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| **Curriculum Requirements** | **Even Test Paper** | **Odd Test Paper** |
| * Year 7 - 10 syllabus |  | Q7 (4) (Heating)  Q8 (1) (Electricity)  Q9 (2) (Motion)  Q11 (6) (Energy) |
| * perform calculations involving addition, subtraction, multiplication and division of quantities |  |  |
| * perform approximate evaluations of numerical expressions |  | Q1 (1) |
| * express fractions as percentages, and percentages as fractions |  |  |
| * calculate percentages |  |  |
| * recognise and use ratios |  | Q11 (2) |
| * transform decimal notation to power of ten notation |  | Q2 (3) |
| * change the subject of a simple equation |  |  |
| * substitute physical quantities into an equation using consistent units so as to calculate one quantity and check the dimensional consistency of such calculations |  | Q3 (2)  Q4 (2) |
| * solve simple algebraic equations |  | Q1 (15) |
| * comprehend and use the symbols/notations <, >, Δ, ≈, √, ≤, ≥, Σ |  |  |
| * translate information between graphical, numerical and algebraic forms |  |  |
| * distinguish between discrete and continuous data and then select appropriate forms, variables and scales for constructing graphs |  | Q10 (4) |
| * interpret frequency tables and diagrams, pie charts and histograms |  |  |
| * describe and compare data sets using range, mean and median |  |  |
| * interpret the slope of a linear graph |  |  |
| * use Pythagoras’ theorem, similarity of triangles and the angle sum of a triangle |  | Q9 (2) |
| * solve simple sine, cosine and tangent relationships in a right angle triangle |  | Q9 (4) |
| * recognise the graphical representation of a sine curve. |  |  |
| * When calculating numerical answers, show your working or reasoning clearly. Give final answers to three significant figures and include appropriate units where applicable. |  | Q2 (2) |
| * distinguish between vector and scalar quantities, and add and subtract vectors in two dimensions |  | Q5 (5)  Q6 (9) |
|  |  | 11 questions  64 marks |

Progression from the Year 7–10 curriculum

This syllabus continues to develop student understanding and skills from across the three strands of the Year 7–10 Science curriculum. In the Science Understanding strand, the course may draw on knowledge and understanding from across the four sub‐strands of Biological, Physical, Chemical and Earth and Space

Sciences.

In particular, the course continues to develop the key concepts introduced in the Physical Sciences sub‐strand, that is, that forces affect the behaviour of objects, and that energy can be transferred and transformed from one form to another.

**Mathematical skills expected of students studying the Physics ATAR course**

This course requires students to use the mathematical skills they have developed through the Year 7–10 Mathematics curriculum, in addition to the numeracy skills they have developed through the Science Inquiry Skills strand of the Science curriculum. Within the Science Inquiry Skills strand, students are required to gather, represent and analyse numerical data to identify the evidence that forms the basis of their scientific arguments, claims or conclusions. In gathering and recording numerical data, students are required to make measurements with an appropriate degree of accuracy and to represent measurements using appropriate units. Students may need to be taught inverse and inverse square relationships as they are important in physics, but are not part of the Year 10 Mathematics curriculum. Students may need to be taught to recognise when it is appropriate to join points on a graph and when it is appropriate to use a line of best fit. They may need to be taught how to construct a straight line that will serve as the line of best fit for a set of data presented graphically.

It is assumed that students will be able to:

* perform calculations involving addition, subtraction, multiplication and division of quantities
* perform approximate evaluations of numerical expressions
* express fractions as percentages, and percentages as fractions
* calculate percentages
* recognise and use ratios
* transform decimal notation to power of ten notation
* change the subject of a simple equation
* substitute physical quantities into an equation using consistent units so as to calculate one quantity and check the dimensional consistency of such calculations
* solve simple algebraic equations
* comprehend and use the symbols/notations <, >, Δ, ≈, √, ≤, ≥, Σ
* translate information between graphical, numerical and algebraic forms
* distinguish between discrete and continuous data and then select appropriate forms, variables and scales for constructing graphs
* interpret frequency tables and diagrams, pie charts and histograms
* describe and compare data sets using range, mean and median
* interpret the slope of a linear graph
* use Pythagoras’ theorem, similarity of triangles and the angle sum of a triangle
* solve simple sine, cosine and tangent relationships in a right angle triangle
* recognise the graphical representation of a sine curve.

From the Year 11 Sample Exam 2015

SAMPLE EXAMINATION

PHYSICS 2

Instructions to candidates

1. The rules for the conduct of Western Australian external examinations are detailed in the Year 12 Information Handbook 2016. Sitting this examination implies that you agree to abide by these rules.
2. Write your answers in this Question/Answer Booklet.
3. When calculating numerical answers, show your working or reasoning clearly. Give final answers to three significant figures and include appropriate units where applicable. When estimating numerical answers, show your working or reasoning clearly. Give final answers to a maximum of two significant figures and include appropriate units where applicable.
4. You must be careful to confine your responses to the specific questions asked and to follow any instructions that are specific to a particular question.
5. Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.

* Planning: If you use the spare pages for planning, indicate this clearly at the top of the page.
* Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question that you are continuing to answer at the top of the page.

1. The Formulae and Data booklet is not to be handed in with your Question/Answer Booklet.