

SECTION A

QUESTION 1

1.1.1 D✓✓

1.1.2 A✓✓

1.1.3 C✓✓

1.1.4 B✓✓

1.1.5 B✓✓

1.1.6 A✓✓

(6 x 2) **(12)**

1.2.1 objective✓ lenses

1.2.2 chemotherapy✓

1.2.3 water✓

1.2.4 malignant✓ tumour

(4 x 1) **(4)**

1.3.1 A only ✓✓

1.3.2 B only ✓✓

(2 x 2) **(4)**

TOTAL SECTION A: [20]

SECTION B

QUESTION 2

2.1.1

- (a) 1 – golgi body✓
5 – mitochondrion✓ (2)

- (b) 6 – chromosome✓
7 – spindle fibre✓ (2)

- 2.1.2 – chloroplast✓
– cell wall✓
– large/central vacuole✓
– leucoplast✓
– chromoplast✓

(mark only the first two) (any 2)

- 2.1.3 prophase✓ (early) (1)

- 2.1.4 – individual chromosomes visible✓/chromatin network has condensed into chromosomes
– centrioles have duplicated✓/moving towards the poles/centrosome has split
(mark only the first one) (any 1)

- 2.1.5 B → A → C✓ (1)

- 2.1.6 2 (nuclear membrane) does not have ribosomes✓
4 (RER) has ribosomes✓ (2)

- 2.1.7 3 (SER) is involved in the processing/packaging/transport of lipids✓
4 (RER) is involved in the synthesis of proteins✓ (2)

- 2.1.8 – during anaphase✓
– the centromeres/chromosomes will split✓
– spindle fibres shorten✓
– so that chromatids/sister chromatids separate/move to opposite poles✓
– during telophase✓
– daughter/unreplicated chromosomes✓ are grouped at the poles
– nuclear membrane/nucleus reforms✓
– cytokinesis/cytoplasm divides / invagination/cleavage furrow forms✓
– two, identical daughter cells with **three chromosomes each**✓* are formed

(compulsory 1* + any 6) (7)

TOTAL QUESTION 2: [20]

QUESTION 3

3.1.1

- (a) Z✓ (1)
- (b) X✓ (1)
- (c) Y✓ (1)

3.1.2

- (a) amino acid✓ (1)
- (b) peptide✓ bond (1)

3.1.3

- (a) blue✓ (1)
 - (b)
 - test B/Millon's reagent tests for proteins✓
 - substance Q only contains C, H and O✓
 - proteins contain N/other elements✓
 - substance Q cannot be a protein (3)
 - (c) Y✓ (1)
- (10)**

3.2.1 proteins✓ (1)

3.2.2 amylase✓ (1)

3.2.3 – boiling increases the temperature above the optimum temperature✓ of the enzymes
– enzymes would denature✓/ lose their shape
– and lose their function✓ (any 2)

3.2.4 The same:

- number of bean seeds in each petri dish✓
 - time/24 hours to soak✓
 - time/3 minutes to boil✓
 - volume/20 ml of starch-rich agar jelly✓
 - number of days/3 days before iodine was added✓
- (mark only the first two)** (any 2)

3.2.5 glucose✓ (1)

3.2.6 – it releases stored starch✓
– as glucose✓
– that can be used for respiration✓/production of energy
– to grow✓ roots/leaves

(any 3)
(10)

TOTAL QUESTION 3: [20]

TOTAL SECTION B: [40]

SUM TOTAL: [60]