

Mark schemes

Q1.

- (a) both show red-shift so both are moving away from us

or

the wavelength of the (absorption) lines has increased so both are moving away from us

1

A shows a greater red-shift (than B)

1

so A is travelling faster (than B)

1

[3]

Q2.

- (a) galaxy A has the greater red shift

1

(so) A is travelling (away from us) faster (than B)

1

(because) A is further away (from us than B)

*if no other marks awarded, allow 1 mark
for galaxy A and galaxy B are moving
away from us*

1

[3]

Q3.

- (a) the (observed) increase in wavelength (of light from galaxies)

ignore light waves are stretched

1

as galaxies move away from us

1

- (b) the furthest galaxies are moving away (from the Milky Way) the fastest

1

(which suggests that) at some time all galaxies / matter started at the same point

1

- (c) there are new observations / evidence that does not fit into current theory / model

allow specific examples of new observations / theories such as dark matter or dark energy

1

[5]