of amino acids obtained from proteins are not stored in the body.

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14. We get 4 Kcal of energy per gram of lipids.

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15. Each cell contains 50% water by weight.

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16. Blood plasma contains 90% of water.

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17. Vitamins B and C are water - Soluble vitamins

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18. We can digest fibres.

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19. 2 molecules of ATP are obtained from each $FADH_2$, molecule.

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20. Before cell division , the cell doubles up its chromosome number.

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21. All chromosomes are arranged parallel to the equatorial plane of the cell in anaphase.

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22. Condensation of thin thread like chromosomes starts in telophase.

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23. Sister chromatids are pulled apart in metaphase.

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24. Plant cell divides by formation of a notch at the equatorial plane of the cell.

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25. Seeds perform anaerobic respiration if submerged under water during germination.

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Name The Following

1. Organ systems performing their functions in human body.

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2. Main sources of energy needed to perform organ systems.

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3. Two methods of cellular respiration.

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4. Enzymes formed in the cells and used in celluar respiration

5. Three scientists who discovered process of glycolysis

6. Scientist who discovered cyclical reaction of TCA cycle

7. Two steps of anaerobic respiration .

8. Process throuth which excess of proteins are converted into other useful substances like

glucose

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9. Six type of vitamins

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10. Fat soluble vitamins

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11. Water soluble vitamins

12. Two types of cell division

13. Two steps of Meiosis

14. For steps of karyokinesis

15. Two steps of Meiosis

16. Most abundant protein found in nature.

17. Energy currency of the cell is

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18. Phase in which chromosomes reach opposite poles of the cell

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19. Protein found in skin

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20. Protein found in muscles

Full Form

1. Write the full form of FAD

2. Write the full form of FMN

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3. Write the full form of NADP

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4. Write the full form of TCA cycle

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5. Write the full form of $NADH_2$

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6. Write the full form of $FADH_2$

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7. Write the full form of EMP pathway

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8. Write the full form of ATP

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9. Write the full form of RuBisCO

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Mcqs

1. Which of the following protein is present in skin?

A. Haemoglobin

B. Insulin

C. Keratin

D. Ossein

Answer: C

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2. Which one of the folowing vitamin is not fat soluble?

A. D

B. K

C. A

D. C

Answer: D

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3. Water content of Blood Plasma is .....

A. 70 %

B. 90 %

C. 65 %

D. 50 %

Answer: B

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4. In which stage the nuclear membrane completely disappears during nuclear division?

A. prophase

B. Metaphase

C. Anaphase

D. Telophase

Answer: B

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5. Number of chromosomes in diploid cell .....

A. n

B. 3n

C. $\frac{n}{2}$

D. 2n

Answer: D

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6. In which type of cells meiosis occurs?

A. Germ cells

B. Stem cells

C. Somatic cells

D. Epithelial cell

Answer: A

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7. Which vitamin is called riboflavin?

A. A

B. B_5

C. B_2

D. C

Answer: C

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8. In which part of cell, electron transfer chain reaction occurs?

A. Cytoplasm

B. Mitochondria

C. Nucleus

D. Golgi body

Answer: B

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9. Which of the following vitamins are required for the production of $FADH_2$ and $NADH_2$?

A. Vitamin E

B. Nicotinamide

C. Vitamin C

D. Vitamin D

Answer: B

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10. The protein ossein is produced in .....

A. blood

B. muscles

C. bone

D. pancreas

Answer: C

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11. The Spindle fibres start appearing from ..... Stage of karyokinesis.

A. Prophase

B. Metaphase

C. Anaphase

D. Telophase

Answer: B

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12. In case of plants, Which of the following is not present during cytokinesis?

A. (a) Spindle fibres

B. (b) Cell plate

C. (c) Chromosomes

D. (d) Nucleolus

Answer: A

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Define

1. Define the Nutritions

2. Define the Nutritions

3. Define the Proteins

4. Define the Cellular respiration

5. Define the Aerobic respiration

6. Define the Glycolysis

7. Define the Fermentation

8. Define the Lipids

9. Define the Homologous Chromosomes

10. Define the Vitamins

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11. Define the Anaerobic Respiration.

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12. Define the Coenzyme

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13. Define the Gluconeogenesis

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Answer In One Or Two Sentences

1. How many atoms of C, H and O are respectively present in a molecules of glucose ?

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2. Which type of chemical bonds are present between all atoms in a molecule of glucose ?

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3. How much energy do we get from carbohydrates , lipids and protein ?

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4. What do you mean by diploid cell ?

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5. What do you mean by haploid cell ?

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6. Which type of cellular respiration performs complete oxidation of glucose?

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7. Which cell organelle is necessary for complete oxidation of glucose?

8. What is the importance of balanced diet for our body?

9. What is the importance of digestive juices in the digestive system ?

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10. What is the role of circulatory system in enengy production ?

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11. What happens to the cells of injured tissue ?

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12. what is the source of proteins ? What are they made up of ?

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13. Whether new cells are formed during healing of wound ?

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14. Which system is in action for removal of waste materials produced in human body.

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15. How the indivdual of a species is formed from existing one of same species ?

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16. Whether the gametes are diploid or haploid ? Why ?

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17. How are the haploid cells formed ?

Watch Video Solution

18. What is the importance of halpoid cells ?

Watch Video Solution

19. From where do we obtain lipids ?

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Short Note

1. Write short note on Adenosine triphosphate (ATP)

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2. Write short note on Proteins

Watch Video Solution

3. Write short note on Vitamins

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Distinguish Between

1. Distinguish between Glycolysis and TCA cycle

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2. Distinguish between Mitosis and Meiosis

Watch Video Solution

3. Distinguish between Aerobic and Anerobic respiration .

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4. Distinguish between Telophase and Prophase

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Give Scientific Reasons

1. Oxygen is necessary for complete oxidation of glucose .

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2. Fibres are one of the important nutrients.

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3. Cell division is one of the important properties of cells and organisms.

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4. Sometimes , higher plants and animals too perform anaerobic respiration .

5. Kreb's cycle is also known as citric acid cycle.

6. We feel tired when we exercise.

7. Water is an essential nutrient.

8. Many times, we experience dryness in mouth.

9. Oral rehydration solution (salt-sugar-water) is frequently given to a person experiencing loose motions.

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10. We sweat during summer and heavy exercise.

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11. Many times, you cannot eat hot food due to inflammation/ulceration in mouth.

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12. Some persons experience difficulty in night vision since their childhood or adolescence.

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What Would Happen If

1. What would happen if Soil with seeds is submerged under water during germination.

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2. What would happen if there is insufficient amount of carbohydrates in body due to exceptional conditions like fasting and hunger.

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Draw A Neat Labelled Diagram

1. Draw a neat labelled diagram of Human respiratory system.

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2. Draw a neat labelled diagram of Mitochondria and Tri-carboxylic acid cycle.

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Answer The Following

1. Explain glycolysis in detail .

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2. How are the various processes occurring in the human body controlled ? In how many ways ?

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3. In terms of chemistry what happens actually , when a molecule is oxidized ?

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4. Do the plants get injured when we pluck the flowers ? How are those wounds healed ?

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5. How does the growth of any living organism occur ? Does the number of cells in their body increase? If yes, how ?

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6. What is the shape of a chromosome ? Give its name in the figure.

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7. What is respiration ? How does it occur ?

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8. How are the food stuffs and their nutrient contents useful for body ?

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9. Which different functions are performed by muscle in body ?

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10. Why may be the players seen consuming these food stuffs?

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Complete The Given Table

1. Anaerobic respiration in living organisms/cells

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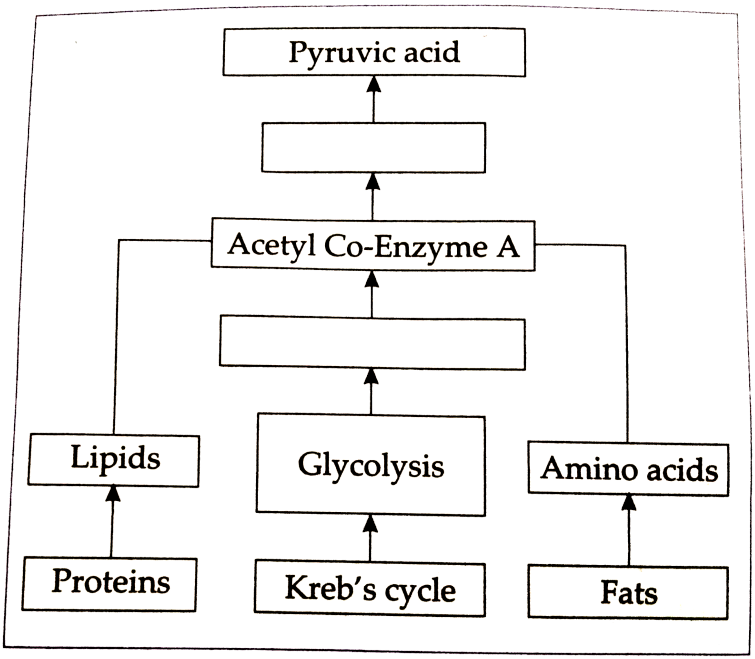
2. How energy is formed from oxidation of carbohydrates , fats and protein? Correct the

diagram given below.



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3. Give examples of different proteins from in various parts of our body from amino acids:

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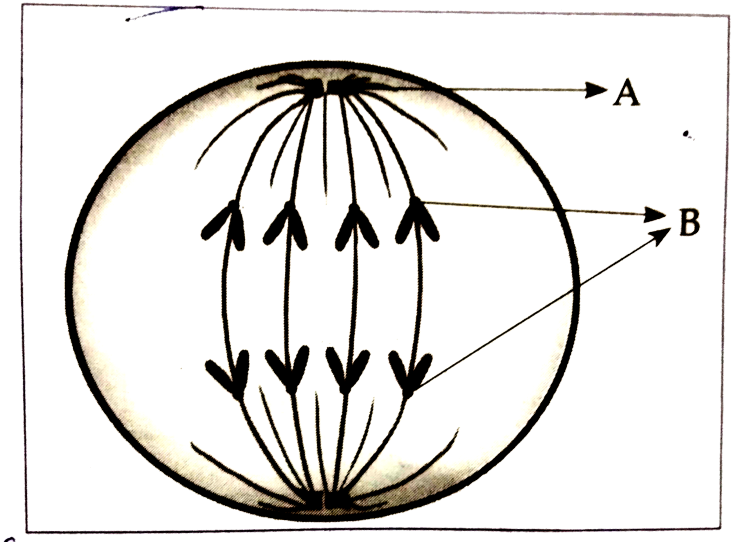
Observe The Figure And Answer The Question

1. Observe the figure and answer the question



Label the parts A and B.

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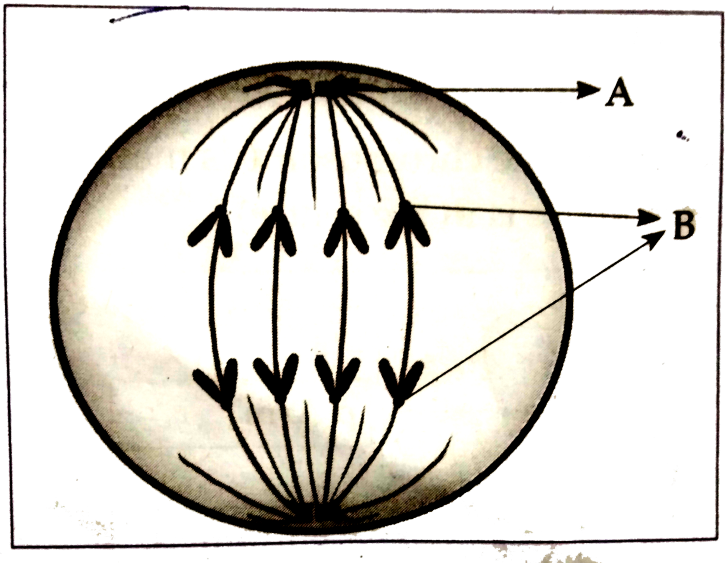
2. Observe the figure and answer the question



Identify the phase of cellular division.

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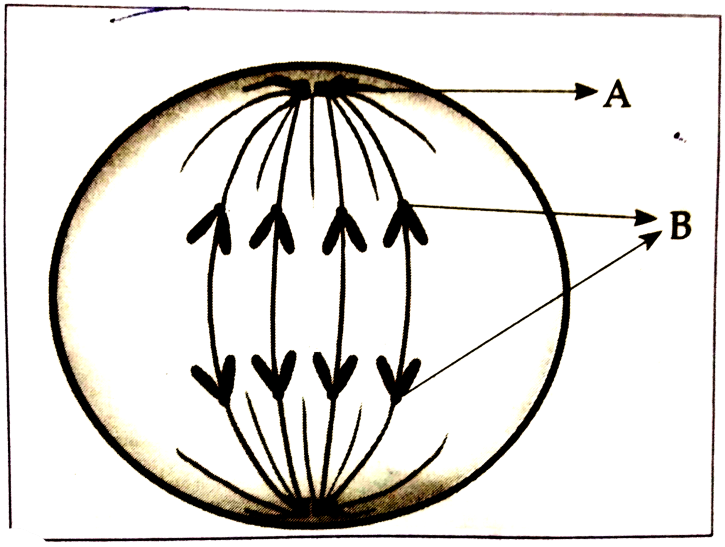
3. Observe the figure and answer the question



What pahse comes before this phase ?

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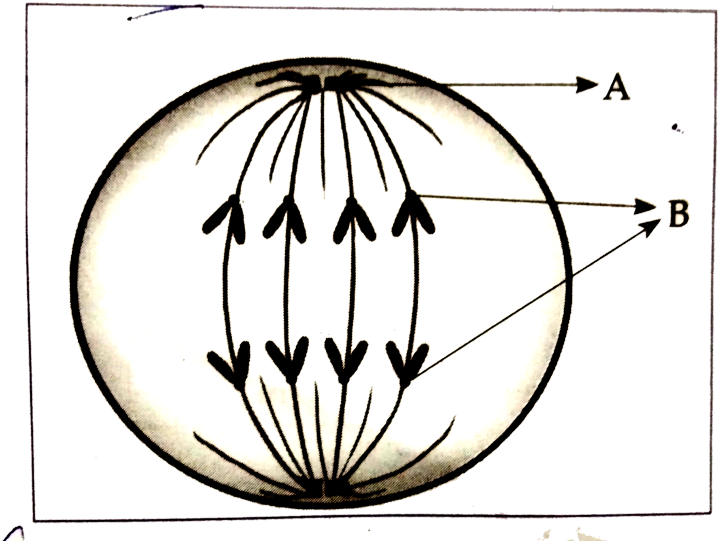
4. Observe the figure and answer the question



Define the term Karyokinesis.

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5.

$$\text{Glucose} \longrightarrow \underset{\downarrow}{\underset{A}{}} \text{Pyruvic acid} \longrightarrow \underset{\downarrow}{\underset{B}{}} \text{Alcohol} \rightarrow \text{Yeast}$$

Name the process A and B.

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6.

$$\text{Glucose} \longrightarrow \underset{\downarrow}{\underset{A}{}} \text{Pyruvic acid} \longrightarrow \underset{\downarrow}{\underset{B}{}} \text{Alcohol} \rightarrow \text{Yeast}$$

what type of energy production is shown above ?

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7.

$$\text{Glucose} \longrightarrow \underset{A}{\downarrow} \text{Pyruvic acid} \longrightarrow \underset{B}{\downarrow} \text{Alcohol} \rightarrow \text{Yeast}$$

Name the process A and B.

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Answer In Detail

1. With the help of suitable diagrams explain the mitosis in detail.

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2. With the help of suitable diagrams, explain the five stages of prophase I of meiosis.

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3. How all the life processes contribute to the growth and development of the body ?

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4. Explain the Kreb's cycle with reaction.

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5. What are lipids ? What is their role in our body ?

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6. Describe anaerobic respiration.

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7. Energy currency of the cell is

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8. Explain the importance of ATP in a cell with a diagram.

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Assignment 2

1. Our muscle cells perform ..... Type of respiration during exercise.

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2. Write the full form of NADH.

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3. Name the water soluble vitamins.

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4. Water content of Blood Plasma is .....

A. (a) 70 %

B. (b) 90 %

C. (c) 65 %

D. (d) 50 %

Answer:

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5. In which part of cell, electron transfer chain reaction occurs?

A. (a) Cytoplasm

B. (b) Mitochondria

C. (c) Nucleus

D. (d) Golgi body

Answer:

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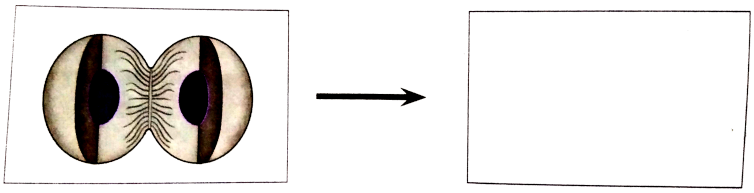
6. Complete the diagram



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7. Give the Metaphase and Telophase of Mitosis

.

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8. What are proteins ? What is their role in our body ?

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9. How are the various processes occurring in the human body controlled ? In how many ways ?

Watch Video Solution

10. Explain glycolysis in detail .

Watch Video Solution

11. With the help of suitable diagrams, explain the five stages of prophase I of meiosis.

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