Physics Standard Grade

External Assessment Report 2008

The statistics used in this report are pre-appeal.

This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the Examination.

Comments on candidate performance

General comments

The overall impression was that the examination was fair and balanced, and that it tested a wide range of learning outcomes from the Arrangements for Standard Grade Physics at both credit and general level.
All questions were accessible to well prepared candidates. Candidates' performance in all of the units of the course seemed to be balanced, with no single topic being better or more poorly attempted.
Most candidates appeared to have sufficient time to complete the examination, with no evidence of 'rushing' to finish on time.

However, there was evidence of some candidates being less well prepared in their knowledge and understanding of the course. This was particularly shown in responses to questions which required explanations and descriptions to be given.
Also, where close reading of text was required to understand the context of the question, some candidates clearly did not study the question sufficiently.

Since its introduction into the examination, the use of the Physics Data Booklet has continued to cause improvement in the appropriate selection of the relationship required to answer questions with calculations.
There was a significant number of candidates who, despite the correct selection of the relationship, were unable to fully answer questions requiring the *use* of relationships – namely the 'standard two marker' question. For these candidates, poor layout and presentation of working caused a failure to reach a final answer.

Areas in which candidates performed well

Most candidates were successful at interpreting graphs and tables and using information from them to answer questions. Examples include:
General:

Q6(a),(b)(i),(ii)	complete passage, work out wavelength and amplitude.
Q10(b)(i)	state two conclusions – mostly well done – but some restated first conclusion.
Q11(a)	selection of correct value of resistance from table.
16(b)(i)	suggest power output.

Credit:

Q4(a)(i)	identify resistor by calculation.
Q7(a)(ii)	calculate half-life.
Q11(a)(i)	calculate acceleration.

Most candidates were successful in using the correct relationship to calculate a final answer to problems. Examples include:
General:

Q11(a)	calculate current.
Q15(a)(i)	calculate weight (although the wrong unit of kg sometimes appeared in final answer).
Q15(b)	calculate work done.
Q16(b)(ii)	calculate current.
Q17(a)(i)	calculate number of turns in transformer.
Q18(a)(i)	calculate heat energy.

Credit:

Q2(c)(ii)	calculate wavelength.
Q3(a),(c)	calculate time difference, kinetic energy.
Q5(b)(i)	calculate current.
Q9(b)(i),(ii)	calculate output power, gain.
Q10(b)	calculate height.
Q11(a)(ii)	calculate force.
Q12(b)(i)	use efficiency to calculate output power.
Q14(c)(i)	calculate focal length (although many gave wrong unit in final answer).

Areas which candidates found demanding

Some candidates found questions which tested their knowledge and understanding of the course demanding. Examples include:

General:

Q8(c)(i)	identify colour of insulation of live wire.
Q9(a),(b)	identify current and voltage in parallel and series circuits.
Q11(b)(i),(ii)	operation of transistor and associated circuit.
Q12(b)(i),(ii),(iii)	ionisation and absorption of alpha, beta and gamma radiation.
Q15(a)(ii)	minimum force required to lift an object.
Q17(a)(ii)	operation of transformer with a.c. only.
Q19(c)	no frictional forces in space

Credit:

Q8(b)(i)	calculate series resistor for LED (many candidates failed to use correct voltage).
Q10(a)	calculate energy used.
Q11(b)	calculate total distance (many candidates misread graph).
Q12(b)(ii)	state reason for transformer inefficiency.
Q13(a),(c)(i)	explain ‘chain reaction’, operation of a.c generator.
Q15(b)	several candidates used ‘loose’ descriptions in answers e.g. ‘less gravity’ instead of ‘gravitational force (or field strength) is less’.

Advice to centres for preparation of future candidates

It is important that candidates should be well prepared and have a good knowledge of the course content. This includes familiarity with the content described by *all* of the learning outcomes contained in the Arrangements document.
Also, practice and rehearsal of the type of questions requiring written explanations and descriptions would allow more success. This would encourage more familiarity with appropriate ‘physics’ language required to provide a good explanation.

Centres should also encourage candidates to make their answers commensurate with the marks allocated to the question. For example, where questions requiring explanations have 2 marks allocated, then at least *two* separate points should be made in the answer.

Centres should also try to accustom candidates to set out working clearly for questions requiring calculations. The marking instructions published on the SQA website illustrate the ‘standard 2 marker’ type of question.

Conversion of units poses problems for some candidates. Practice, and habitual use of the Data Sheet and Physics Data Booklet could help improve this performance.

Statistical information: update on Courses

Number of resulted entries in 2007	15,940

Number of resulted entries in 2008	15,296

Statistical Information: Performance of candidates

Distribution of overall awards

Grade 1	32.6%
Grade 2	26.4%
Grade 3	21.2%
Grade 4	7.9%
Grade 5	6.1%
Grade 6	4.5%
Grade 7	0.3%
No award	1.0%

Grade boundaries for each assessable element in the subject included in the report

Assessable Element	Credit Max Mark	Grade Boundaries		General Max Mark	Grade Boundaries		Foundation Max Mark	Grade Boundaries	
		1	2		3	4		5	6
KU	**50**	33	25	**40**	22	16	**40**	13	n/a
PS	**50**	36	25	**40**	20	17	**40**	14	n/a