Stars & The Universe

Question Paper

Course	CIE IGCSE Physics
Section	6. Space Physics
Topic	Stars & The Universe
Difficulty	Hard

Time Allowed 10

Score /5

Percentage /100

Question 1

Extended tier only

Which is the correct value of one light year?

A. 9.5×10^{15} km

B. 9.5×10^{15} m

C. 9.5×10^{15} s

D. 9.5×10^{15} days

[1 mark]

Question 2

The planet Uranus has an average orbital radius of 4 500 million km. How long does it take light from the Sun to travel to Uranus?

A. 4 minutes

B. 1 hour

C. 4 hours

D. 4 days

[1 mark]

Question 3

Extended tier only

Which row shows the correct methods for measuring galactic speeds and distances?

	Galactic speeds	Galactic distances
A	redshift	redshift
B	redshift	brightness of supernovae
C	brightness of supernovae	redshift
D	brightness of supernovae	brightness of supernovae

[1 mark]

Question 4

Extended tier only

Hubble's law gives an expression for the Hubble constant

$$H_0 = \frac{v}{d}$$

What does the equation allow astronomers to calculate?

1. The distance to other galaxies
2. The speed of galactic recession
3. The age of the Universe

A. 1 only

B. 1 and 3

C. 3 only

D. 1, 2 and 3

[1 mark]

Question 5

Extended tier only

The Andromeda galaxy is 2.5 million light-years away from Earth.

What is the velocity of the galaxy as it moves away from Earth?

A. 5200 m/s

B. 52 km/s

C. 5.2 km/s

D. 520 km/s

[1 mark]