2. While observing the plant cells, you notice that the image appears blurry even after using the coarse and fine adjustment knobs.

a) Suggest two possible reasons why the image might be blurry. (2 marks)

i. **Dirty lenses or slide.** There might be smudges, dust, or dirt on the objective lens, eyepiece lens, or the prepared slide itself.

ii. **Incorrect illumination/diaphragm setting.** The amount of light passing through the specimen might be too much or too little, or the diaphragm might be set improperly, reducing clarity.

b) Explain how adjusting the diaphragm might improve the clarity or contrast of the image. (2 marks)

i. **Regulates light.** The **diaphragm** controls the amount of light passing through the specimen.

ii. **Improves contrast and resolution.** By adjusting the diaphragm, you can regulate the light intensity and narrow the light beam. This helps to improve the **contrast** between the specimen and its background and can also enhance the **resolution** of the image, making fine details more visible and less blurry.

c) Why should you never use the coarse adjustment knob with the high power objective lens? (2 marks)

i. **Risk of damage.** Using the **coarse adjustment knob** with the **high power objective lens** can cause the objective lens to rapidly move downwards.

ii. **Cracking and scratching.** This can lead to the objective lens crashing into the microscope slide, potentially **cracking the slide** and **scratching the objective lens**, causing costly damage to both.

STRAND 2.0: MIXTURES, ELEMENTS AND COMPOUNDS

SECTION A: MULTIPLE CHOICE QUESTIONS

Strands And Sub Strands Revision Questions And Answers