BIOLOGY

BOOKS - EVERGREEN BIOLOGY (ENGLISH)

SAMPLE PAPER - 4 (BIOLOGY)

Section I

1. Proteins that bind and package DNA .

A. Nucleosomes

B. Chromatins

C. Telomerases

D. Histones

Answer: D

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2. Plant with variegated leaves.

A. Lotus

B. Papaya

C. Hoya kerrii

D. Croton

Answer: D

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3. Process against concentration gradient

A. Osmosis

B. Translocation

C. Diffusion

D. Transpiration

Answer: A

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4. Relative concentration of two solution to determine extent of diffusion

A. Humidity

B. Tonocity

C. Turgidity

D. Flaccidity

Answer: B

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5. A plant in which stomata are sunken

A. Xerophytes

B. Conifers

C. Thallophytes

D. Streptophyta

Answer: A

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6. _____are the essential needs for photosynthesis.

A. Chlorophyll and O_2

B. Sunlight and CO_2

C. Chlorophyll and sunlight

D. Both 2 and 3

Answer: D

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7. The small openings present in stems of plants are classified as_____.

A. plasmodesmata

B. lenticels

C. guard cells

D. stomata

Answer: B

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8. The wilting of plants result due to excess of_____.

A. absorption

B. photosynthesis

C. transpiration

D. respiration

Answer: C

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9. The salt sprinkled on the slug's skin leads killing due to_____.

A. inward flow of water through endosmosis

B. outward flow of water through endosmosis

C. inward flow of water through exosmosis

D. outward flow of water through exosmosis

Answer: D

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10. A plant cell may burst when_____.

A. turgor pressure equalizes wall pressure

B. turgor pressure exceeds wall pressure

C. wall pressure exceeds turgor pressure

D. none of these

Answer: B

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11. In which of the following plants would metabolism behindered if the leaves are coated with wax on their upper surface?

A. Hydrilla

B. Lotus

C. Pista

D. Vallisneria

Answer: B

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12. Which of the following stages of cell division are correctly related to their significances?

A. Anaphase $\rightarrow$ Chromosomes move to the middle of the cell.

B. Prophase $\rightarrow$ Sister chromatids separate and pulled to the poles of cell

C. Metaphase $\rightarrow$ Nuclear envelope dissolves and DNA condenses

D. Telophase $\rightarrow$ Nuclei reforms and cleavage furrow or cell plates form

Answer: D

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13. The incorrect statement for the significance of mitosis is:

A. Equal distribution of chromosomes to daughter cells

B. Restoration of surface-volume ratio

C. Maintenance of nucleoplasmic index

D. Reduction of the chromosomes number to half

Answer: D

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14. Which of the following are the favorable conditions for transpiration pull through the leaves of the plants?

A. Closed stomata, dry atmosphere and dry air

B. Closed stomata, high humid atmosphere and dry air

C. Open slomala, dry atmosphere and moist soil

D. Closed stomata, high humid atmosphere and well irrigated soil

Answer: C

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15. An individual has the genotype Rr. What is the correct description of this genotype?

A. Heterozygous, with two different genes of the same allele

B. Homozygous, with two different alleles of the same gene.

C. Heterozygous, with two different alleles of the same gene.

D. Homozygous, with two different genes of the same allele.

Answer: C

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Section Ii

1. Chromosome

A. Double stranded molecule having long chain of nucleotides

B. Single stranded molecule having short chain of nucleotides

C. Condensed form of nucleoprotein

D. Uncondensed form of nucleoprotein

Answer: C

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2. Photosynthesis

A. Synthesis of food from carbon dioxide and water in the presence of chlorophyll and light energy

B. Loss of water as water vapour from aerial parts of the plant

C. Contraction of cytoplasm from cell wall due to withdrawal of water when placed in hypertonie solution

D. Transmission of genetically based characteristics from parents to off springs

Answer: A

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3. Nucleosome

A. A membrane-bound organelle that contains epigenetic information

B. Non-chromosomal DNA freely floating in the cytosol

C. A complex of proteins that controls nuclear import

D. A repeating unit of chromatin

Answer: D

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4. Imbibition

A. Phenomenon by which loving or dead plant cells absorb water by surface attraction

B. Movement of water molecules from higher concentration to the lower concentration region

C. Loss of water as tiny drops along the margins or the tips of the leaves

D. Loss of cell sap from a cut stem of the plant

Answer: A

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5. Active transport

A. Movement of water through semi-permeable membrane from a solution of low concentration to the higher concentration

B. Movement of gases or dissolved substances in solution from a region of high concentration to a region of low concentration by direct contact

C. Movement of a solute from a region of high electrochemical potential on one

side of the cell membrane to a region of lower electrochemical potential on the opposite side

D. Passage of salt or ions from its lower concentration to the higher concentration from living membrane

Answer: D

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6. Palisade mesophyll

A. Upper epidermis in a leaf

B. Lower epidermis in a leaf

C. Between upper epidermis and spongy mesophyll

D. Between lower epidermis and spongy mesophyll

Answer: C

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7. Cambium

A. At the external, periclinal cell wall of epidermal cells

B. Between xylem and phloem

C. In the centre of vascular bundle

D. Raised, oval or circular areas on the woody stems

Answer: B

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8. Aster

A. A paired barrel-shaped organelles located in the cytoplasm of animal cells near the nuclear envelope

B. Two identical copies of chromosome that are firmly attached at the centromere region

C. A cellular structure shaped like a star, consisting of a centrosome and its associated microtubules during the early stages of mitosis

D. Point of attachment of the kinetochore

Answer: C

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9. Stroma

A. flattened membrane sac inside the chloroplast

B. fluid filling up the inner space of the chloroplasts

C. stacks of thylakoids

D. type of ground tissue found in the plant's leaves

Answer: B

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10. Hydathodes

A. Below the epidermis and cuticle on the leaves

B. On the margins of the leaves of herbaceous plants

C. Below the epidermis but outside of the vascular bundles on stems

D. Stomatal pores located in leaf epidermis

Answer: B

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11. Guard cells

A. Regulate the movement of water, ions and hormones into and out of the vascular system

B. Allowing gas exchange and controlling water loss within the leaf

C. Transport of water and minerals vertically

D. Responsible for the transportation of materials into the central cylinder of the root

Answer: C

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12. Pericycle

A. Part of the plant that protect the pith

B. To absorb water and mineral with the help at unit hairs

C. Formation of lateral roots by rapidly dividing near the xylem elements of the root

D. Outermost layer of protective cells in a root

Answer: C

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13. Spindle fibres

A. Act as packaging elements for the DNA

B. Carry the basic genetic material

C. Equally divide the chromosomes in a parental cell into two daughter cells

D. Hold the two controles at the two opposite poles and help the spindle apparatus to position during nuclear division

Answer: D

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14. Spongy Parenchyma

A. To absorb more light and increase the rate of photosynthesis

B. To allow more light to reach the palisade cells

C. To transports water and minerals from the roots up the plant stem and into the leaves

D. Air spaces allow gases to diffuse through the leaf

Answer: C

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15. Chlorophyll

A. To support the leaf and transport water, mineral ions and sucrose (sugar)

B. Allow carbon dioxide to diffuse into the leaf and oxygen to diffuse out

C. Absorbs sunlight to convert solar energy into chemical energy

D. To protect the leaf from infection and prevent water loss without blocking out light

Answer: B

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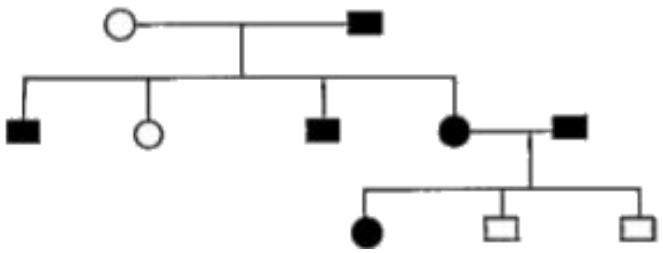
Section Iii

1. Study the given Pedigree chart and answer the questions that follow.



Which of the following is the genotype from generation I parents for Mendel's cross?

A. AA, a

B. Aa, aa

C. AA, Aa

D. Aa, Aa

Answer: A

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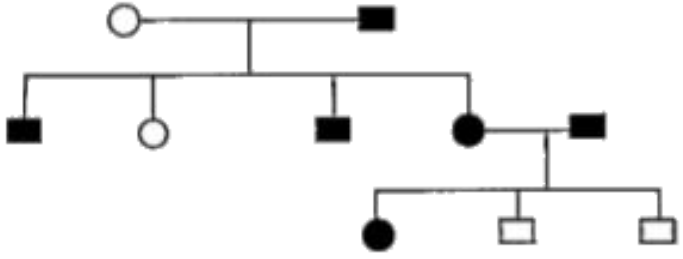
2. Study the given Pedigree chart and answer the questions that follow.



What would be the phenotype of the generation 1 when two homogenous alleles (dominant and recessive) are crossed?

A. 100% Aa

B. 75% Aa, 25% aa

C. 50%, AA, 50% aa

D. 0% Aa, 50% aa

Answer: A

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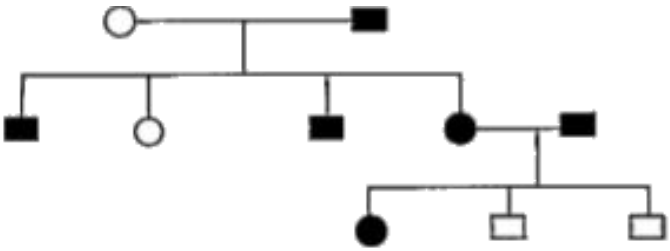
3. Study the given Pedigree chart and answer the questions that follow.



The genotype of Generation 1 third child_____ and 1 grand child_____.

A. AA, aa

B. Aa, Aa

C. Aa, AA

D. aa, Aa

Answer: A

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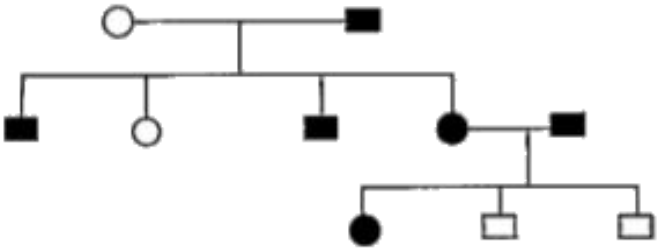
4. Study the given Pedigree chart and answer the questions that follow.



Which one of the following statements is true?

A. Dominant trait is expressed in homozygous conditions only

B. Recessive trait cannot be expressed in heterozygous conditions.

C. Recessive trait can only be expressed in homozygous condition.

D. Recessive trait can always be expressed in heterozygous condition.

Answer: A

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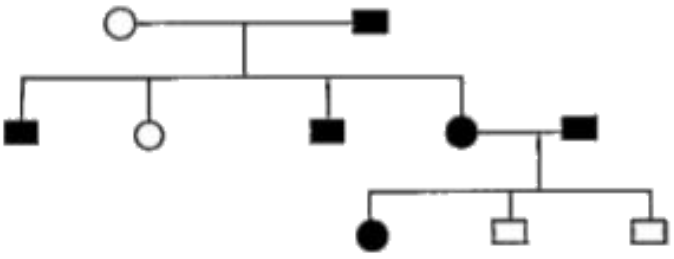
5. Study the given Pedigree chart and answer the questions that follow.



Match the following used on the laws of

Mendel's Inheritances.

Law of inheritance	Offsprings
I. Dominance	a. 100 % Tt (tall)
II. Segregation	b. 75% tall 25% short
III. Independent Assortment	c. 9/16 : round & green
	3/16: round & yellow
	3/16: wrinkled & green
	1/16: wrinkled & yellow

A. I-a, Il-b, III-C

B. I-b, II-c, III -b

C. I-a, Il-b, III-c

D. I-c, Il-b, III-a

Answer: C

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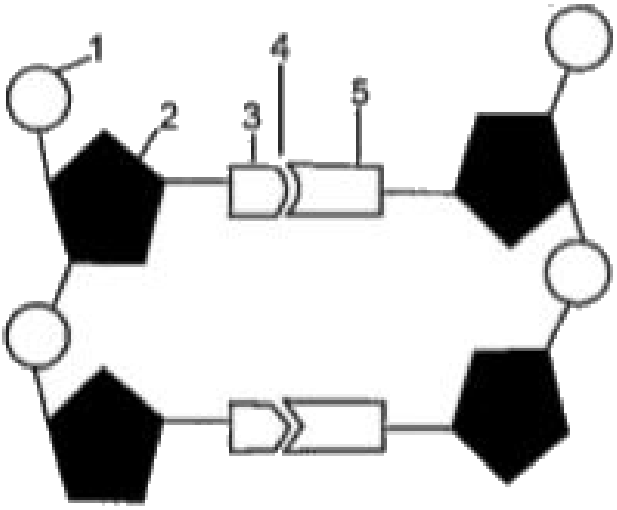
6. Study the parallel strands of a part of DNA and answer the following questions:



What does the basic structure of nucleotide consists ?

A. Sulphate, phosphate, nitrogenous base

B. Phosphate hydrogen bond, pentose

C. Phosphate, nitrogenous base, pentose

D. All three are nitrogenous bases

Answer: B

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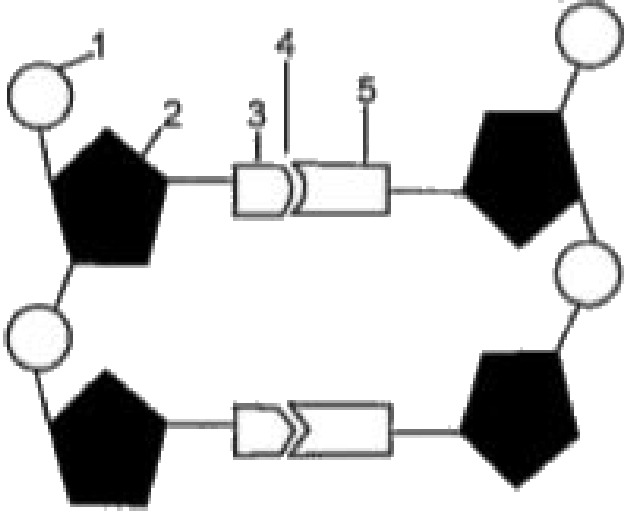
7. Study the parallel strands of a part of DNA and answer the following questions:



Choose the appropriate labelling for the given figure.

A. 1- Sugar, 2- Phosphate, 3-Base, 4-Hydrogen bond, 5- Base

B. 1- Phosphate, 2-Sugar, 3- Hydrogen bond, 4-Base, 5-Base

C. 1- Phosphate, 2-Sugar, 3- Base, 4-Hydrogen bond, 5-Base

D. 1 - Phosphate, 2-Base, 3- Sugar, 4-Hydrogen bond, 5-Base

Answer: C

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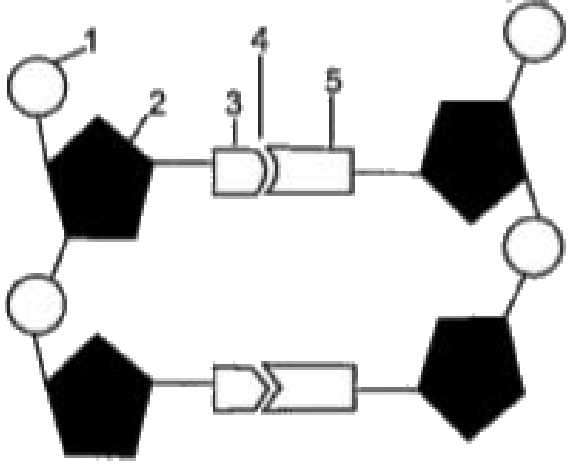
8. Study the parallel strands of a part of DNA and answer the following questions:



What is the name of the globular protein around which DNA is wrapped in a chromosome?

A. Nucleolus

B. Chromatin

C. Histone

D. Nucleosome

Answer: C

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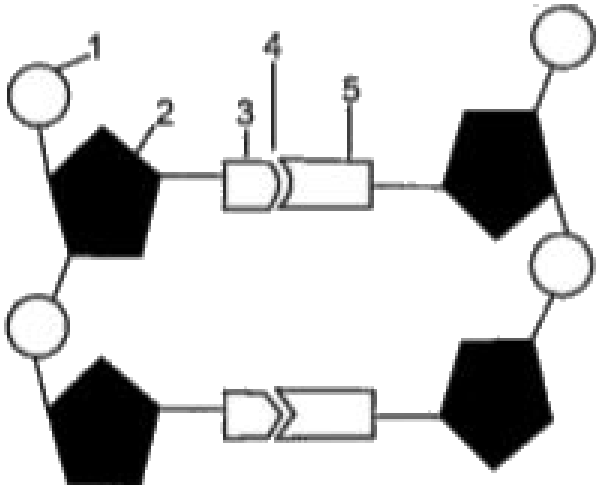
9. Study the parallel strands of a part of DNA and answer the following questions:



Nitrogenous bases that attached with two hydrogen bonds are:

A. Adenine and Thymine

B. Cytosine and Guanine

C. Guanine and Thymine

D. Adenine and Guanine

Answer: A

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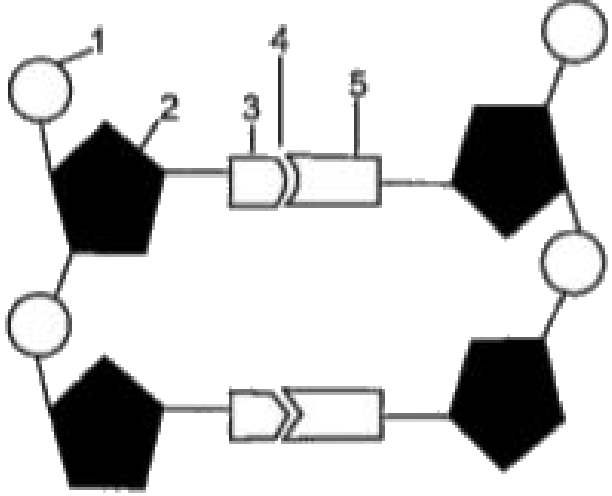
10. Study the parallel strands of a part of DNA and answer the following questions:



Guanine and Cytosine are attached with hydrogen bonds.

A. two

B. three

C. four

D. one

Answer: A

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