

1(a)	<i>any one from:</i> (presence of) juglone (with a concentration of $1.0 \times 10^{-3} \text{ mol dm}^{-3}$) <u>and</u> control (treatment) / absence of juglone ; concentration, of juglone ;															
1(b)(i)	5 cm³ of (original / 0.1 mol dm⁻³) juglone (solution) ; 495 cm³ of the (mixture of) solvents ;															
1(b)(ii)	<i>any one from:</i> use, syringe / graduated pipette / micropipette / burette ; use, volumetric flask ; use larger (stated) volumes (of both juglone and mixture of solvents) ;															
1(c)(i)	1 (mixture of) solvents / solution, with no juglone ; 2 <i>idea that</i> to show that any effects observed (on the, germination / growth, of seeds) are a result of juglone ;															
1(c)(ii)	<i>any seven from:</i> 1 method for standardising the exposure of the seeds to juglone ; 2 <i>ref. to</i> use, same / stated, (cucumber) seeds ; 3 method to maintain a, constant / stated, temperature ; 4 method to maintain a, constant / stated, light intensity ; 5 <i>ref. to</i> standardise another key variable ; 6 <i>idea of</i> reapply juglone (to seedlings) after germination ; 7 count / note / record / AW, number of seeds planted <u>and</u> count number of seeds that germinate, after a, set / stated, time ; 8 method for measuring growth at 10 days (after the appearance of the seedling above the soil) ; 9 for juglone solution and control treatment, use a large number of seeds <u>and</u> calculate the mean (growth) for each group ; 10 safety comment with hazard <u>and</u> risk <u>and</u> precaution ; <table><tr><th>hazard</th><th>risk</th><th>precaution</th></tr><tr><td>juglone</td><td>irritant / toxin / allergy</td><td>gloves / mask / PPE</td></tr><tr><td>solvents</td><td>irritant / toxin / allergy</td><td>gloves / mask / PPE</td></tr><tr><td>cucumber seeds / plants</td><td>irritant / allergy</td><td>gloves / mask / PPE</td></tr><tr><td>soil</td><td>biohazard / pathogens / allergy / irritant</td><td>gloves / mask / PPE</td></tr></table>	hazard	risk	precaution	juglone	irritant / toxin / allergy	gloves / mask / PPE	solvents	irritant / toxin / allergy	gloves / mask / PPE	cucumber seeds / plants	irritant / allergy	gloves / mask / PPE	soil	biohazard / pathogens / allergy / irritant	gloves / mask / PPE
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1(d)(i)	any two from: 1 data is continuous ; 2 comparing means (from the two groups) ; 3 data is (from populations that are) normally distributed ; 4 standard deviations (approximately) the same (between the two groups) ;
1(d)(ii)	any three from: 1 (the critical value at 18 d.f. and $p = 0.05$ is) 2.101 ; 2 calculated value of $t / 2.090$, is less than, critical value / 2.101 (at $p = 0.05$) ; ora 3 <u>null</u> hypothesis is accepted (at $p = 0.05$) ; 4 there is no <u>significant difference</u> (at $p = 0.05$) ;

3(a)	any two from: 1 <u>age</u> of seeds ; 2 all awns are straight / all awns are twisted at the start ; 3 temperature ; 4 light intensity / carry out in a dark room ; 5 time seeds left in the different humidities (before measuring them) ; 6 type / thickness / absorbency / size / dimensions / area, of filter paper ;
3(b)	any three from: 1 add different <u>volumes</u> of water (to the filter paper) ; 2 leave one (filter paper) with no water ; 3 <i>ref.</i> to measuring appearance of awn ; 4 idea of repeat, for each humidity ;