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***PLEASE can you mark this worksheet as accurately as possible

Lesson 1,2 and 3

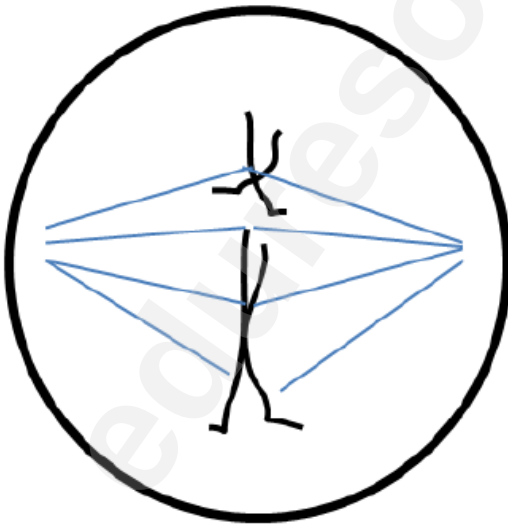
Question 1 [10]

- a) Diploid (1)
- b)

STRUCTURES	NUMBER PRESENT
Chromosomes	4
Homologous pairs	2
Bivalents	0

c)

Diagram of a cell on Metaphase II



Two chromosomes
Double threaded
One long and one short
Lined up on equator
Single file

Question 2 [15]

2.1.1 (a) meiosis produces haploid gametes /halves chromosome no./genotype complement /increases genetic variation (2)

(b) 4 (1)

(c) diploid (1)

2.1.2 (a) DNA replication (1)

2.1.3 (a) homologous chromosomes/homologues/bivalents

(b) nuclear membrane/nucleus/nuclear envelope

(c) spindle/spindle fibres (threads) (3)

(a) two inner chromatids/any non-sister chromatids (other words describing this) of homologous chromosomes cross over at points of attachment called chiasmata chromatids break /pull apart and re-join with swapped sections of chromatids (four points) (4)

(b) crossing over results in mixing of maternal and paternal characteristics/genes results in greater variation in offspring/gametes
Or other relevant facts about crossing over (3)

Lesson 4

Question 3 [6]

(a) Trisomy 21/extra chromosome on chromosome 21/Down Syndrome (1)

(b) Non-disjunction -failure of chromatids to separate during meiosis/anaphase I/II of one of chromosomes number 21 (2)

(c) It contains 23 pairs of chromosomes. (1)

(d) male, the homologous chromosome pair no. 23 differs in size and shape. It is an X chromosome and a smaller Y chromosome. (2)

MEMO

Life Science 12

Week 3

Question 4 [5]

Item	Term	Answer
1. Ovary 2. Anther	Meiosis	C
1. Connects two chromatids 2. Found only in animal cells	Centromere	A
1. DNA replication 2. Cytokinesis occurs	Interphase	A
1. Extra X chromosome 2. Polyploid individual	Down syndrome	D
1. DNA profile 2. Indicates chromosome mutations	Karyotype	B

(5)

[Total: 36 Marks]