Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: GCSE Triple Science_Space Physics (LDQ)

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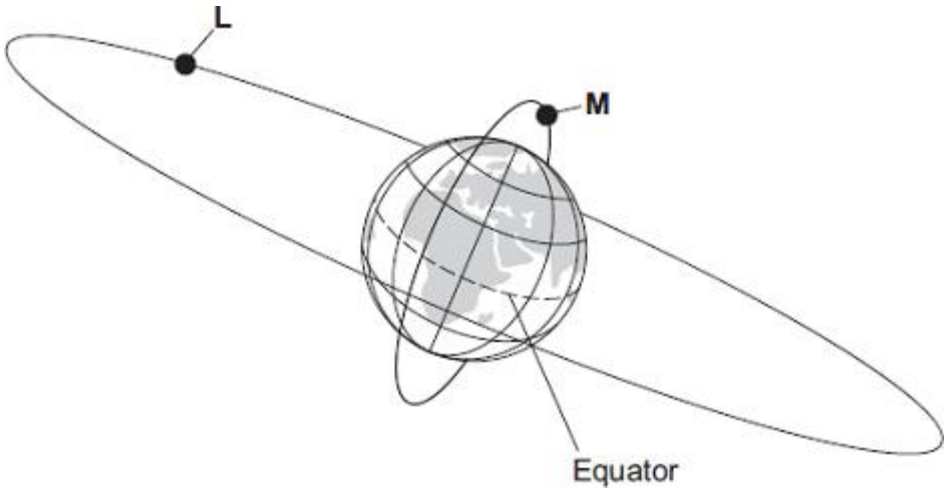
Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Q1.

The diagram, which is not to scale, shows two satellites, **L** and **M**, orbiting the Earth.



(a) Complete the following table.

Each letter, **L** or **M**, may be used once, more than once, or not at all.

Statement about the satellite	**Letter for the satellite**
It is used as a monitoring satellite.	
It is a geostationary satellite.	
It takes 24 hours to complete its orbit.	

(2)

(b) Complete the following sentence.

To stay in its present orbit around the Earth, each satellite must move at

a particular _____ .

(1)

(c) Thousands of satellites are now in orbit around the Earth. A student used the internet to collect information about some of them.

Name of satellite	**Average distance from**	**Speed in kilometres per**	**Time taken to orbit the Earth**

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	the centre of the Earth in kilometres	second	
The Moon	391 400	1.01	28 days
GEO	42 200	3.07	1 day
Navstar	26 600	3.87	12 hours
Lageos	12 300	5.70	3.8 hours
HST	7 000	7.56	97 mins
ISS	6 700	7.68	92 mins

(i) The Moon takes a longer time than any of the other satellites to orbit the Earth.

Give **one** other way in which the Moon is different from the other satellites in the table.

_____

_____

(1)

(ii) What conclusion on the relationship between the *average distance* and *speed* can the student come to on the basis of this data?

_____

_____

(1)

(Total 5 marks)

Q2.

(a) Starting with the smallest, list the following in order of increasing size.

Universe **Earth** **Milky Way** **Sun**

Smallest _____

_____

_____

Largest _____

(2)

(b) Stars pass through different stages during their life cycle.

The diagram shows the forces acting on the Sun during the stable stage of its life cycle.

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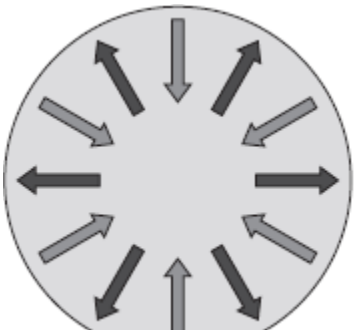

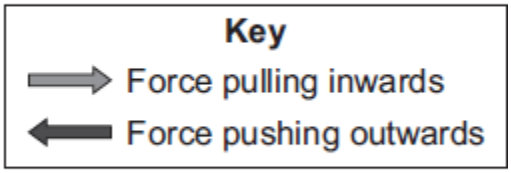

Complete the following sentence by drawing a ring around the correct line in the box.

During the stable stage of the Sun's life cycle, the forces pulling inwards

are

smaller than
equal to
bigger than

the forces pushing outwards.

(1)

(c) During its life cycle, the Sun will never go through a *supernova* stage but the star Mira will.

(i) What is a *supernova?*

_____

(1)

(ii) Explain why the Sun will not go through the *supernova* stage but the star Mira will.

_____

_____

_____

_____

(2)

(Total 6 marks)

Q3.

The diagram shows part of the lifecycle of a very large star.

Use words or phrases from the box to complete the sentences contained in the diagram.

black hole	**red supergiant**	**supernova**	**white dwarf**

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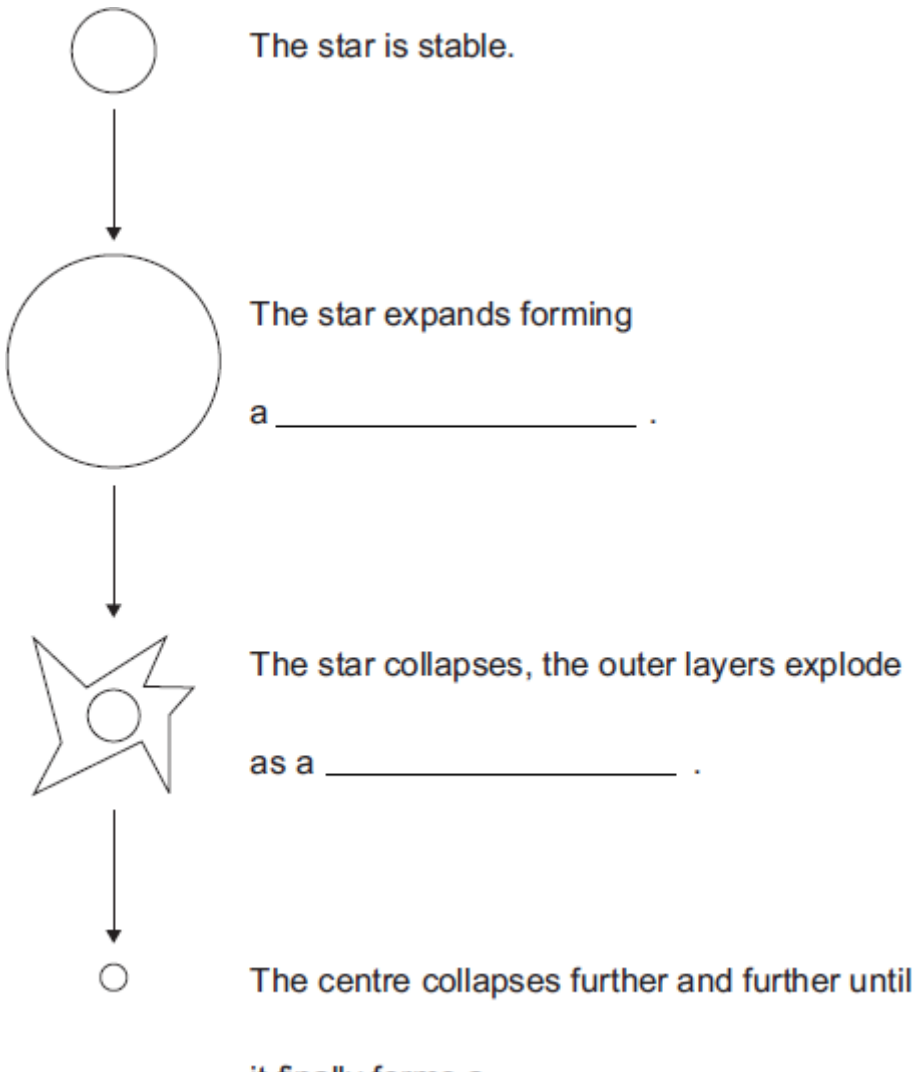

(Total 3 marks)

Q4.

(a) Scientists use telescopes to observe stars and galaxies.
Some telescopes are on Earth, but some are on satellites in space.

Why do telescopes in space give better images than telescopes on the Earth?

_____

_____

(1)

(b) Scientists have observed that the wavelengths of the light given out from galaxies that are moving away from the Earth are longer than expected.

(i) What name is given to this observation?

Put a tick (✓) in the box next to your answer.

blue-shift ☐

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green-shift ☐

red-shift ☐

(1)

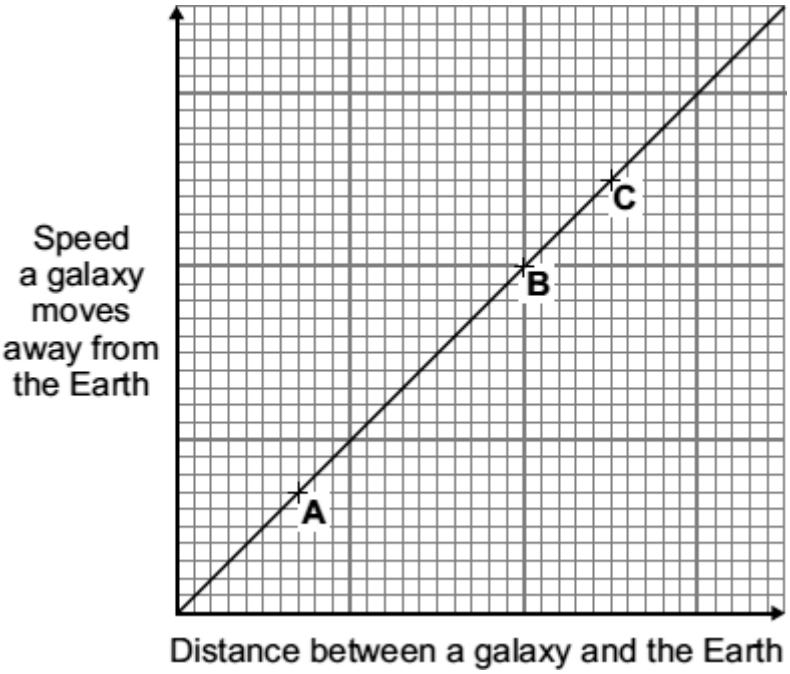
(ii) Complete the following sentence by drawing a ring around the correct line in the box.

This observation gives evidence for the idea that the universe is

shrinking.
not changing.
expanding.

(1)

(c) Use the graph to answer the following questions.



(i) What is the link between the speed that a galaxy moves away from the Earth and the distance between the galaxy and the Earth?

_____

_____

(1)

(ii) The positions of three galaxies, **A**, **B** and **C**, are marked on the graph.

From which galaxy, **A**, **B** or **C**, would the wavelength of the light reaching the Earth seem to have changed the most?

Galaxy _____

Give a reason for your answer.

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_____

_____

_____

_____

(2)
(Total 6 marks)

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