

Thursday 17 January 2019 – Afternoon

Level 3 Cambridge Technical in Applied Science

05848/05849/05874

Unit 3: Scientific analysis and reporting

Data Sheet

INSTRUCTIONS

Do not send this Data Sheet for marking; it should be retained in the centre or destroyed.

INFORMATION

The information in this Data Sheet is for the use of candidates following the Level 3 Cambridge Technical in Applied Science.

The Periodic Table of the Elements

		Key															
		atomic number															
		Symbol															
		name															
		relative atomic mass															
(1)	(2)											(3)	(4)	(5)	(6)	(7)	(0)
1	2											13	14	15	16	17	18
1 H hydrogen 1.0	3 Li lithium 6.9	4 Be beryllium 9.0								5 B boron 10.8	6 C carbon 12.0	7 N nitrogen 14.0	8 O oxygen 16.0	9 F fluorine 19.0	10 Ne neon 20.2		
11 Na sodium 23.0	12 Mg magnesium 24.3								3	13 Al aluminium 27.0	14 Si silicon 28.1	15 P phosphorus 31.0	16 S sulfur 32.1	17 Cl chlorine 35.5	18 Ar argon 39.9		
19 K potassium 39.1	20 Ca calcium 40.1									31 Ga gallium 69.7	32 Ge germanium 72.6	33 As arsenic 74.9	34 Se selenium 79.0	35 Br bromine 79.9	36 Kr krypton 83.8		
37 Rb rubidium 85.5	38 Sr strontium 87.6									49 In indium 114.8	50 Sn tin 118.7	51 Sb antimony 121.8	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe xenon 131.3		
55 Cs caesium 132.9	56 Ba barium 137.3									81 Tl thallium 204.4	82 Pb lead 207.2	83 Bi bismuth 209.0	84 Po polonium	85 At astatine	86 Rn radon		
87 Fr francium	88 Ra radium										114 Fl flerovium		116 Lv livermorium				
										29 Cu copper 63.5	30 Zn zinc 65.4	47 Ag silver 107.9	48 Cd cadmium 112.4	80 Hg mercury 200.6	81 Tl thallium 204.4		
										28 Ni nickel 58.7	29 Cu copper 63.5	46 Pd palladium 106.4	47 Ag silver 107.9	78 Pt platinum 195.1	79 Au gold 197.0	111 Rg roentgenium	
										27 Co cobalt 58.9	28 Ni nickel 58.7	45 Rh rhodium 102.9	46 Pd palladium 106.4	77 Ir iridium 192.2	78 Pt platinum 195.1	110 Ds darmstadtium	
										26 Fe iron 55.8	27 Co cobalt 58.9	44 Ru ruthenium 101.1	45 Rh rhodium 102.9	76 Os osmium 190.2	77 Ir iridium 192.2	109 Mt meitnerium	
										25 Mn manganese 54.9	26 Fe iron 55.8	43 Tc technetium	44 Ru ruthenium 101.1	75 Re rhenium 186.2	76 Os osmium 190.2	108 Hs hassium	
										24 Cr chromium 52.0	25 Mn manganese 54.9	42 Mo molybdenum 95.9	43 Tc technetium	74 W tungsten 183.8	75 Re rhenium 186.2	106 Sg seaborgium	
										23 V vanadium 50.9	24 Cr chromium 52.0	41 Nb niobium 92.9	42 Mo molybdenum 95.9	73 Ta tantalum 180.9	74 W tungsten 183.8	105 Db dubnium	
										22 Ti titanium 47.9	23 V vanadium 50.9	40 Zr zirconium 91.2	41 Nb niobium 92.9	72 Hf hafnium 178.5	73 Ta tantalum 180.9	104 Rf rutherfordium	
										21 Sc scandium 45.0	22 Ti titanium 47.9	39 Y yttrium 88.9	40 Zr zirconium 91.2	72 Hf hafnium 178.5	73 Ta tantalum 180.9	103 Lr lawrencium	
										20 Ca calcium 40.1	21 Sc scandium 45.0	38 Sr strontium 87.6	39 Y yttrium 88.9	57–71 lanthanoids	72 Hf hafnium 178.5	103 Lr lawrencium	
										19 K potassium 39.1	20 Ca calcium 40.1	37 Rb rubidium 85.5	38 Sr strontium 87.6	56 Ba barium 137.3	71 Lu lutetium 175.0	103 Lr lawrencium	
										18 Ar argon 39.9	19 K potassium 39.1	36 Kr krypton 83.8	37 Rb rubidium 85.5	54 Xe xenon 131.3	70 Yb ytterbium 173.0	102 No nobelium	
										17 Cl chlorine 35.5	18 Ar argon 39.9	35 Br bromine 79.9	36 Kr krypton 83.8	53 I iodine 126.9	85 At astatine	101 Md mendelevium	
										16 S sulfur 32.1	17 Cl chlorine 35.5	34 Se selenium 79.0	35 Br bromine 79.9	52 Te tellurium 127.6	84 Po polonium	100 Fm fermium	
										15 P phosphorus 31.0	16 S sulfur 32.1	33 As arsenic 74.9	34 Se selenium 79.0	51 Sb antimony 121.8	83 Bi bismuth 209.0	99 Es einsteinium	
										14 Si silicon 28.1	15 P phosphorus 31.0	32 Ge germanium 72.6	33 As arsenic 74.9	50 Sn tin 118.7	82 Pb lead 207.2	98 Cf californium	
										13 Al aluminium 27.0	14 Si silicon 28.1	31 Ga gallium 69.7	32 Ge germanium 72.6	49 In indium 114.8	82 Pb lead 207.2	97 Bk berkelium	
										12 Mg magnesium 24.3	13 Al aluminium 27.0	30 Zn zinc 65.4	31 Ga gallium 69.7	48 Cd cadmium 112.4	80 Hg mercury 200.6	96 Cm curium	
										11 Na sodium 23.0	12 Mg magnesium 24.3	29 Cu copper 63.5	30 Zn zinc 65.4	47 Ag silver 107.9	79 Au gold 197.0	95 Am americium	
										10 Ne neon 20.2	11 Na sodium 23.0	28 Ni nickel 58.7	29 Cu copper 63.5	46 Pd palladium 106.4	78 Pt platinum 195.1	94 Pu plutonium	
										9 F fluorine 19.0	10 Ne neon 20.2	27 Co cobalt 58.9	28 Ni nickel 58.7	45 Rh rhodium 102.9	77 Ir iridium 192.2	93 Np neptunium	
										8 O oxygen 16.0	9 F fluorine 19.0	26 Fe iron 55.8	27 Co cobalt 58.9	44 Ru ruthenium 101.1	76 Os osmium 190.2	92 U uranium 238.1	
										7 N nitrogen 14.0	8 O oxygen 16.0	25 Mn manganese 54.9	26 Fe iron 55.8	43 Tc technetium	75 Re rhenium 186.2	91 Pa protactinium	
										6 C carbon 12.0	7 N nitrogen 14.0	24 Cr chromium 52.0	25 Mn manganese 54.9	42 Mo molybdenum 95.9	74 W tungsten 183.8	90 Th thorium 232.0	
										5 B boron 10.8	6 C carbon 12.0	23 V vanadium 50.9	24 Cr chromium 52.0	41 Nb niobium 92.9	73 Ta tantalum 180.9	89 Ac actinium	
										4 Be beryllium 9.0	5 B boron 10.8	22 Ti titanium 47.9	23 V vanadium 50.9	40 Zr zirconium 91.2	72 Hf hafnium 178.5	88 Ra radium	
										3 Li lithium 6.9	4 Be beryllium 9.0	21 Sc scandium 45.0	22 Ti titanium 47.9	39 Y yttrium 88.9	57–71 lanthanoids	87 Fr francium	
										2 He helium 4.0	3 Li lithium 6.9	20 Ca calcium 40.1	21 Sc scandium 45.0	38 Sr strontium 87.6	56 Ba barium 137.3	86 Rn radon	

57 La lanthanum 138.9	58 Ce cerium 140.1	59 Pr praseodymium 140.9	60 Nd neodymium 144.2	61 Pm promethium 144.9	62 Sm samarium 150.4	63 Eu europium 152.0	64 Gd gadolinium 157.2	65 Tb terbium 158.9	66 Dy dysprosium 162.5	67 Ho holmium 164.9	68 Er erbium 167.3	69 Tm thulium 168.9	70 Yb ytterbium 173.0	71 Lu lutetium 175.0
89 Ac actinium	90 Th thorium 232.0	91 Pa protactinium	92 U uranium 238.1	93 Np neptunium	94 Pu plutonium	95 Am americium	96 Cm curium	97 Bk berkelium	98 Cf californium	99 Es einsteinium	100 Fm fermium	101 Md mendelevium	102 No nobelium	103 Lr lawrencium

ELEMENTS LISTED IN NUMERICAL ORDER:

1	Hydrogen	H	41	Niobium	Nb	111	Roentgenium	Rg
2	Helium	He	42	Molybdenum	Mo	112	Copernicium	Cn
3	Lithium	Li	43	Technetium	Tc	114	Flerovium	Fl
4	Beryllium	Be	44	Ruthenium	Ru	116	Livermorium	Lv
5	Boron	B	45	Rhodium	Rh			
6	Carbon	C	46	Palladium	Pd			
7	Nitrogen	N	47	Silver	Ag			
8	Oxygen	O	48	Cadmium	Cd			
9	Fluorine	F	49	Indium	In			
10	Neon	Ne	50	Tin	Sn			
11	Sodium	Na	51	Antimony	Sb			
12	Magnesium	Mg	52	Tellurium	Te			
13	Aluminium	Al	53	Iodine	I			
14	Silicon	Si	54	Xenon	Xi			
15	Phosphorus	P	55	Caesium	Cs			
16	Sulphur	S	56	Barium	Ba			
17	Chlorine	Cl	72	Hafnium	Hf			
18	Argon	Ar	73	Tantalum	Ta			
19	Potassium	K	74	Tungsten	W			
20	Calcium	Ca	75	Rhenium	Re			
21	Scandium	Sc	76	Osmium	Os			
22	Titanium	Ti	77	Iridium	Ir			
23	Vanadium	V	78	Platinum	Pt			
24	Chromium	Cr	79	Gold	Au			
25	Manganese	Mn	80	Mercury	Hg			
26	Iron	Fe	81	Thallium	Tl			
27	Cobalt	Co	82	Lead	Pb			
28	Nickel	Ni	83	Bismuth	Bi			
29	Copper	Cu	84	Polonium	Po			
30	Zinc	Zn	85	Astatine	At			
31	Gallium	Ga	86	Radon	Rn			
32	Germanium	Ge	87	Francium	Fr			
33	Arsenic	As	88	Radium	Ra			
34	Selenium	Se	104	Rutherfordium	Rf			
35	Bromine	Br	105	Dubnium	Db			
36	Krypton	Kr	106	Seaborgium	Sg			
37	Rubidium	Rb	107	Bohrium	Bh			
38	Strontium	Sr	108	Hassium	Hs			
39	Yttrium	Yb	109	Meitnerium	Mt			
40	Zirconium	Zr	110	Darmstadtium	Ds			

