

Practice Question Set For A-Level  
**Subject : Physics**  
**Paper-1 Topic : 3\_ElectricCircuits**

Name of the Student: \_\_\_\_\_

Max. Marks : 20 Marks

Time : 20 Minutes

Mark Schemes

Q1.

Question Number	Acceptable answers	Additional guidance	Mark
(i)	<ul style="list-style-type: none"> <li>Use of <math>E = V/d</math> (1)</li> <li><math>V = 6000 \text{ V}</math> (1)</li> </ul>	<p>Example of calculation</p> $3 \times 10^6 \text{ V m}^{-1} = V / 0.002 \text{ m}$ $V = 6000 \text{ V}$	2
(ii)	<ul style="list-style-type: none"> <li>(A spark is) a current (drawn from the supply) (1)</li> <li>A potential difference is produced across the internal resistance of the supply (1)</li> <li>According to <math>V = E - Ir</math> <math>V</math> decreases <b>Or</b> (the decrease in <math>V</math>) is large because the internal resistance is large (1)</li> </ul>	<p>Accept "lost volts" are present/increases</p> <p>Accept reduces the terminal potential difference which is shown on the voltmeter</p>	3

Q2.

Question Number	Acceptable answers	Additional guidance	Mark
(i)	<ul style="list-style-type: none"> <li>• At least three straight horizontal parallel lines (1)</li> <li>• Equispaced (1)</li> <li>• Arrow to indicate direction to the right (1)</li> </ul>		<b>3</b>
(ii)	<ul style="list-style-type: none"> <li>• As no current drawn from supply (1)</li> <li>• Terminal potential difference is equal to e.m.f. <b>Or</b> no potential difference across internal resistance (1)</li> </ul>	Accept no “lost volts”	<b>2</b>

**Q3.**

Question Number	Acceptable Answer	Additional guidance	Mark																												
* (b)	<p>This question assesses a student's ability to show a coherent and logically structured answer with linkages and fully-sustained reasoning. Marks are awarded for indicative content and for how the answer is structured and shows lines of reasoning. The following table shows how the marks should be awarded for structure and lines of reasoning</p> <table border="1" data-bbox="252 376 699 663"> <thead> <tr> <th>Number of indicative points seen in answer</th> <th>Number of marks awarded for indicative points</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>4</td> </tr> <tr> <td>5-4</td> <td>3</td> </tr> <tr> <td>3-2</td> <td>2</td> </tr> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>0</td> <td>0</td> </tr> </tbody> </table> <p><b>Indicative content</b></p> <p>IC1 Positive potential difference from A (to B)</p> <p>IC2 So there is a current (12.5 mA) in the LED</p> <p>IC3 Therefore LED is lit</p> <p>IC4 Negative potential difference from B (to C)</p> <p>IC5 So there is no current in the LED Or So resistance of LED is (very) high</p> <p>IC6 Therefore LED is not lit</p>	Number of indicative points seen in answer	Number of marks awarded for indicative points	6	4	5-4	3	3-2	2	1	1	0	0	<p>The following table shows how the marks should be awarded for structure and lines of reasoning</p> <table border="1" data-bbox="906 248 1315 987"> <thead> <tr> <th></th> <th>Number of marks awarded for structure and lines of reasoning</th> </tr> </thead> <tbody> <tr> <td>Answer shows a coherent and logical structure with linkage and fully sustained lines of reasoning demonstrated throughout</td> <td>2</td> </tr> <tr> <td>Answer is partially structured with some linkages and lines of reasoning</td> <td>1</td> </tr> <tr> <td>Answer has no linkage between points and is unstructured</td> <td>0</td> </tr> </tbody> </table> <p><b>Linkage marks</b></p> <table border="1" data-bbox="906 1088 1182 1379"> <thead> <tr> <th>Number of indicative content points awarded</th> <th>Possible linkage marks</th> </tr> </thead> <tbody> <tr> <td>0, 1, 2</td> <td>0</td> </tr> <tr> <td>3, 4</td> <td>1</td> </tr> <tr> <td>5, 6</td> <td>2</td> </tr> </tbody> </table>		Number of marks awarded for structure and lines of reasoning	Answer shows a coherent and logical structure with linkage and fully sustained lines of reasoning demonstrated throughout	2	Answer is partially structured with some linkages and lines of reasoning	1	Answer has no linkage between points and is unstructured	0	Number of indicative content points awarded	Possible linkage marks	0, 1, 2	0	3, 4	1	5, 6	2	6
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