

Convent School

(2026 -27)

**Class 10
Unit Test 1
Biology****Set-A****TIME: 45 Min.**Name: Priya Roll no: _____ MM: 20**General Instructions:**

- 1.This Question paper contains - five sections A, B, C, D and E. Each section is compulsory.
- 2.Section A has 4MCQ's based questions of 0.5 mark each.
- 3.Section B has 1 Very Short Answer (VSA)-type questions of 2 marks each.
- 4.Section C has 2 Short Answer (SA)-type questions of 3 and 4 marks respectively.
- 5.Section D has 2 Short Answer (SA)-type questions of 2 marks each.
6. section E has 2 long Answer (LA)-type questions of 2.5 marks each
- 6.Write neatly and clearly in the space provided.
7. Do not cut or fill the circle given on upper and bottom of paper

Section : A has 4MCQ's based questions of 0.5 mark each.**Choose the correct option and write for each of the following:**

- Q1. The term "chromosomes" literally means 0.5 /0.5
- (a) inherited bodies (b) twisted threads
(c) coloured bodies (d) shining threads

ANS: ☒ C ✓

- Q2. The basis of genetic variation in the living organisms during meiosis occurs due to: 0.5 /0.5
- (a) cell division (b) mutation
(c) crossing over (d) karyokinesis

ANS: ☒ C ✓

- Q3. Assertion (A) :Genotype is the genetic make up of a cell. 0.5 0.5
Reason (R) : phenotype is the set of genes present in the cells of an organism that expresses internal characters.
- (a) A is true and R is false.
(b) A is false and R is true.
(c) Both A and R are true.
(d) Both A and R are false.

ANS: ☒ A ✓

- Q4. Which one of the following is the phenotypic monohybrid ratio in f_2 generation ? 0.0 / 0.5
- (a) 3 :1 (b) 1:2:1
(c) 2:2 (d) 1:3

ANS: ☒ B ✗

Section B has 1 Very Short Answer (VSA)-type questions of 2 marks each.

Q5. Identify the odd one and give a reason for it :
(a) allele (b) gene
(c) chromosome (d) mitochondria

2.0 /2

Answer: Mitochondria because all the other three options are linked with genetics but mitochondria is a cell organelle.

Section c has 2 Short Answer (SA)-type questions of 3 and 4 marks respectively.

Q6.Match the following:

3.0 /3

- Column I
- column II
- (A) Autosomes (i) chromosomes get arranged in a horizontal plane at the equator
(B) Metaphase (ii) study of laws of inheritance of characters
(C) Genetics (iii) chromosomes other than the pair of sex chromosomes.

Answer: column I column II

(A) Autosomes	(iii) chromosomes other than the pair of sex chromosomes ✓
(B) Metaphase	(i) chromosomes get arranged on a horizontal plane at equator. ✓
(C) Genetics	(ii) study of laws of inheritance of character. ✓

Q7. Name the following:

3.0
/4

(A) The type of bond which joins the complementary nitrogenous Bases

Answer: Hydrogen bond.



(B) Name any two genetic diseases in humans

Answer: Haemophilia and colour blindness.



(C) The repeating components of each DNA strand length wise.

Answer: Nucleotide.



(D) The complex structure consisting of DNA strand and core of histones.

Answer: Nucleosome



Section d has 2 Short Answer (SA)-type questions of 2 marks each.

Q8. What are the rungs of the "DNA ladder" made of?

2/2

Answer: Rungs of the "DNA ladder" is made of nitrogenous base. They are made by four type of nitrogenous base in DNA: Adenine, Guanine, Cytosine and Thymine.



Q9. Among lion, tiger and domestic cat, all three have the same number of 38 chromosomes, yet they have different appearances. How do you account for such differences?

1.0 /2

Answer: These small differences occurred due to variation in species and also due to the mixing up of genes these differences occur.

States ???variation??? but wrongly says ???mixing up of genes??? instead.

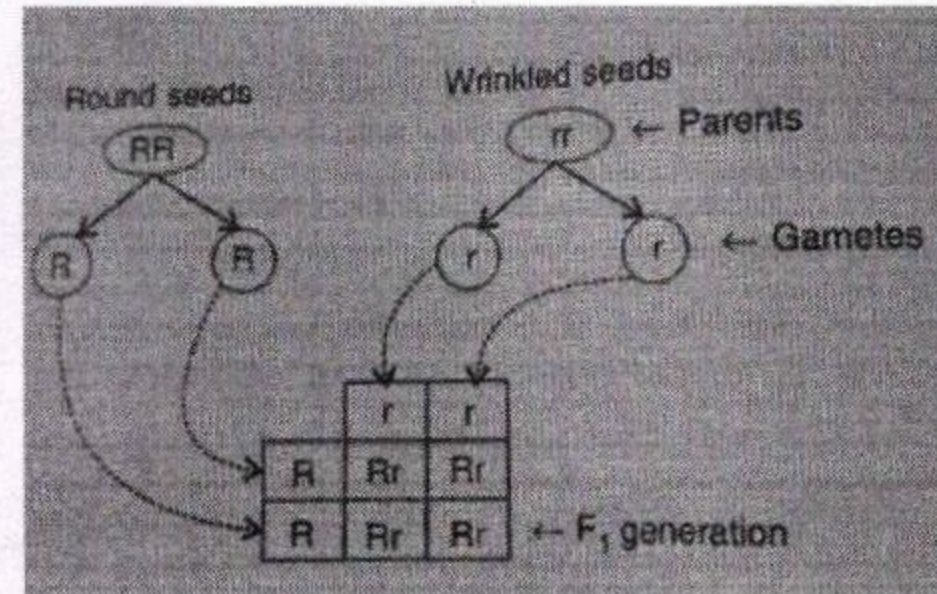
Section E has 2 Long Answer (LA)-type questions of 2.5 marks each.

Q10. Mendel crossed a homozygous pea plant having round seed (RR) with a homozygous pea plant having wrinkled seeds (rr). He got different results. On the basis of it, answer the following questions:

(a) which character of seed is studied in the experiment ?

2.0 / 2.5

Answer: The shape of the seed is studied in the experiment ✓



(b) which of the above two traits is dominant ?

Answer: Round seeds are dominant. ✓

(c) write the phenotype and genotype of f₁ offsprings.

Answer: These all off springs will have round seed. ✗

(d) Mention and state the Mendel' law shown in the above cross.

Answer: Mendel's Law of Dominance states out of a pair of two contrasting characteristics one which can express itself is called dominant and one which remain called recessive. ✓

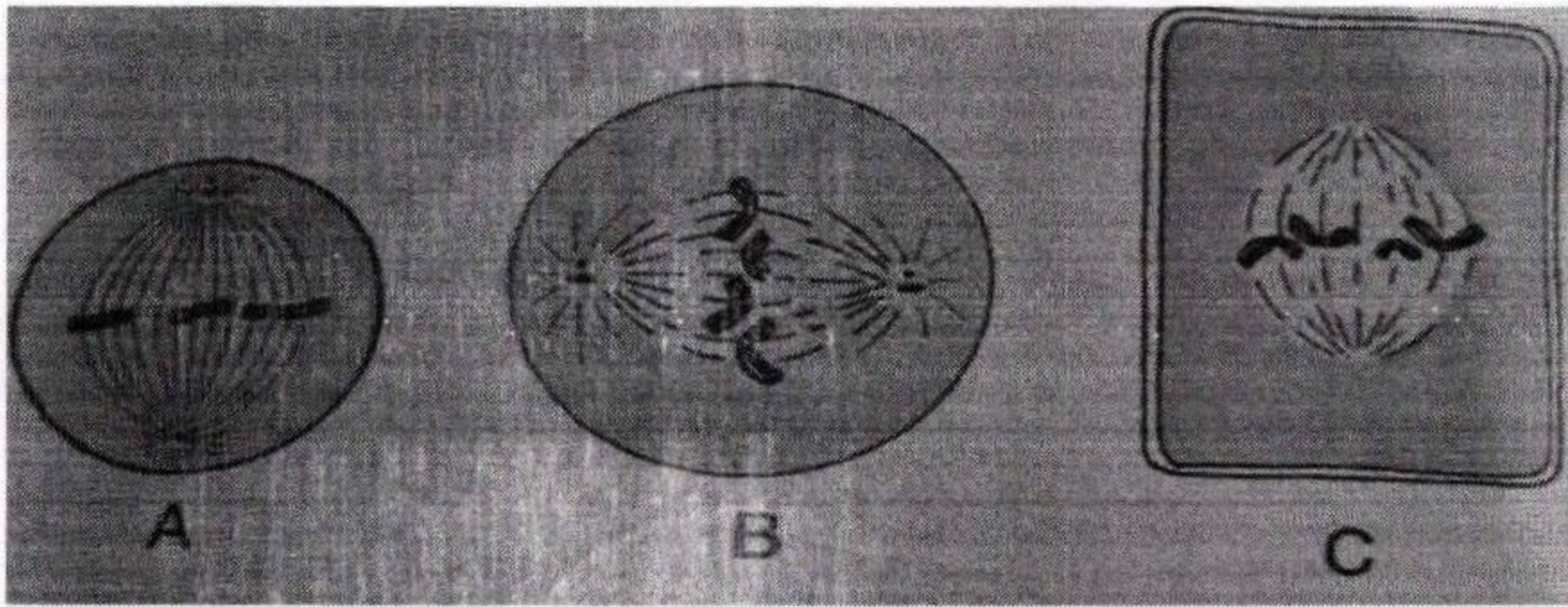
(e) what will be genotypic ratio of f₂ off springs ?

Answer: 1 : 2 : 1 ✓

Q11. Given below are three diagrammatic sketches (A, B and C) of one and the same particular phase during mitotic type of cell division.

2.5

/2.5



(a) Identify the phase of all.

Answer: metaphase

(b) what is the diploid number of chromosomes shown in them ?

Answer: 4 number of diploid cell are shown in them.

(c) Identify whether A, B and C are animal or plant cells? Give reasons.

Answer: A and B are animal cells because they do not have a cell wall and centrioles are present. C is a plant cell because it has a cell wall and centrioles are absent.

17.0/20.0

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Usha Rani 17:13, 26.07.2021