Practice Question Set For A-Level
Subject : Biology
Paper-1 Topic:1 Biological Molecules

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Mark Schemes

Q1.

(a) Capsid and attachment protein;

1

(b) 1. (DNA) helicase **and** (DNA) polymerase;
Accept (DNA) ligase for either enzyme.

2. (Helicase) breaks hydrogen bonds (to unwind DNA);
Reject 'hydrolyse hydrogen bonds'

3. (Polymerase) condensation reactions to join (adjacent) nucleotides

OR

(Polymerase) forms phosphodiester bonds between (adjacent) nucleotides;
Reject mp3 if polymerase forming hydrogen bonds or joining complementary base pairs
Accept (DNA) ligase joins DNA fragments.
Note: Incorrect/no enzymes named but both roles outlined = 1 mark

3

(c) Uncontrolled cell cycle/division/mitosis;
Reject meiosis Ignore growth

1

(d) For:

1. Needs to be given early (age 10-12) before exposure to HPV;
Max 3 *for mark points 1-5*
Accept 'Needs to be given before sexual activity'

2. Will reduce transmission to girls (for when they are older);
Accept 'spread' for 'transmission'

3. Boys can be infected with HPV

OR

(Vaccination) prevents HPV infection;

4. (Need boys) to ensure herd immunity

OR

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(Need boys) to be above 50% vaccinated;

5. Boys can have increased risk of cancer (from HPV infection);

Against:

6. Boys at less risk of cancer (from HPV infection) than females

OR

Cervical cancer only affects females;

7. May be side effects from vaccine;

4 max

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Q2.

(a) Pressure increase at source generated by:

1. Sucrose co-tranported into phloem

OR

Sucrose actively transported into phloem;
Ignore facilitated diffusion

2. Causes decrease in water potential (inside phloem);

3. Water enters by osmosis (into phloem);

3

(b) 1. Carbohydrates made by photosynthesis (in the leaf);
Accept 'sugars' or any named carbohydrate

2. Less sucrose transported into phloem at leaf/source

OR

Less sucrose transported to sink/potato/root

OR

Less sugar stored as starch;

2

(c) 1. Increased respiration;

2. To provide more ATP for muscle contraction;

3. (More glucose being used so) concentration gradient for glucose

OR

Increased numbers of glucose transporter proteins in the membrane;
For 'transporter proteins' accept channel or carrier proteins

4. (Glucose enters by) facilitated diffusion;
Marks can be awarded across the whole answer

4

(d) Answer key: 4 –

The secondary structure is held by hydrogen bonds.

The tertiary structure allows the protein to be positioned spanning the whole cell membrane.

1

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