

Unit : 11  
**Our Universe**

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**concept:** Asterism or birth star (naal)

1. The motion of which of the following objects is related to the concept of asterism or birth star (naal) (1)  
(Earth, Sun, Moon, Galaxy)

**Score (1) Time (2 minute)**

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**concept :** Revolution of the Sun - ecliptic

2. Which of the following is ecliptic?  
(a) The orbit of the moon around the Earth  
(b) The orbit of the Earth around the sun  
(c) The orbit along which the Sun appears to move among the stars  
(d) The orbit along which the moon moves around the Sun (1)

**Score (1) time (2 minute)**

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**Concept :** Ecliptic, Solar constellation

3. What is the time taken by the Sun to cross a constellation? (1)

**Score (1) Time (2 minute)**

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**Concept :** Ecliptic - constellation

4. (a) What is meant by njattuvela?  
(b) What is the reason for giving the names of asterisms to njattuvela?  
(c) In which constellation will be the Thiruvathira njattuvela? (3)

**Score (3) time (2 minute)**

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**Concept :** Ecliptic - constellation

5. During day time stars are not seen in the sky along with the Sun.  
(a) Yet it is usually said in which constellation the Sun is. How is it possible? (1)  
(b) What is meant by a constellation? (1)  
(c) During the period of Aries the star Aswathi is not seen in the sky. What is the reason? (1)

**Score (3) time (4 minute)**

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**Concept :** The structure of the Sun.

6. (a) Certain regions in the structure of the Sun are given below. Write them in order outward from the core of the Sun.

(Chromosphere, Photosphere, Radiative zone, Corona) (1)

- (b) Which of these are visible only at the time of a solar eclipse? (1)

**Score (2) time (2 minute)**

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**Concept :** The birth of stars.

7. Why are stars seen in different colours? (2)

**Score (2) time (2 minute)**

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**Concept :** Birth of Stars

8. "Stars and planets are all formed from the same particles."

How does energy production take place in stars? (2)

**Score (2) time (3 minute)**

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**Concept :** The birth and death of stars

9. A star is born from nebula. It dies as a black dwarf

(a) Prepare a flow chart of the various stages between these two

(b) What are the conditions required for a star to become a black dwarf?

**Score (3) time (4 minute)**

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**Concept :** The birth and death of stars

10. (a) Certain stars become black holes at the last stage of their life. What are the conditions required for it?

(b) What are the main stages through which a main sequence star passes before it becomes a black hole?

**Score (2) time (3 minute)**

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**Concept :** Galaxies

11. Find the relation between the terms in the first pair and complete the second

The distance between the stars : : light year

The distance between the Earth and the Sun : : .....

**Score (1) time (2 minute)**

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**Concept:** Space research

12. Who was the first scientist to conduct astronomical observations with the aid of a telescope? What are the findings of his observations on the sky? (four findings)

**Score (3) time (3 minute)**

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**Concept :** Space research

13. Telescopes intended to study space are established outside the atmosphere of the Earth. What is the reason?

**Score (2) time ( 4 minute)**

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**Concept :** Space research in India

14. How far India has advanced in space exploration? Prepare a write up.

**Score (3) time (5 minute)**

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**Concept :** Artificial Satellites

15. (a) What are the advantages of artificial satellites? (1)  
(b) What are the peculiarities of polar satellites? (1)  
(c) Why is it said that all equatorial satellites are not geosynchronous? (1)

**Score (3) time (5 minute)**

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