

## 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.

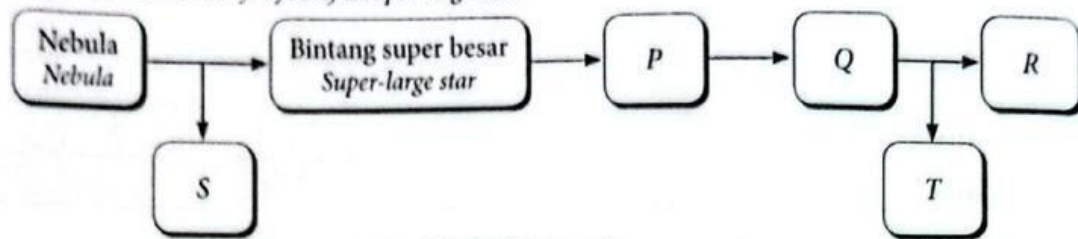
(a) Matahari bergerak mengelilingi titik tengah galaksi Bima Sakti.  
The Sun is circling the center of the Milky Way.

(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.

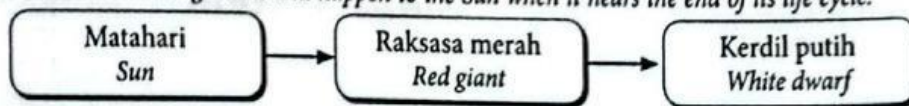
**KBAT** Menganalisis

\_\_\_\_\_. 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<br>Stars | Arcturus<br>Arcturus | Polaris<br>Polaris           | Rigel<br>Rigel           | Betelgeuse<br>Betelgeuse |
|------------------|----------------------|------------------------------|--------------------------|--------------------------|
| Warna<br>Colour  | Jingga<br>Orange     | Kuning-putih<br>Yellow-white | Biru-putih<br>Blue-white | Merah<br>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) \_\_\_\_\_

- (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