ntre b. Paper Reference (complete below)	Initia	l(s)
$\mathbf{F} / \mathbf{I} \mathbf{F}$		
Paper Reference(s) $5020F/1F$ $5048F/1F$	Examiner's use	e only
Edayaal CCSE		
EUEXCEI GUSE	Team Leader's u	ise only
Additional Science (5020F)		
Physics (5048F)	Question	Lagua
P2 - Topics 9 to 12	Number	Blank
Foundation Tier	1	
	2	
Wednesday 17 June 2009 – Morning	3	
Time: 30 minutes	4	
	5	
Materials required for examination CalculatorItems included with question papers Nil	6	
structions to Candidates the boxes above, write your centre number, candidate number, your surname, initial(s) and gnature, and complete the paper reference. neck that you have the correct question paper. nswer ALL the questions. Write your answers in the spaces provided in this question paper. to not use pencil. Use blue or black ink.		
The questions must be answered with a cross in a box (\boxtimes). If you change your mind about an swer, put a line through the box (\boxtimes) and then mark your new answer with a cross (\boxtimes). Now all stages in any calculations and state the units. Calculators may be used. Clude diagrams in your answers where these are helpful.		
formation for Candidates		
he marks for individual questions and the parts of questions are shown in round brackets: e.g. (2) here are 6 questions in this question paper. The total mark for this paper is 30. Here are 12 pages in this question paper. Any blank pages are indicated.		



This publication may be reproduced only in accordance with Edexcel Limited copyright policy. ©2009 Edexcel Limited.

N34059A

|____

W850/R1536/57570 7/4/4/pr



Turn over

edexcel advancing learning, changing lives

FORMULAE	
You may find the following formulae useful.	
average velocity = $\frac{\text{displacement}}{\text{time}}$	$v = \frac{s}{t}$
acceleration = $\frac{\text{change in velocity}}{\text{time}}$	$a = \frac{(v - u)}{t}$
force = mass \times acceleration	$F = m \times a$
change in potential $=$ mass \times gravitational field strength \times change in height energy	$PE = m \times g \times h$
kinetic energy = $\frac{1}{2} \times mass \times (velocity)^2$	$KE = \frac{1}{2} \times m \times v^2$
electrical energy = voltage × current × time	$E = V \times I \times t$
$power = \frac{work \ done}{time \ taken}$	$P = \frac{W}{t}$
work done = force \times distance moved in the direction of the force	$W = F \times s$







		'I think the stations of 'Not the nuc They make of 'How can no stations be are so dan	ne power are to blame elear ones, Gra clean energy!' nuclear powe e clean? Th agerous.'	nn. r ey		
(a)	Complete the sentence	ce below by p	utting a cross ((\boxtimes) in	the correct box.	
			bombarded	X		
	To produce energy, n	uclear fuel is	burned	×	with neutrons.	
			heated	X		(1
(b)	A nuclear power stat Draw one straight lin The fuel used is	ion uses fuel a ne from each b	and produces e fox on the left	energy. to the	correct box on the right heat.	ght.
					oil.	
	The energy produce	ed is			oil. uranium.	
	The energy produce	ed is			oil. uranium.	(2
(c)	The energy produce Complete the sentene The energy produced	ed is ce below by pu l is changed in	utting a cross (ito electrical en	(⊠) in nergy.	oil. uranium.	(2
(c)	The energy produce Complete the sentend The energy produced	ed is ce below by pr l is changed in transformer.	utting a cross (to electrical en	(⊠) in nergy.	oil. uranium.	(2
(c)	The energy produce Complete the sentent The energy produced This is done using a	ed is ce below by pu l is changed in transformer. turbine and a	utting a cross (ito electrical en a generator.	(⊠) in nergy. ⊠	oil. uranium.	(





		Leave blank
(d)	Suggest a reason why nuclear power stations are dangerous.	
	(1)	
(0)	Suggest with indiceal power stations produce clean energy.	
(f)	(1) It is important to dispass of the wests from a nuclear power station sofely.	
(1)	Explain how this can be done.	
	(1)	Q2
	(Total 7 marks)	
		1



BLANK PAGE



	smoke detector	radioac	tive so	urce			
	shielding l cm gap	elec	trode	ourr	ent		
	connections connections to alarm	0	Y	Cull	ent		
(a)	Complete each sentence to explain how a smooth Put a cross (\mathbf{X}) in each correct box.	oke alarm w	orks.				
	ele	ctrolyses the	e air.	X			
	(i) The radiation emitted by the source ion	ises the air.		\mathbf{X}			
	neu	tralises the	air.	\mathbf{X}		(1)	
	(ii) As a result, charge flows across the gap a	and there is	a curre	nt in	the circu	it.	
			bigger		\mathbf{X}		
	When there is a fire, the smoke makes th	is current	smalle	r.	\times		
			the sar	ne.	\times	(1)	
		alpha part	icles.	\times			
	(iii) The source used in a smoke alarm emits	beta partio	eles.	\mathbf{X}			
		gamma ra	ys.	\times		(1)	
(b)	The smoke alarm only needs thin shielding.						









. Th Th Th	e photograph shows Mposi using a flexible hose to refuel an aircraft. e hose is made of an insulator. e fuel is also an insulator.	Leav blan
	air bp	
(a)	After a while the hose becomes negatively charged.	
	Explain how.	
	(2)	
(b)	Explain why this could be dangerous.	
	(1)	
(c)	Mposi overcomes this danger by connecting wires to the hose and the plane.	
	Explain what now happens to the charge.	
	(2)	Q5
	(Total 5 marks)	



y years ago, many shoe shops had X-ray	blank
photograph shows one of these	
photograph shows one of these.	
They were used to check how well shoes fitted.	
Customers stood with their feet in the bottom and viewed the fluoroscope screen at the top.	
The fluoroscope screen emitted light where it was hit by the X-rays.	
Customers could then see an image of their toes move inside the shoes.	
Many children would stay on the machine as long as they could. Suggest why parents allowed children to stay on the machine.	
Suggest why.	
(1)	
Modern X-ray fluoroscopes are used by doctors to diagnose and treat some illnesses.	
(i) Suggest why doctors are allowed to use X-ray fluoroscopes.	
(1)	
 (ii) Suggest an advantage of using an X-ray fluoroscope instead of a normal X-ray machine. 	
	-
	y years ago, many shoe shops had X-ray thines. photograph shows one of these. They were used to check how well shoes fitted. Customers stood with their feet in the bottom and viewed the fluoroscope screen at the top. The fluoroscope screen emitted light where it was hit by the X-rays. Customers could then see an image of their toes move inside the shoes. Many children would stay on the machine as long as they could. Suggest why parents allowed children to stay on the machine. (1) X-ray fluoroscopes are now banned for use in shoe shops. Suggest why. (1) Modern X-ray fluoroscopes are used by doctors to diagnose and treat some illnesses. (i) Suggest why doctors are allowed to use X-ray fluoroscopes. (i) (i) Suggest an advantage of using an X-ray fluoroscope instead of a normal X-ray machine.

|____



BLANK PAGE

