BIOLOGY

BOOKS - TARGET PUBLICATION

LIFE PROCESSES IN LIVING ORGANISMS PART - 1

Choose The Correct Alternative

1. We get _____ energy from carbohydrates.

A. 2 Kcal

B. 4 Kcal

C. 8 Kcal

D. 9Kcal

Answer: B

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2. Which of the following molecules is NOT produced during glycolysis ?

A. $NADH_2$

B. ATP

C. $FADH_2$

D. H_2O

Answer: C

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3. Electron transfer chain operates only in the

_____

A. nucleolus

B. Golgi complex

C. mitochondria

D. cytoplasm

Answer: B

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4. Which of the following is NOT a step of anaerobic respriration ?

A. Glycolysis

B. Fermentation

C. TCA

D. Both (A) and (C)

Answer: C

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

A. amino acids

B. glycogen

C. fatty acids

D. nucleotides

Answer: B

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6. Amino acids are obtained after digestion of

A. carbohydrates

B. proteins

C. lipids

D. nucleic acids

Answer: B

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7. Which of the following is a protein present in bones?

A. Myosin

B. Melanin

C. Hemoglobin

D. Ossein

Answer: D

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8. Excess lipids are stored in _____ tissue in the body .

A. nerve

B. bone

C. adipose connective

D. fluid connective

Answer: C

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9. Which of the following vitamins is essential for the synthesis of $NADH_2$?

A. Vitamin B_5

B. Vitamin C

C. Vitamin B_3

D. Vitamin K

Answer: A

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10. State whether the following statements and True or False. Correct the false statements:

Meiosis occurs in somatic cells and steam cells of the body.

A. meiosis

B. mitosis

C. budding

D. cloning

Answer: B

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11. Spindle fibers attach to which part of the chromosome ?

p arm

q arm

centromere

centriole

A. q-arm

B. p-arm

C. Centromere

D. Centriole

Answer: C

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12. Which of the following is the first phase of karyokinesis ?

A. Anaphase

B. Telophase

C. Metaphase

D. Prophase

Answer: D

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

A. pachytene

B. metaphase

C. diplotene

D. telophase

Answer: B

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14. During metaphase this change occurs in the chromosomes

A. get coil shape

B. arranged parallel to the equatorial plane

C. get destroyed due to breaking

D. get folded

Answer: B

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15. In this stage of mitosis, the daughter chromosomes appear like bunch of bananas.

A. Prophase

B. Metaphase

C. Anaphase

D. Telophase

Answer: C

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16. In anaphase, the _____ split and the sister chromatids are pulled apart in opposite directions with the help of spindle fibers.

A. central plane

B. centrioles

C. centromeres

D. nucleolus

Answer: C

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17. Cell plate formation occurs during

A. karyokinesis in animal cells

B. cytokinesis in plant cells

C. karyokinesis in plant cells

D. cytokinesis in animal cells

Answer: B

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18. How many times will a cell have to divide mitotically to form 128 cells ?

A. 7

B. 14

C. 28

D. 32

Answer: A

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19. Which of the following is NOT a part of mitosis ?

A. Anaphase

B. Diplotene

C. Prophase

D. cytokinesis in animal cells

Answer: B

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20. Number of chromosomes in diploid cell _____.

A. n

B. 2n

C. 3n

D. 4n

Answer: B

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21. Identify the phase of mitosis in which onion root tips stained with iodine show daughter chromatids.

A. Metaphase

B. Prophase

C. Anaphase

D. All of the above

Answer: C

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Complete Theparagraph

1. Cell division by meiosis is completed through _____stages. Recombination during meiosis occurs between _____ chromosomes._____ resembles the process of mitosis. During meiosis-I , two _____ daughter cells are formed, whereas during meiosis-II, _____ haploid cells are formed. All daughter cells formed through meiosisare genetically

_____ with respect to present cells dueto genetic recombination.

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Name The Following

1. Nutrient obtained from milk and sweet potatoes.

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2. Energy currency of the cell

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3. Other name for glycolysis

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4. Scientist who discovered cyclical reaction of TCA cycle.

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5. Product of pyruvic acid fermentation in erythrocytes and muscle cells

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6. Common step of aerobic and anaerobic respiration.

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7. Protein of animal origin.

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

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9. The process by which plants produce amino acids from minerals.

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10. Flexible muscular protein

Watch Video Solution

11. Fat soluble vitamins

Watch Video Solution

12. Process through which excess of proteins are converted into other useful susbtances like glucose

 Watch Video Solution

13. Most abuntant protein found in nature.

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14. Molecules formed from fatty acids and essential for producing plasma membrane.

Watch Video Solution

15. What are the defining properties of living organisms.

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16. In which type of cells meiosis occurs?

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17. Step of nuclear division in mitosis.

Watch Video Solution

18. Process by which four haploid cells are formed from on diploid cell.

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True Or False

1. State whether the following statements and True or False. Correct the false statements:

Glucose is incompletely oxidised in anaerobic respiration.

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2. Oxidation of glucose is a type of cellular respiration.

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3. Our muscles cells perform ____ type of respiration during exercise.

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4. Aerobic respiration occurs via three steps namely Glycolysis, Fermentation and Electron Transfer Chain.

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5. In ATP,energy is stored in the bonds that join phosphate groups.

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6. Chemically, ATP is triphosphate molecule formed from aspartame ribonucleoside.

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7. Two steps of anaerobic respiration

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8. Seeds perform aerobic respiration in soil, if surmerged under water during germination.

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9. Substances formed by specific chemical bonds between fatty acids and alcohol are called proteins.

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10. 4 Kcal of energy is obtained per gram of lipid.

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11. State whether the following statements and True or False. Correct the false statements:

Vitamins B and C are water - soluble vitamins.

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12. State whether the following statements and True or False. Correct the false statements:

Blood plasma contains 90% of water.

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13. In telophase, the nucleolus reappears in wach daughter nucleus and the spindle fibers disappear completely.

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14. Cell division by meiosis is completed through _____stages. Recombination during meiosis occurs between _____ chromosomes._____ resembles the process of mitosis. During meiosis-I , two _____ daughter cells are formed, whereas during meiosis-II, _____ haploid cells are formed. All daughter cells formed through meiosisare genetically _____ with respect to present cells dueto genetic recombination.

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15. State whether the following statements and True or False. Correct the false statements:

Meiosis occurs in somatic cells and steam cells of the body.

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16. Gamete production and spore formation occurs by meiosis.

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Odd One Out

1. $NADH_2$: 2 molecules of ATP: : FADH_2`

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2. Zygotene , Diplotene, Metaphase, Pachyetene

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Complete The Analogy

1. TCA cycle : Mitochondria : : Glycolysis :_____

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

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3. Fats : Fatty acids : : Proteins : _____.

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4. Myosin Protein found in

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5. _____ are reaquired to form the covering around the axons of nerve cells.

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6. Nicotinamide : $NADH_2$: : Riboflavin :_____.

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7. Nuclear division : karyokinesis : : Cytoplasmic division : _____.

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Match The Following

1. Match the following columns

	Column I		Column II
i.	Glycolysis	a.	Conversion of Pyruvic acid to acetyl-CoA
ii.	Gluconeogenesis	b.	Production of pyruvic acid
		c.	Conversion of proteins into glucose
		d.	Production of lactic acid

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2. Match the following columns

	Column I		Column II
i.	Mitosis	a.	Genetic recombination
ii.	Meiosis	b.	Formation of fatty acids from lipids
		c.	Growth of body

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3. Match the following columns

	Column I		Column II
i.	Glycolysis	a.	Conversion of Pyruvic acid to acetyl-CoA
ii.	Gluconeogenesis	b.	Production of pyruvic acid
		c.	Conversion of proteins into glucose
		d.	Production of lactic acid

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4. Match the following columns

	Column I		Column II
i.	One molecule of $FADH_2$	a.	3 ATP molecules
ii.	One molecule of $NADH_2$	b.	38 ATP molecules
		c.	2 ATP molecules

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5. Match the following columns

	Column I		Column II
i.	Haemoglobin	a.	Skin
ii.	Ossein	b.	Blood
		c.	Bones

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Answer The Following

1. What are the various system of the human body ?

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2. What are the main sources of energy in the human body ?

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3. Which cell organelle is responsible for harvesting cellular energy in human body ?

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4. What are autotrophs ?

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5. Give four examples of nutrients obtained by consumption of plant materials.

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6. Give examples of food materials that are a source of carbohydrates.

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7. What is the difference between body level and cellular level of respiration ?

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8. Two methods of cellular respiration

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9. Answer the following:

Explain glycolysis in detail.

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10. Explain Krebs cycle with reaction.

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11. Explain how ATP is formed through the electron transport chain.

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12. Mention any four molecules present in the process of aerobic respiration.

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13. What is ATP composed of ?

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

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15. What are the main sources of energy in the human body ?

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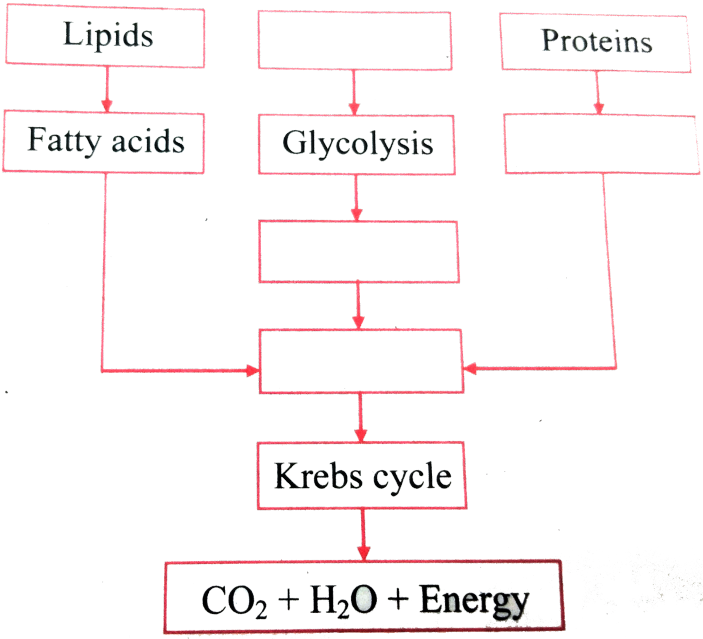
16. Complete the following chart and state which process of energy production it

represents :



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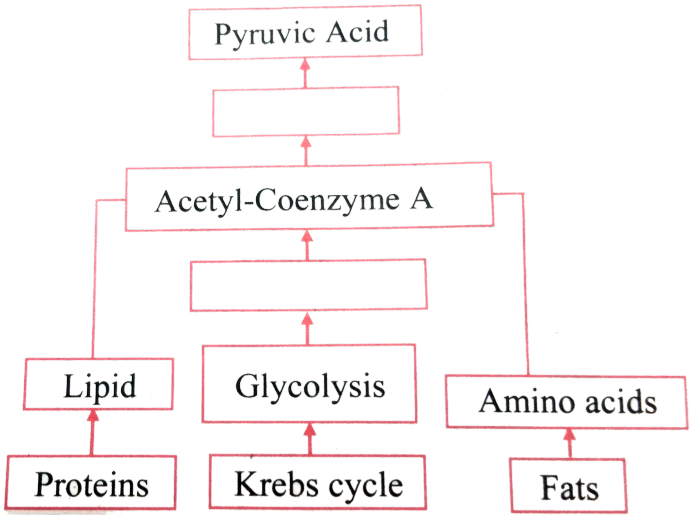
17. How energy is formed from oxidation of carbohydrates , fats and proteins ?Correct the

diagram given below.



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18. What is fermentation ?

OR

Which type of respiration involves the process of fermentation ?

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19. Why we get tired on quick exercise ?

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20. Anaerobic respiration in living organisms/ cells

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21. What is the fate of excess amino acids present in the body ?

 Watch Video Solution

22. What are the products of digestion of lipids ?

 Watch Video Solution

23. Give four examples of hormones produced by using fatty acids.

Watch Video Solution

24. Six types of vitamins

Watch Video Solution

25. Write a short note on vitamins.

Watch Video Solution

26. Six types of vitamins

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27. Two types of cell division

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28. Answer in detail:

With the help of suitable diagrams explain the

mitosis in detail.

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29. What is the significance of mitosis ?

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30. With the help of sutiable diagram, explain the five stages of prophase I of meiosis.

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

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32. At the end of glycolysis, ____ molecules are obtained.

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33. Genetic recombination occurs in _____ phase of prophase of meiosis I.

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34. All chromosomes are arranged parallel to equatorial plane of cell in ____ phase of mitosis.

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

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36. Our muscles cells perform ___ type of respiration during exercise.

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37. Write definitions.

i. Nutrition ii. Nutrients

iii. Proteins iv. Cellular respiration

v. Aerobic respiration vi. Glycolysis.

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

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39. Nicotinamide $: NADH_2 : :$ Riboflavin $:$_____.

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40. 4 Kcal of energy is obtained per gram of lipid.

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41. Find the odd man out:

Propane, Methane, Ethene, Pentane.

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42. Give four examples of hormones produced by using fatty acids.

Watch Video Solution

43. Define nutrients and give two examples.

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44. What are the products of digestion of lipids ?

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45. Explain with the help of a diagram - ATP is called as the energy currency of the cell. OR Explain the importance of ATP in a cell with a diagram.

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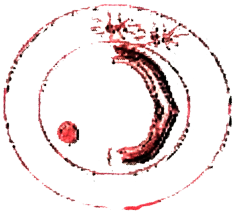
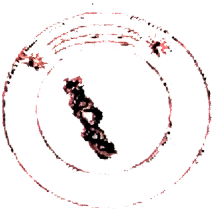
46. Explain the three stages of prophase-I of meiosis shown in the diagrams given below .

'Figure A'



'Figure B'



'Figure C'

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47. Define the following: Aerobic respiration

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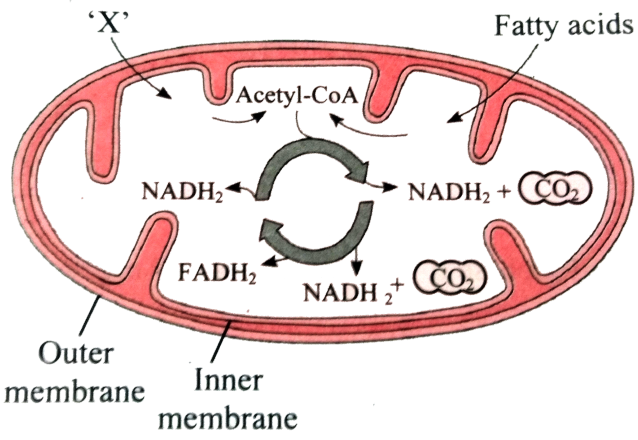
48. Observe the given diagram and answer the questions given below it.



Krebs cycle

a. Mention the cell organelle shown in the diagrams.

b. Which energy rich molecules are synthesized during Krebs cycle ?

c. Identify the compound 'X' which is a product of glycolysis that is utilised in Krebs cycle.

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49. Explain in details, the process of karyokinesis occurring during mitosis.

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50. Cellular respiration is the oxidation of foodstuffs for the production of energy.

During aerobic respiration, complete oxidation of glucose takes place.Contradictor to this, glucose is incompletely oxidized durin anaerobic respiration . Many microbesare capacble of surviving anaerobically in environments that lack oxygen. Anaerobic respiration occurs via two steps,namely glycolysis and fermentation. The pyruvic acid formed during glycolysis is converted to organic acids or alcohols during anaerobic process. higher animals and plants, or seeds submerged in soil under water are capable of performing anaerobic respiration, when the

oxygen levels are depleted .Even body cells like erythrocytes and mscle cells perform anaerobic respiration.

Considering that only glycolysis is generating energy currency , how many ATP would be formed during anaerobic respiration?

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51. Cellular respiration is the oxidation of foodstuffs for the production of energy. During aerobic respiration, complete oxidation

of glucose takes place.Contradictor to this, glucose is incompletely oxidized durin anaerobic respiration . Many microbesare capacble of surviving anaerobically in environments that lack oxygen. Anaerobic respiration occurs via two steps,namely glycolysis and fermentation. The pyruvic acid formed during glycolysis is converted to organic acids or alcohols during anaerobic process. higher animals and plants, or seeds submerged in soil under water are capable ofperforming anaerobic respiration, when the oxygen levels are depleted .Even body cells like

erythrocytes and mscle cells perform anaerobic respiration.

How does anaerobic respiration occur in yeast?

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52. Give any two examples of products formed by fermentation.

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53. Define anaerobic respiration.

Watch Video Solution

54. Cellular respiration is the oxidation of foodstuffs for the production of energy. During aerobic respiration, complete oxidation of glucose takes place.Contradictor to this, glucose is incompletely oxidized durin anaerobic respiration . Many microbesare capacble of surviving anaerobically in

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Seeds sown in soid inmarshy lands having

high water content would perform which type of cellular respiration during germination ?

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Give Reason

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

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2. Give scientific reasons:

Oxygen is necessary for complete oxidation of glucose.

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

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4. Water is an essential nutrient.

5. Fibers are one of the important nutrients.

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

Distinguish Between

1. Distinguish between

Glycolysis and TCA cycle

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2. Distinguish between

Aerobic and Anaerobic respiration

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3. Distinguish between

Telophase and Prophase

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4. Distinguish between

Mitosis and Meiosis

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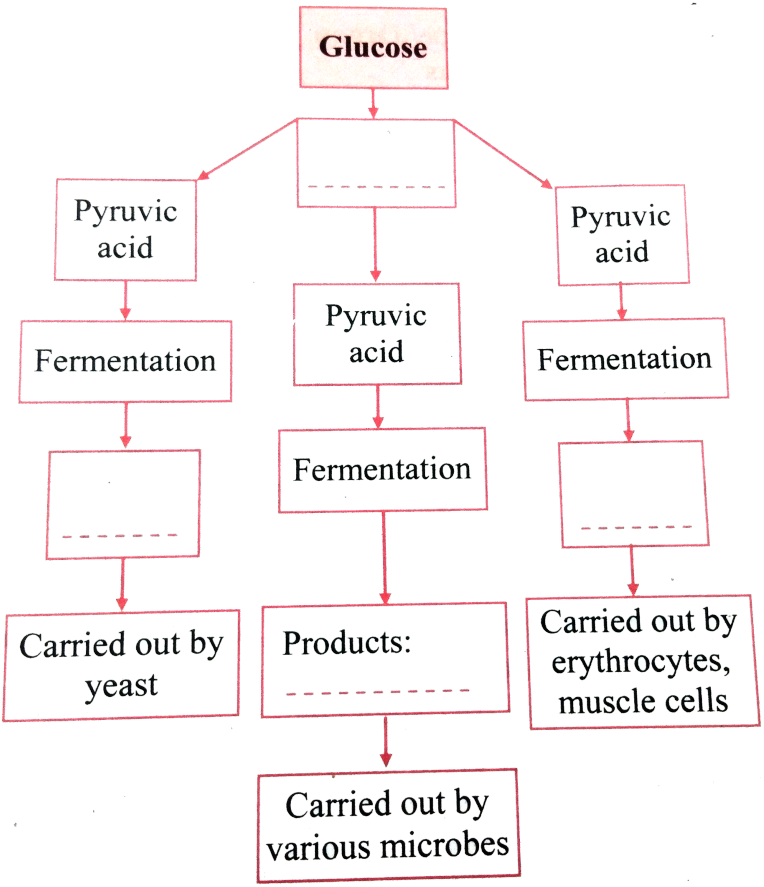
Complete The Given Chart Table

1. Complete the following chart.



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2. Complete the following chart by filling the names of proteins or respective cell types / organs in which they are produced.

	Cell type/ Organ	Protein
i.	----------	Insulin and trypsin
ii.	Cells	Various proteins of cell membrane and various enzymes
iii.	Pituitary glands	----------
iv.	----------	Actin and myosin
v.	----------	Hemoglobin and antibodies
vi.	----------	Melanin and keratin
vii.	Bones	----------

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Questions Based On Diagram

1. Draw a neat labelled diagram of:

Mitochondria and Tri-carboxylic acid cycle.

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2. Draw neat and labelled diagram of ATP.

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3. Draw a neat diagram of the structure of chromosome and label the parts :

i. centromere ii. p-arm

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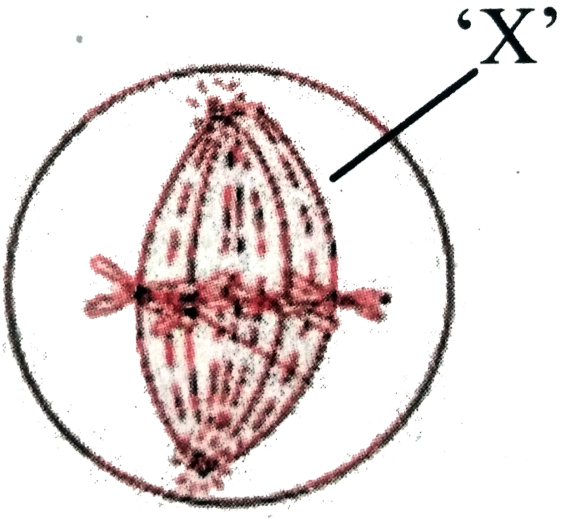
4. Observe the given diagram . Identify the phase of mitosis and the part labelled as 'X' in the diagram.



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5. Draw neat and labelled diagram of anaphase.

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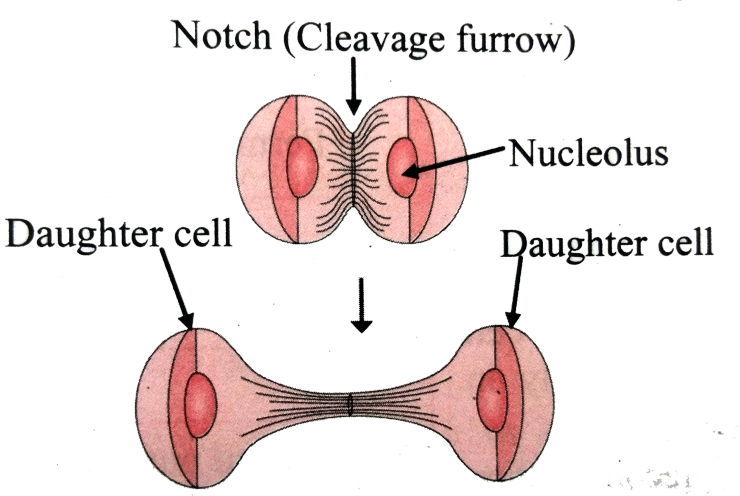
6. Observe the given diagram and explain the depicted process in your own words.



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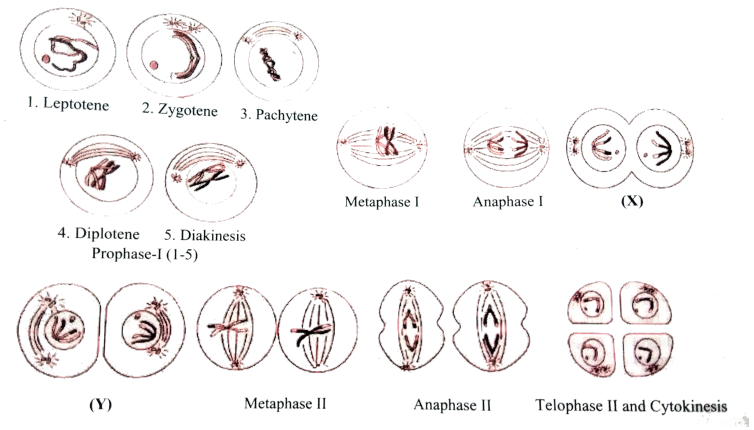
7. Observe the diagram and answer the questions given below it.



Identify the types of cell division shown in the figure.

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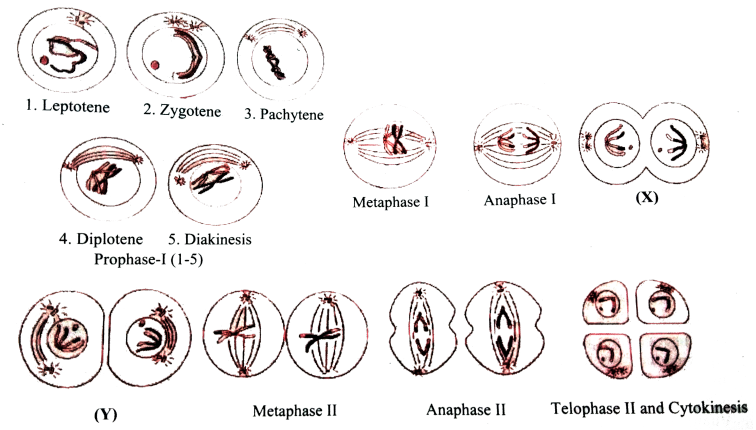
8. Observe the diagram and answer the questions given below it.



Identify the stages of cell division represented by X and Y .

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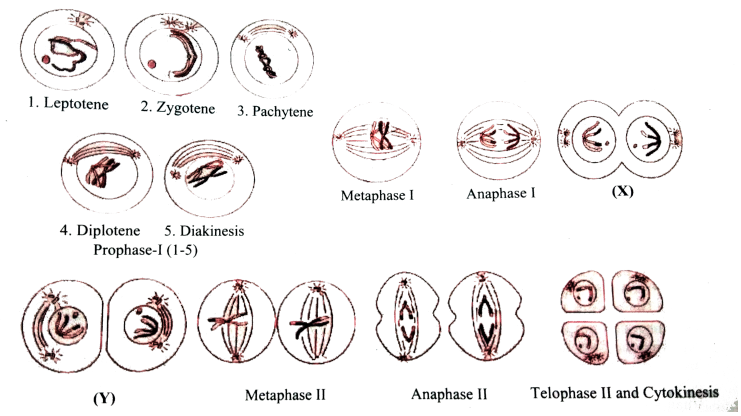
9. Observe the diagram and answer the questions given below it.



Which types of cells divide by the given process shown in the diagram?

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Questions Based On Paragraph

1. In eukaryotes, the process of division of a somatic parent cell into two daughter cells is known as mitosis. During the M or mitosis phase of a cell cycle, the chromosomes present in the nucleus are separated into two identical sets, which eventually form two daughter nuclei. This is followed by cytokinesis. Onion root tips are most commonly used to observe the different stages of mitosis in the laboratory. Each onion cell contains a total of eight chromosomes. DNA specific stains are used to visualise these

chromosomes in different phases of mitosis.

Name the stain that can be used to observe the different phases of mitosis.

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2. In eukaryotes, the process of division of a somatic parent cell into two daughter cells is known as mitosis. During the M or mitosis phase of a cell cycle, the chromosomes present in the nucleus are separated into two identical sets, which eventually form two

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Chapter Assessment

1. Step of nuclear division in mitosis.

A. diakinesis

B. karyokinesis

C. cytokinesis

D. recombination

Answer:

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2. In mitosis, a cell having 2n chromosomes, would form daughter cells having how many chromosomes ?

A. n

B. 2n

C. 3n

D. 4n

Answer:

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3. In case of plants, which of the following is not present during cytokinesis?

A. Spindle fibers

B. Chromosomes

C. Cell plate

D. Nucleolus

Answer:

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4. Which of the following molecules is NOT produced during glycolysis ?

A. $NADH_2$

B. H_2O

C. ATP

D. $FADH_2$

Answer:

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Given Scientific Reasons

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

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

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