Mark Scheme (Results)

Summer 2018

Pearson Edexcel Applied International Advanced Level

In Information Communication Technology (WIT03) Paper 1

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.

- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.

- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.

- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.

- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Applied GCE ICT Mark Scheme				
Activity		**ANSWER**	**POSS. MARK**	**MAX**
Activity 1		**Points from the scenario relevant to the task**		
		Any 10 of		
	A1	Producing cleanrooms	**1**	
	A2	Modular design of cleanrooms which can be incorporated into existing rooms	**1**	
	A3	Modular design cheaper than permanent structures	**1**	
	A4	Seven modular designs	**1**	
	A5	Different dimensions and volumes	**1**	
	A6	4 standard and 3 plus	**1**	
	A7	Rooms can have different finishes according to their use	**1**	
	A8	Initially five different types of filter used	**1**	
	A9	Filt and CAFFilters have different extraction rates	**1**	
	A10	Filt and CAFFilters have different different lifespans		
	A11	Filt and CAFFilters have different cost		
	A12	Different filters are used for different sized cleanrooms	**1**	
	A13	Cheaper alternative filters available with shorter lifespans	**1**	
	A14	Depending on the room's use the air is required to be removed from the room between 10 and 500 times per hour,.	**1**	
	A15	Modules Clean 2 plus, Clean 3 plus and Clean 4 plus discontinued (all required)	**1**	
	A16	CAF and FILT filters have different delivery times	**1**	
	A17	6 categories based on volume of air filtered		
	A18	The filters in the cleanrooms must adhere to international standards		
				Max 10
(b)		FILT Filters / CAF Filters Longer lifespan (30000 to 50000 hrs) / Shorter Lifespan (20000 to 36000 hrs) More Expensive ($1010 to $5050) / Cheaper ($929 to $1129) Longer Delivery Time (2 weeks) / Shorter Delivery Time (2 days)		

Applied GCE ICT Mark Scheme				
Activity		**ANSWER**	**POSS. MARK**	**MAX**
		Lower performance (110 to 550 l/s) | Higher performance *(240 to 680 l/s)		
	B1	Either longer lifespan (FILT) or shorter lifespan (CAF)	**1**	
	B2	Either More expensive (FILT) or Cheaper (CAF)	**1**	
	B3	Either longer delivery Time (2 weeks) (FILT) or shorter delivery time (2 days) (CAF)	**1**	
	B4	Lower performance (FILT) or higher performance (CAF)	**1**	
		Accept numerical values as comparison		**4**
		Total Marks for Activity 1		**14**

Activity 2		**Cleanroomtype**		

	A	B	C	D
7	Room Type	Length in metres	Width in metres	Height in metres
8	Clean 2	2	2	2
9	Clean 2 plus	2.5	2.5	2.5
10	Clean 3	3	3	3
11	Clean 3 plus	3.5	3.5	3.5
12	Clean 4	4	4	4
13	Clean 4 plus	4.5	4.5	4.5
14	Clean 5	5	5	5

(i)	A1	Imported Correctly	**1**	

	E	F	H	K
6		Volume Change per hour in litres		
7	Volume/litres	Category 1	Category 3	Category 6
8	=B8*C8*D8*1000	=HLOOKUP(F$7,Categories!$B$6:$G$7,2,FALSE)*$E8	=HLOOKUP(H$7,Categories!$B$6:$G$7,2,FALSE)*$E8	=HLOOKUP(K$7,Categories!$B$6:$G$7,2,FALSE)*$E8
9	=B9*C9*D9*1000	=HLOOKUP(F$7,Categories!$B$6:$G$7,2,FALSE)*$E9	=HLOOKUP(H$7,Categories!$B$6:$G$7,2,FALSE)*$E9	=HLOOKUP(K$7,Categories!$B$6:$G$7,2,FALSE)*$E9
10	=B10*C10*D10*1000	=HLOOKUP(F$7,Categories!$B$6:$G$7,2,FALSE)*$E10	=HLOOKUP(H$7,Categories!$B$6:$G$7,2,FALSE)*$E10	=HLOOKUP(K$7,Categories!$B$6:$G$7,2,FALSE)*$E10
11	=B11*C11*D11*1000	=HLOOKUP(F$7,Categories!$B$6:$G$7,2,FALSE)*$E11	=HLOOKUP(H$7,Categories!$B$6:$G$7,2,FALSE)*$E11	=HLOOKUP(K$7,Categories!$B$6:$G$7,2,FALSE)*$E11
12	=B12*C12*D12*1000	=HLOOKUP(F$7,Categories!$B$6:$G$7,2,FALSE)*$E12	=HLOOKUP(H$7,Categories!$B$6:$G$7,2,FALSE)*$E12	=HLOOKUP(K$7,Categories!$B$6:$G$7,2,FALSE)*$E12
13	=B13*C13*D13*1000	=HLOOKUP(F$7,Categories!$B$6:$G$7,2,FALSE)*$E13	=HLOOKUP(H$7,Categories!$B$6:$G$7,2,FALSE)*$E13	=HLOOKUP(K$7,Categories!$B$6:$G$7,2,FALSE)*$E13
14	=B14*C14*D14*1000	=HLOOKUP(F$7,Categories!$B$6:$G$7,2,FALSE)*$E14	=HLOOKUP(H$7,Categories!$B$6:$G$7,2,FALSE)*$E14	=HLOOKUP(K$7,Categories!$B$6:$G$7,2,FALSE)*$E14

		=B8*C8*D8*1000		
(ii)	A2	Correct formula in E8 produces the correct result	**1**	
	A3	Formula correctly replicated to cell E14 (Can be incorrect formula)	**1**	
		=HLOOKUP(F$7,Categories!$B$6:$G$7,2,FALSE)*$E8 =Categories!B$7*$E8		
	A4	Correct formula in F8 produces the correct result	**1**	
	A5	*E8	**1**	

	A6	Correct absolute addressing (B$7*$E8)	**1**	
		=HLOOKUP(H$7,Categories!$B$6:$G$7,2,FALSE)*$E14		
		= Categories!D$7*$E14		
	A7	Correct working formula in H14	**1**	
		=HLOOKUP(K$7,Categories!$B$6:$G$7,2,FALSE)*$E14		
		= Categories!G$7*$E14		
	A8	Correct working formula in K14	**1**	
				8

	A	B	D	E	F
13	FILter Model	Room Type	Volume of air removed per hour in litres	Number of Filters	Cost
14	FILT1	Clean 2	=$B7*60*60	=ROUNDUP(C14/D14,0)	=C7*E14
15	FILT2	Clean 2 plus	=B8*60*60	=ROUNDUP(C15/D15,0)	=C8*E15
16	FILT2	Clean 3	=B8*60*60	=ROUNDUP(C16/D16,0)	=C8*E16
17	FILT3	Clean 3	=B9*60*60	=ROUNDUP(C17/D17,0)	=C9*E17
18	FILT3	Clean 3 plus	=B9*60*60	=ROUNDUP(C18/D18,0)	=C9*E18
19	FILT4	Clean 4	=B10*60*60	=ROUNDUP(C19/D19,0)	=C10*E19
20	FILT4	Clean 4 plus	=B10*60*60	=ROUNDUP(C20/D20,0)	=C10*E20
21	FILT5	Clean 5	=B11*60*60	=ROUNDUP(C21/D21,0)	=C11*E21

(b)		**FILTFilters**		
		=B7*60*60 or B7*3600		
		=VLOOKUP(A14,$A$7:$B$11,2,FALSE)*60*60		
	B1	Formula in D14 produces correct results	**1**	
		=B8*60*60		
		=VLOOKUP(A15,$A$7:$B$11,2,FALSE)*60*60		
	B2	Formula in D15 correct	**1**	
	B3	B8 used in cell D16 (A16 for VLOOKUP) B9 used in cells D17 and D18 (A17 for VLOOKUP) B10 used in cells D19 and D20 (A18 for VLOOKUP) B11 used in cell D21 (A21 for VLOOKUP)	**1**	
		Formula in E14		
		=ROUNDUP(C14/D14,0)		
		Alternatives		
		=INT(C14/D14)+1		
		=ROUND((C14/D14),0)+1		
		=ROUNDDOWN((C14/D14),0)+1		
		=FLOOR((C14/D14),1)+1		
		=CEILING(C14/D14,1)		
		= IF(MOD(C14/D14) = 0, C14/D14, (C14/D14 +1)		
	B4	E14 contains C14/D14	**1**	
	B5	Rounded in some way to an integer	**1**	
	B6	+1 used for INT, ROUND, ROUNDDOWN and FLOOR No +1 used in ROUNDUP	**1**	
		=C7*E14		
		=VLOOKUP(A14,$A$7:$C$11,3,FALSE)*E14		

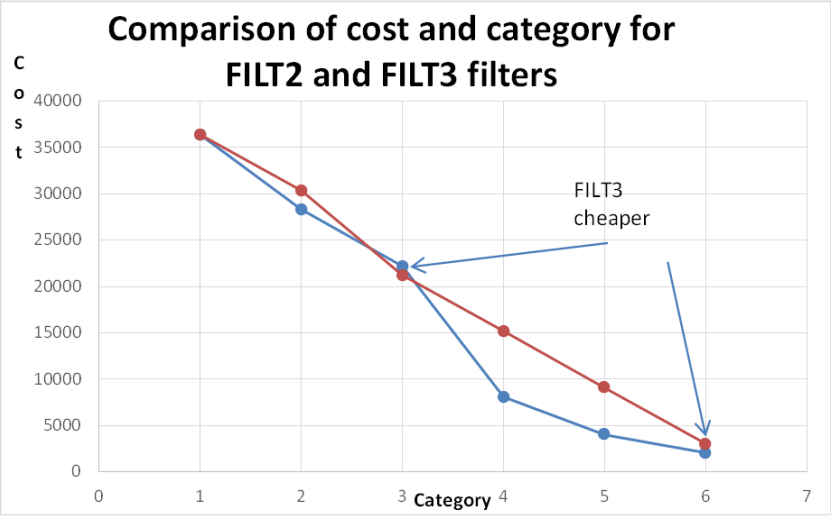
	B7	Formula in F14 correct	**1**	
	B8	Formulae in cell F15 to F21 all correct	**1**	

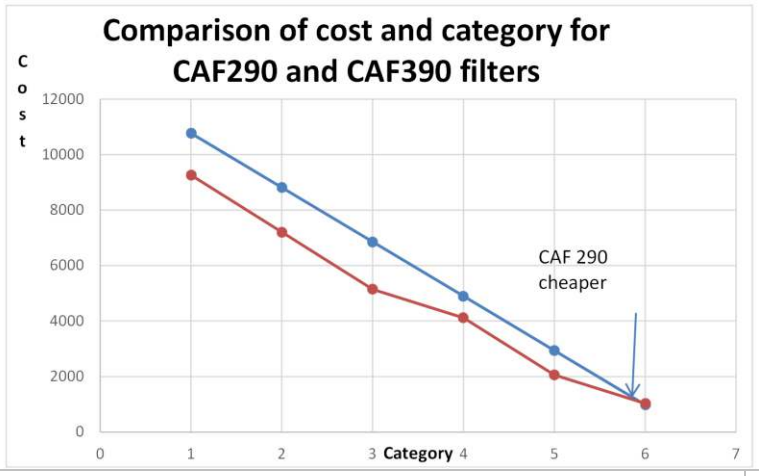
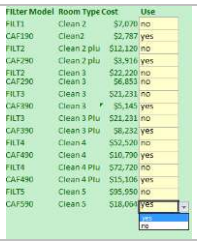
	H	K	L	M
13	FILter Model	Volume of air removed per hour in litres	Number of Filters	Cost
14	FILT1	=$B7*60*60	=ROUNDUP(J14/K14,0)	=$C7*L14
15	FILT2	=$B8*60*60	=ROUNDUP(J15/K15,0)	=$C8*L15
16	FILT2	=$B8*60*60	=ROUNDUP(J16/K16,0)	=$C8*L16
17	FILT3	=$B9*60*60	=ROUNDUP(J17/K17,0)	=$C9*L17
18	FILT3	=$B9*60*60	=ROUNDUP(J18/K18,0)	=$C9*L18
19	FILT4	=$B10*60*60	=ROUNDUP(J19/K19,0)	=$C10*L19
20	FILT4	=$B10*60*60	=ROUNDUP(J20/K20,0)	=$C10*L20
21	FILT5	=$B11*60*60	=ROUNDUP(J21/K21,0)	=$C11*L21

	B9	Formulae in K14 to M21 all correct (accept = D14, =D15 to =D21 in cells K14 to K21 and correct VLOOKUP)	**1**	
				9
		CLEAN3FILT		

	A	B	C	D	E
6	FILT 2			FILT3	
7	Category	Cost		Category	Cost
8	1	='FILTFilters '!F16		1	='FILTFilters '!F17
9	2	='FILTFilters '!F26		2	='FILTFilters '!F27
10	3	='FILTFilters '!M26		3	='FILTFilters '!M27
11	4	='FILTFilters '!F36		4	='FILTFilters '!F37
12	5	='FILTFilters '!M36		5	='FILTFilters '!M37
13	6	='FILTFilters '!M16		6	='FILTFilters '!M17

		='FILTFilters '!F16		
(i)	C1	Formula in B8 correct	**1**	
	C2	Formulae in B9 to B13 all correct	**1**	
	C3	Formulae in E8 to E13 all correct	**1**	



	C4	One chart/graph which compares FILT2/FILT3 filters	**1**	
	C5	Axes labelled	**1**	
	C6	Appropriate Heading	**1**	
	C7	Correct Indication of the region where FILT3 is cheaper (for their data)	**1**	
				7
				
	D1	One chart/graph which compares CAF290/CAF390 filters	**1**	
	D2	Appropriate Heading	**1**	
	D3	Axes labelled	**1**	
	D4	Correct indication of the region where CAF290 is cheaper (for their data)	**1**	
				4
		FilterComparisoncat3		
				
	E1	Yes/No **option** shown in D22	**1**	
	E2	All yellow cells have either a yes or no selected, for all filters (FILT1 to CAF590)	**1**	
	E3	All FILTfilters selected as No	**1**	
	E4	CAF290 for Clean 3 set to No	**1**	

				3
		Printouts		
		All printouts and no more in right order are required to be eligible for the following marks (If screenshots used no F marks)		
	F1	Row and Column headings and Gridlines (All worksheets, excluding screen shot)	**1**	
	F2	Correct rows and columns printed ((All worksheets, excluding screen shot)	**1**	
	F3	Correct header & footer (All worksheets, excluding screen shot)	**1**	
		(No header and footer on screenshot loose SSW1)		
		Total Marks for Activity 2		**35**

Activity 3		2018Category		

	C	H	I	J	K	N
7	Filter	Minimum Lifespan	Maximum Lifespan	Replace Filter	Overall Cost	Selected Filter
8	FILT11	=F8*0.975	=F8*1.025	=IF(OR(H8<=M8,I8<=M8),"yes","no")	=IF(J8="yes",ROUNDUP(M8/H8,0)*E8,E8)	=IF(K8>K12,"No","Yes")
9	FILT31	=F9*0.975	=F9*1.025	=IF(OR(H9<=M9,I9<=M9),"yes","no")	=IF(J9="yes",ROUNDUP(M9/H9,0)*E9,E9)	=IF(K9>K13,"No","Yes")
10	FILT41	=F10*0.975	=F10*1.025	=IF(OR(H10<=M10,I10<=M10),"yes","no")	=IF(J10="yes",ROUNDUP(M10/H10,0)*E10,E10)	=IF(K10>K14,"No","Yes")
11	FILT51	=F11*0.975	=F11*1.025	=IF(OR(H11<=M11,I11<=M11),"yes","no")	=IF(J11="yes",ROUNDUP(M11/H11,0)*E11,E11)	=IF(K11>K15,"No","Yes")
12	CAF192	=F12*0.975	=F12*1.0275	=IF(OR(H12<=M12,I12<=M12),"yes","no")	=IF(J12="yes",ROUNDUP(M12/H12,0)*E12,E12)	=IF(N8 = "Yes", "No","Yes")
13	CAF392	=F13*0.975	=F13*1.0275	=IF(OR(H13<=M13,I13<=M13),"yes","no")	=IF(J13="yes",ROUNDUP(M13/H13,0)*E13,E13)	=IF(N9 = "Yes", "No","Yes")
14	CAF492	=F14*0.975	=F14*1.0275	=IF(OR(H14<=M14,I14<=M14),"yes","no")	=IF(J14="yes",ROUNDUP(M14/H14,0)*E14,E14)	=IF(N10 = "Yes", "No","Yes")
15	CAF592	=F15*0.975	=F15*1.0275	=IF(OR(H15<=M15,I15<=M15),"yes","no")	=IF(J15="yes",ROUNDUP(M15/H15,0)*E15,E15)	=IF(N11 = "Yes", "No","Yes")

		=F8*0.975 =F8*97.5% =F8-F8/100*2.5	
	A1	Formula in H8 produces correct result	**1**
		=F8*1.025 =F8*102.5% =F8+F8/100*2.5	
	A2	Formula in I8 produces correct result	**1**
	A3	Correct formulae in H8 and I8 both correctly replicated to H15 and I15 respectively	**1**
		=IF(OR(H8<=M8,I8<=M8),"Yes","No") =IF(H8<=M8,"yes",IF(I8<=M8,"yes","no"))	
	A4	Formula in J8 produces correct result	**1**
	A5	Values in H8 and I8 are compared to M8 (working formula)	**1**
	A6	"Yes", "No" correct way around	**1**
	A7	Correct formula replicated to cell J15	**1**
		=IF(J8="Yes",ROUNDUP(M8/H8,0)*E8,E8) **=IF(J8="No",E8,ROUNDUP(M8/H8,0)*E8)**	
	A8	Formula in K8 produces correct result	**1**
	A9	J8 = "Yes"	**1**
	A10	Rounding used correctly and true false are correct	**1**
	A11	M8/H8	**1**
	A12	Correct formula correctly replicated to K15	**1**
		=IF(K8>K12,"No","Yes")	
		=If (K12>=K8, "Yes", "No") =IF(K8<K12,"Yes","No")	
	A13	Formula in N8 produces correct result	**1**
	A14	K8 and K12 compared and Yes/No options are correct way around	**1**
		=IF(N8 = "Yes", "No","Yes") =IF(N8="No","Yes","No")	
	A15	Formula in N12 produces correct result	**1**
	A16	Correct formula in N8 correctly replicated to N11	**1**

	A17	Formula in cell N12 correctly replicated to cell N15	**1**	
	A18	Conditional formatting applied to cells N8 to N15 (different background for 4 cells)	**1**	

	G	H	I
22	Category	Budget	Maximum number of years of Use
23	1	$250,000	7
24	2	$180,000	8
25	3	$110,000	6
26	4	$70,000	8
27	5	$40,000	8
28	6	$10,000	6

	A19	Two categories correct	**1**	
	A20	Three categories correct	**1**	
	A21	Four categories correct	**1**	
	A22	Five categories correct	**1**	
	A23	All categories correct	**1**	
				23
		All printouts and no more in right order (If screenshots no B mark)		
	B1	Row and Column headings and Gridlines on		
		Correct header & footer		
		Correct rows and columns printed	**1**	
		Total Marks for Activity 3		**24**

Activity 4		**Report**		

Indicative content

Business report
Recommendations with justifications of decisions
Reasons the recommendations might be flawed
Evaluation of the model

Level	Marks	
Level 0	0 marks	No rewardable content
Level 1	1-5	The candidate will have made a recommendation for the types of filter used prior to 2018, for a cleanroom, based on Activity 2, but they may not justify it. They may not recommend the filters used from 2018. The evaluation of the model will be superficial there may be some suggestions for simple/basic improvements. Spelling, punctuation and the rules of grammar are used with limited accuracy.
Level 2	6-10	The candidate will have made a recommendation for the types of filter used prior to 2018, for a Clean 3 cleanroom and provided a basic justification, such as incorporating their charts from activity 2 or comparing the performance data from the two manufacturers. There will be a recommendation of the filters used from 2018 with a basic justification such as including some of the data from activity 3 The evaluation of the model will highlight some deficiencies in the model and make suggestions for improvements. Spelling, punctuation and the rules of grammar are used with some accuracy.
Level 3	11-15	The candidate will have made a recommendation for the types of filter used prior to 2018, for a Clean 3 cleanroom and fully justified it. There will be a recommendation of the filters used from 2018 justified by the longevity of the filters. The evaluation of the model will highlight a range of deficiencies in the model and there will be a range of suggestions for improvements, such as making allowance for leap years, changing budget constraints, making allowance for different types of cleanroom finishes and creating worksheets for each cleanroom. Spelling, punctuation and the rules of grammar used with considerable accuracy.

		Total Marks for Activity 4		**15**

SWW				
	S1	Authenticating Work (All WP pages have task number, Name, centre number).	**1**	
	S2	Appropriate Structure (Pages in correct order & Folder assembled correctly)	**1**	
		Total for SWW		**2**
		Total for Paper		**90**