



## Assessment Task Notification

All students are asked to sign the teacher's copy to verify this notification has been distributed at least two weeks before the task date.

<b><u>Course:</u></b>	Year 12 Physics
<b><u>Task Number:</u></b>	3
<b><u>Date of Task:</u></b>	Friday 16 <sup>th</sup> JUNE
<b><u>Task Value:</u></b>	25%
<b><u>Nature of Task:</u></b>	Research Task with in class component

**Other Information:** This task involves two sections  
**PART A** - A research component  
**PART B** - An in class open-book test.

The research component (see over) must be submitted on the day of the task.

You will be required to answer exam style questions during the test, based on 9.4 Section 3 (Semiconductors). You may bring your research into the room and use it to assist you in answering the questions. You may also bring **your own** study/revision notes on the relevant material (Topic 9.4 section 3) into the room but not texts, printed notes etc.

**Outcomes Assessed :** Your own notes must also be submitted for checking (not marking).

H7, H9, H12.3, H13.1, H14.1, H14.2, H14.3,  
H12.3, H13.1, H14.1, H14.2, H14.3

**SEE TASK DETAILS ON REVERSE.**

Task Details:

**Research information to answer the following points**

1. Describe differences between solid state and thermionic devices and discuss why solid state devices replaced thermionic devices.  
(8 marks)
2. Describe why germanium was used in early transistors. Relating your answer to the problems with using silicon at this time. (4 marks)
3. Discuss how shortcomings in available communication technology (eg thermionic devices) lead to an increased knowledge of the properties of materials (such as silicon) with particular reference to the invention of the transistor. (5 marks)
4. Assess the impact of the invention of transistors on society with particular reference to their use in microchips and microprocessors.  
(10 marks)
5. Include a bibliography with your submitted research. Provide as much information on the source as possible eg website address, date of access etc.  
(3 marks)

**Mark allocation for task.**

- **PART A -30 marks for researched answers**
- **PART B - 30 marks for in class test.**

Marks 18-20	<ul style="list-style-type: none"> <li>• demonstrates an extensive knowledge and understanding of the concepts of the physics course content including context, prescribed focus areas and domain</li> <li>• displays an outstanding ability to describe and explain physics concepts, including abstract ideas, clearly and accurately, and to apply the concepts to unfamiliar situations</li> <li>• quantifies explanations and descriptions, and synthesizes information to draw conclusions</li> <li>• communicates succinctly, logically and sequentially using a variety of scientific formats</li> </ul>
Marks 18-16	<ul style="list-style-type: none"> <li>• demonstrates a thorough knowledge and understanding of the concepts of the physics course content including context, prescribed focus areas and domain</li> <li>• effectively communicates a detailed understanding of physics concepts using appropriate physics terminology and some illustrative examples and applies the concepts to unfamiliar situations</li> <li>• analyses information given in written, tabular, graphical and diagrammatic forms and relates this to other relevant information</li> </ul>
Marks 16-14	<ul style="list-style-type: none"> <li>• demonstrates a sound knowledge and understanding of the concepts of the physics course content including context, prescribed focus areas and domain</li> <li>• describes concepts and information clearly in written and graphical forms and applies these concepts in familiar situations</li> <li>• displays proficiency in selecting relevant data from information given in written, tabular, graphical and diagrammatic form</li> </ul>
Marks 14-12	<ul style="list-style-type: none"> <li>• demonstrates a basic knowledge and understanding of the concepts of the physics course content including context, prescribed focus areas and domain</li> <li>• uses simple physics definitions and terms to communicate understanding of physics concepts</li> <li>• substitutes data from information given in written, tabular, graphical and diagrammatic form</li> </ul>
Marks < 12	<ul style="list-style-type: none"> <li>• demonstrates a limited knowledge and understanding of the physics course content including context, prescribed focus areas and domain</li> <li>• recalls elementary terminology and formulae related to some areas of physics</li> </ul>