KULLEĠĠ SAN BENEDITTU
Secondary School
Kirkop
HALF-YEARLY EXAMINATION – February 2016
PHYSICS

MARKING SCHEME: FORM 3 (Track 2)

SECTION A

QUESTION	ANSWER	MARK	ADDITIONAL GUIDELINES
1 (a)	**Quantity** **SI Unit** Force m^3 Length kg Pressure m Mass N Volume Pa	5	1 mark for each correct answer.
(b) i. ii. iii.	length Newton meter stopwatch	1 1 1	Accept also 'spring balance'
2 (a)	8cm	1	
(b)	$16cm^3$	2	1 mark for answer and 1 mark for unit
(c) i. ii. iii.	11.2g Electronic balance Float. Its density is less than that of water.	2 1 2	
3 (a)	W is the <u>weight</u> of the book while R is the <u>reaction</u> force. W is the force exerted by the <u>book</u> on the <u>table</u>.	2	½ mark each.
(b)	R = 5N	1	
(c)	m = W/g m = 5/10 = 0.5kg	2	1 mark for correct unit.
(d)	W = mg W = 0.1 x 10 = 1N	1	
(e)	Air Resistance upwards Weight downwards	2	1 mark each.
4 (a)	Force F	1	
(b)	180Nm	2	1 mark for working, 1 for unit
(c)	180Nm	1	use follow through

(d)	150N	2	1 mark for working, 1 for answer
(e)	360N - 150N = 210N	1	
(f)	Total upward forces = total downward forces	1	accept answer if written in short some way or another

5 (a)	W = mg W = 42 x 10 = 420 N	2	1 mark for correct unit.
(b) i.	A = 0.01 x 0.01 A = 0.0001 m^2	1	
ii.	A = 0.0001 x 4 A = 0.0004 m^2	1	
iii.	P = F/A P = 420/0.0004 P = 1 050 000 Pa	2	1 mark for correct unit.
iv.	Pressure increases	1	
v.	Force increased so pressure increased as well since they are directly proportional.	1	Accept 'force increases so pressure increases'

SECTION B

QUESTION	ANSWER	MARK	ADDITIONAL GUIDELINES
6 (a) i.	Honey It is the liquid which sunk to the bottom. 2 Corn syrup Nothing. There would be double the amount of rubbing alcohol at the top.	1 1 1 1 1	
(b)	0.92g/cm^3	2	
(c)	Olive oil (top), cooking oil, water (bottom).	1	
(d) i.	30cm^3	2	
ii.	Read the bottom of the meniscus at eye level.	1	Accept any other relevant precaution.
iii.	2.5g/cm^3 The same The density of stone will not be different. The ratio of mass to volume will still be the same.	2 1 1	Accept any other relevant answer.

7 (a) i.	Point B	1	
ii.	Point A	1	
iii.	the same	1	
iv.	P = h ρ g	1	

	P = 2.3 x 1029 x 10 P = 23667 Pa	1	1 unit for correct working.
(b)i.	Correct scale and labelling of axes Correct title Correct plotting of points Correct drawing of graph – straight line	2 1 1 1	½ mark for scale; ½ mark for labelling of axes.
ii.	straight, proportional	1	½ mark each.
iii.	Atmospheric	1	
iv.	When P = 202 kPa, d = 10m	1	
v.	greatest Pressure increases with depth.	1 1	Accept any relevant answer.
8 (a)	directly proportional.	1	
(b)	electronic balance, spring	2	
(c)	1 mark for each apparatus *if drawn **and** labelled correctly*	3	half mark for each drawing, half mark for each labelling.
(d)	Load, cm	2	accept "Force" or "weight" instead of load. Accept "mm" and "m" instead of cm.
(e)	eye level, spring	2	accept any other correct answer
(f)	1cm	1	
(g)	9cm + 3cm = 12cm	1	accept 9cm
(h)	C, B, A	3	1 mark each