Question number		Answer	Notes	Marks
1 (a)	(i)	B (53)		1
	(ii)	D (131)		1
(b)		Any two of - MP1 Beta is (moderately) ionising; MP2 Beta has a short range; MP3 idea that I-131 has a short half-life; MP4 idea that iodine is absorbed (easily) by the thyroid; MP5 (hence) reduces damage to healthy cells; MP6 (hence) does not penetrate out of the body; MP7 (therefore) kills (only) tumour cells;	Ignore I-131 is radioactive, it emits beta	2

Total 4 marks

Q	Question		_	Notes	Marks
number			Answer		
3	(a)	(i)	smoke particles in air (in smoke cell) OR pollen on water OR dust particles in air;	Accept correct description of Brownian motion applied to unspecified particles in a suitable medium	1
		(ii)	Any two of - MP1 Idea that tiny/smaller particles are hitting; MP2 Larger (observed) particles are moved; MP3 Idea of random motion of larger particles;	Allow zig-zag movement	2
	(b)		Any six ideas about arrangement and motion of particles Max 2 for each state	Accept same ideas shown in labelled diagrams	max 6
			Solid – Regular pattern OR close packed; Vibration in position; Little space between particles;	Condone fixed position	
			Liquid – Irregular pattern; Able to move over/past other particles; Little space between particles;	Condone no fixed position Ignore vibration relating to liquid	
			Gas – No pattern; Able to move freely/fast; Larger space between particles;	Condone no fixed position Ignore vibration relating to gas	

Total 9 marks