

Soalan Subjektif

11.1

Bintang dan Galaksi dalam Alam Semesta *Stars and Galaxies in the Universe*

Buku Teks: m.s. 240 – 247

1. Rajah 1 menunjukkan tiga jenis galaksi.
Diagram 1 shows three types of galaxies.



A



B



C

Rajah 1 / Diagram 1

- (a) Namakan jenis galaksi A, B dan C dalam rajah di atas. **(TP 1)**
Name the type of galaxies A, B and C in the diagrams above.
- (b) Berikan dua contoh bagi setiap galaksi. **(TP 1)**
Give two examples for each galaxy.

A: (i) _____

(ii) _____

B: (i) _____

(ii) _____

C: (i) _____

(ii) _____

- (c) Berikan tiga ciri-ciri galaksi Bima Sakti. (TP 1)
Give three characteristics of the Milky Way.

- Consist of 200 stars including the Sun
- An average size galaxy light spiral billion
- Has diameter of 120,000 years.

2. Padankan istilah di bawah dengan jawapan yang betul. (TP 2)
Match the terms below with the correct answers.

(a) Galaksi
Galaxy

(i) Terbentuk selepas letupan supernova yang membabitkan bintang super besar.
Formed after the supernova explosion when it involves a superlarge star.

(b) Nebula
Nebula

(ii) Galaksi berpilin yang mempunyai diameter kira-kira 120 000 tahun cahaya.
A spiral galaxy that has a diameter of about 120 000 light years.

(c) Bima Sakti
The Milky Way

(iii) Letupan besar yang berlaku kepada bintang raksasa merah.
A big explosion that happens to the red supergiant.

(d) Bintang neutron
Neutron star

(iv) Himpunan jutaan bintang, gas dan habuk.
A collection of millions of stars, gasses and dust.

(e) Supernova
Supernova

(v) Awan besar yang mengandungi debu, plasma, helium dan hidrogen.
A big cloud that contains dust, plasma, helium and hydrogen.

(f) Lohong hitam
Black hole

(vi) Terbentuk selepas letupan supernova yang melibatkan bintang besar.
Formed after the supernova explosion that involves a large star.

3. Nyatakan sama ada pernyataan berikut BENAR atau PALSU. (TP 2)
State whether the statements below are TRUE or FALSE.

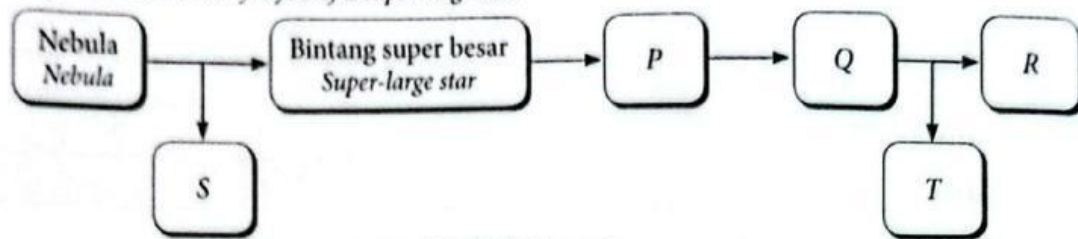
(a) Matahari bergerak mengelilingi titik tengah galaksi Bima Sakti.
The Sun is circling the center of the Milky Way.

(b) Apabila dilihat daripada Bumi, bintang kelihatan terang kerana memantulkan cahaya daripada Matahari.
When observe from the Earth, a star looks bright because it reflects light from the Sun.

(c) Terdapat sembilan buah planet di dalam sistem suria kita.
There are nine planets in our solar system.

(d) Kecerahan sesuatu bintang bergantung pada saiz dan jaraknya daripada Matahari.
The brightness of a star depends on its size and distance from the Sun.

4. Rajah 2 menunjukkan kitar hidup sebuah bintang super besar.
Diagram 2 shows the life cycle of a super-large star.



Rajah 2 / Diagram 2

- (a) Namakan P, Q dan R. **TP 1**
Name P, Q and R.

P: _____ Q: _____ R: _____

- (b) Huraikan proses yang terjadi di S. **TP 2**
Explain the process that takes place in S.

Gases and dust particles in the _____ are pulled by a gravitational force to become _____, contract and finally turns into a solid core. When the temperature and pressure in the core become too high, nuclear fusion happens and produces _____ and light. A protostar is finally born from this process. This star continues to _____ to become a super-large star.

_____ heat _____ denser _____ grow _____ nebula

- (c) Apakah yang berlaku di T? **TP 2**
What happens at T?

A _____ happens which is a massive _____ that destroys a _____
_____ explosion _____ star _____ supernova

- (d) Berbanding peringkat lain, bintang super besar berada dalam keadaan stabil. Jelaskan jawapan anda. **TP 4**
Compared to others, super-large star is stable. Explain the reason.

KBAT Menganalisis

The _____ force and pressure in the _____ star is in balance. It also has enough hydrogen for _____ fusion to continue to happen.

_____ nuclear _____ gravitational _____ super-large

- (e) Adakah Matahari akan melalui proses T pada akhirnya? Jelaskan jawapan anda. **TP 4**
Will the Sun undergoes process T at the end? Explain your answer.

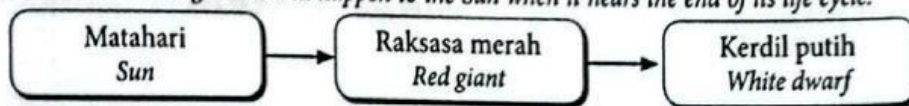
KBAT Menganalisis

_____. Because the Sun is a _____ mass star. The Sun is too small to cause a _____.

_____ supernova _____ medium

5. Rajah 3 menunjukkan perubahan yang bakal berlaku kepada Matahari dalam menuju penghujung jangka hayatnya.

Diagram 3 shows the changes that will happen to the Sun when it nears the end of its life cycle.



Rajah 3/ Diagram 3

- (a) Apakah yang akan menyebabkan Matahari bertukar menjadi raksasa merah? **TP 4**

What will cause the Sun to change into the red giant?

KBAT Menganalisis

The _____ layer of the Sun will heat up when a lot of heat is generated. This cause the hydrogen in this layer starts to _____, causing the Sun to _____ and become red giant.

burn expand outermost

- (b) Ramalkan akibatnya kepada Bumi apabila Matahari berubah menjadi raksasa merah. **TP 5**

Predict the consequences to the Earth when the Sun becomes a red giant.

KBAT Menilai

The Sun will grow to _____ the orbits of Mercury, Venus and perhaps even Earth. The new distance between the Earth and the Sun will become _____. This may not be _____ for living things on Earth.

closer safe encompass

6. Jadual 1 menunjukkan empat jenis bintang dan warnanya.

Table 1 shows four types of stars with their colours.

Jadual 1/ Table 1

Bintang Stars	Arcturus Arcturus	Polaris Polaris	Rigel Rigel	Betelgeuse Betelgeuse
Warna Colour	Jingga Orange	Kuning-putih Yellow-white	Biru-putih Blue-white	Merah Red

- (a) Susun bintang-bintang tersebut mengikut turutan yang betul. **TP 2**

Arrange the following stars based on the correct arrangement.

Semakin panas / Hotter

(i) _____ (ii) _____ (iii) _____ (iv) _____

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- (b) Pada pendapat anda, di manakah kedudukan Matahari dalam turutan tersebut? **TP 4**

In your opinion, where is the location of the Sun in the sequence?

KBAT Menganalisis

7. Nyatakan ciri-ciri pengelasan bintang. **TP 1**

State the characteristics for classifying stars.

- (a) B _____ (d) C _____
 (b) D _____ (e) T _____
 (c) S _____

Temperature

Size

Distance from Earth

Colour

Brightness