20. In the world of stars

1. Write the proper words in the blanks.

(Meridian, Horizon, Twelve, Nine, Apparent, Celestial, Ecliptic)

(i) When seen from a great distance, the sky seems to be touching the ground along a circle. This circle is called the..... .

Ans : Horizon

(ii) The..... is used while defining the zodiac signs.

Ans : Ecliptic

(iii) Classified according to seasons, one season will have ..... nakshatras.

Ans : Nine

(iv) The rising of the sun in the east and its setting in the west is the..... motion of the sun.

Ans : Apparent

(v) Pole star has ..... constellation on one side and ..... constellation on the other side.

Ans : The Great Gear (Saptarshi) and Cassiopeia (Sharmishta)

2. A star rises at 8 pm tonight. At what time will it rise after a month? why?

Ans : The stars rise 4 minutes early next day. Therefore, after a month it will be 120 minutes or 2 hours earlier than tonight. Thus, the star will rise at 6 pm after a month.

3. What is meant by 'The sun enters a nakshtra' ? It is said that in the rainy season the sun enters the Mrug nakshatra. What does it mean ?

Ans : As the earth changes its position due to its revolution, a different constellation or raashi appears behind the sun every 13^0 20'. But this is expressed as if sun has entered a particular raashi. So, when we say sun has entered Mrug nakshtra, actually Mrug constellation is behind the sun.

4. Answer the following questions.

(a) What is a constellation ?

Ans : A group of stars occupying a small portion of celestial sphere is called a constellation. Same of these stars appear to form certain animal or human figures and objects. These constellations is behind the sun.

(b) What points should be considered before a sky watch ?

Ans : All the equipments such as good quality binocular, telescope, the sky map, the compass to show directions are to be gathered before sky observation. The place for sky watching should be away from the city and illumination of city lights. The night for sky watching should be a new moon night for a darker sky.

(c) Is it wrong to say that the planets, stars and nakshatr as affect human life? Why?

Ans : Distant stars, planets, comets or any constellation do not have any influence on human life. In the age of scientific and technological progress, man has stepped over the moon. Soon in this century man will step on the Mars too. Therefore, unless it is scientifically proved, we cannot say that stars, planets and celestial bodies have impact on human life.

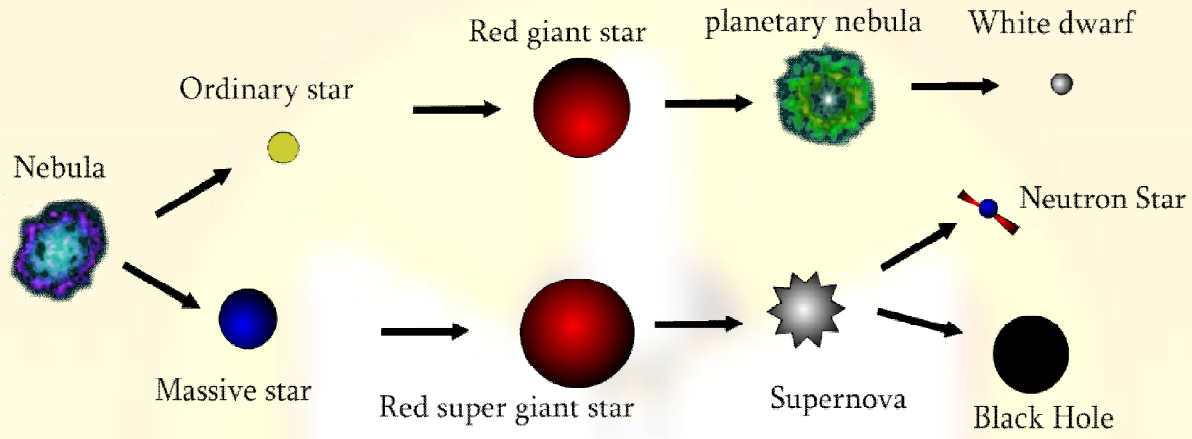
(d) What points should be considered before a sky watch ?

Ans : All the equipments such as good quality binocular, telescope, the sky map, the compass to show directions are to be gathered before sky observation. The place for sky watching should be away from the city and illumination of

city lights. The night for sky watching should be a new moon night for a darker sky.

5. Write a paragraph on the birth and lifecycle of stars using figure.

Ans :



Stars are born out of nebulae. Nebulae are the clouds made up mainly of hydrogen gas and dust particles. The particles in this cloud are attracted toward each other due to the force of gravity. As a result, the cloud contracts and becomes dense and spherical in shape. At the same time, the pressure of the gas at the core of the cloud increases and the temperature rises tremendously. A large amount of energy is generated. Because of the tremendous rise in the temperature atomic disintegration takes place at the core of the cloud. A disc is formed around the core of the cloud. Gasses start emitting from the core of the cloud and a spherical star is

formed. Later, processes such as contraction, expansion, rise in temperature, etc., bring about changes in the nature of the star. These changes occur over a very long period of time and constitute the lifecycle of the stars. The different forms of the stars at various stages during this life cycle are identified as different types of stars. The various stages involved in the evolution of the star are classified as Nebula, Star, Red Giant, Red Dwarf, White Dwarf, Super Anova, Neutron star and Black hole.

****