Maharashtra Board Solutions Class 7-Science: Chapter 20- In the World of Stars



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Maharashtra Board Solutions Class 7-Science: Chapter 20- In the World of Stars

Class 7: Science Chapter 20 solutions. Complete Class 7 Science Chapter 20 Notes.

Maharashtra Board Solutions Class 7-Science: Chapter 20- In the World of Stars

Maharashtra Board 7th Science Chapter 20, Class 7 Science Chapter 20 solutions

Questions and Answers

1. Write the proper words in the blanks:

(meridian, horizon, twelve, nine, apparent, celestial, ecliptic)

Question a.

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

Answer:

horizon

Question b.

The …….. is used while defining the zodiac sign.

Answer:

meridian

Question c.

Classified according to seasons, one season will have …… nakshatras.

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Answer:

nine

Question d.

The rising of the sun in the east and its setting in the west is the ……. motion of the sun.

Answer:

apparent

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

Question a.

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

Answer:

1. Str s rise and set 4 minutes earlier every day. If star rises at 8 pm tonight, it will rise at 7:56 pm tomorrow.
2. It will rise at 5:24 pm after a month.
3. The sun and the moon are seen to move from the west to the east against the background of stars.
4. The sun moves through one degree every day and the moon through 12 to 13 degrees.
5. This happens due to the motion of the earth around the sun and the moon around the earth which affects the duration of the stars and shortens its time period.

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

Question a.

What is meant by "The sun enters a nakshatra?" It is said that in the rainy season the sun enters the mrug nakshatra. What does it mean?

Answer:

1. When we look at the sun we see not only the sun but also constellation behind the sun.
2. The constellation cannot be seen in bright sunlight but it is indeed present behind the sun.

3. As the earth changes its position, a different constellation or zodiac sign or raashi appears behind the sun.
4. This is what we express when we say that the sun enters a particular zodiac sign or raashi.
5. In rainy season due to the perceived motion of the sun, it enters mrug nakshatra and that is how it is expressed.

4. Answer the following questions.

Question a.

What is a constellation?

Answer:

A group of stars occupying a small portion of the celestial sphere is called a constellation.

Question b.

What points should be considered before a skywatch?

Answer:

1. The place for sky watching should be away from the city and as far as possible it should be new moon night.
2. Binoculars or telescopes should be used for skywatch.
3. Identifying the pole star in the north makes the skywatch easier. Hence the pole star should be used as a reference point for skywatch.
4. As the stars in the west set early, sky watching should begin with stars in the west.
5. (a) On a sky map, the north and south are towards the bottom and top of the map respectively, (b) This is because the sky map is to be held overhead in such a way that the direction we face is at the bottom side.

Question c.

It is wrong to say that the planets, stars and nakshatras affect human life. Why?

Answer:

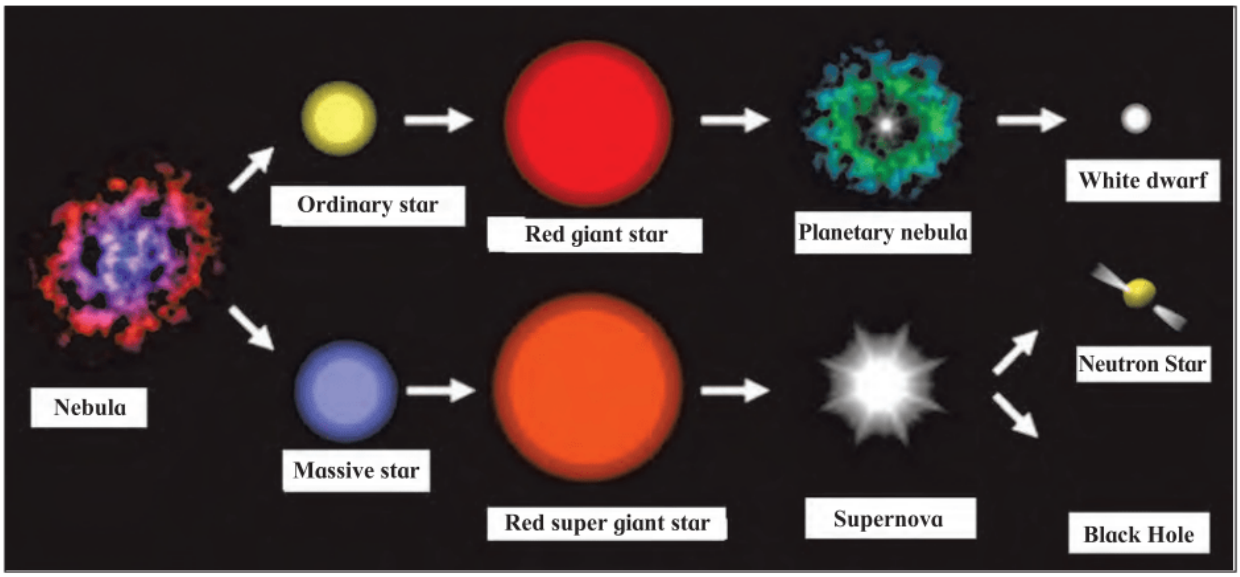
1. Science has proved that the constituents of the solar system e.g. planets, satellites and comets as also distant stars and constellations do not have any influence on human life.
2. Man has stepped on the moon and will conquer Mars in the 21st century.

3. Hence, in this age of science, holding on to beliefs which have been proved wrong by numerous scientific tests, is an unnecessary waste of time and energy.
4. It is important to consider all these issues with a scientific frame of mind.

5. Write a paragraph on the birth and life cycle of stars using following figure.

Question a.

Write a paragraph on the birth and life cycle of stars using following figure.



Lifecycle of stars

Answer:

Stars are born out of nebulae. Nebulae are clouds made up mainly of hydrogen gas and dust particles which are attracted towards one another by the force of gravity, (i) As a result of pressure, the internal temperature increases and the cloud becomes dense and spherical in shape, (ii) From the diagram, life cycle of two stars can be explained.

(a) Ordinary star: (i) The ordinary star forms a Red giant star at the later stage of its evolution when it runs out of hydrogen gas at its core. (ii) At the end stage of its life it forms a white dwarf. Stars like the sun become white dwarf when its nuclear fuel is totally exhausted. (iii) It is 1% in diameter of its original size.

(b) Massive Star: (i) Massive star forms Red super giant star at the end of its life cycle, (ii) They are also called super red giants with a relatively cool outer surface, (iii) Supernova is the explosive death of the star of the end of its life with the brightness of 100 million stars in a short

amount of time, (iv) A neutron star is the dense core of the supernova. (v) It is the smallest and the densest star known to exist with a 10 km radius, (vi) Neutron stars sometimes end as a black hole, (vii) Black holes are not seen from telescopes and are identified by their intense gravitational pull where even light cannot escape.

Project:

Question a.

Visit a planetarium, collect information and present it in your school on Science day.

Important Questions and Answers

Fill in the blanks:

Question 1.

The different group of stars is known as …….. .

Answer:

constellation

Question 2.

The pole star is …….. .

Answer:

North star

Question 3.

The moon moves around the earth in about …….. days.

Answer:

27 days

Question 4.

The celestial objects are …….. .

Answer:

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The stars

Question 5.

The star that lies close to the aris of rotation of the earth …….. .

Answer:

Pole star

Question 6.

The definite elliptical path in which a planet revolves around the sun is called …….. .

Answer:

Orbit

Question 7.

Our earth as well as the sun belongs to the galaxy which has a spiral shape called …….. .

Answer:

milky way

Question 8.

…….. is made up of five bright stars which are distributed along the figure of the letter M.

Answer:

Sharmishtha

Question 9.

The pole star has ……. on one-side and …… on the other.

Answer:

Saptarashi, Sharmishtha

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Question 10.

The continuous empty space between the planets and stars in the sky is called ……..

Answer:

space

Name the following:

Question 1.

The brightest star in the nakshatra.

Answer:

Yogatara

Question 2.

The stars forming a group that has a recognizable shape.

Answer:

Constellation

Question 3.

Millions of stars and planets present in the sky forming a group.

Answer:

Milky way

Question 4.

The clouds from which stars are bom.

Answer:

Nebulae

Question 5.

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Saptarshi constellation in English.

Answer:

Great Bear

Question 6.

The festival celebrated when sun enters Makar raashi.

Answer:

Makara Sankranti

Question 7.

The brightest star in the Orion constellation.

Answer:

Sirius

State whether the following statements are True or False. Correct the false statements:

Question 1.

The hydrogen gas and dust particles in a nebulae are attracted towards each other by gravity.

Answer:

True

Question 2.

While standing on the ground, the celestial sphere exactly below our feet is called the Zenith.

Answer:

False. The point on the celestial sphere exactly above our head is called the Zenith

Question 3.

The circle describing the apparent motion of the earth around the sun is called the ecliptic.

Answer:

False. Ecliptic is the apparent motion of sun around the earth

Question 4.

Vrushchik or Scorpio is a constellation with 10 to 12 stars.

Answer:

True

Question 5.

Makar raashi is also known as Capricorn zodiac sign.

Answer:

True

Match the following:

Question a.

Column 'A'	Column 'B'
1. Saptarshi	a. Divided into 88 constellations
2. Mmg nakshatra.	b. In the north direction.
3. Orion	c. Group of 7 bright stars (kite)
4. Vrushchik	d. Made up of 5 bright stars (M)
5. Pole star	e. 7 – 8 stars.
6. Celestial sphere	f. Group of 10 -12 stars

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Answer:

Column 'A'	Column 'B'
1. Saptarshi	c. Group of 7 bright stars (kite)
2. Mmg nakshatra.	d. Made up of 5 bright stars (M)
3. Orion	e. 7 – 8 stars.
4. Vrushchik	a. Divided into 88 constellations
5. Pole star	b. In the north direction.
6. Celestial sphere	f. Group of 10 -12 stars

Answer in one line:

Question 1.

In which direction stars move in the sky except polar star?

Answer:

When seen from earth, stars appear to move from east to west.

Question 2.

What activity does IUCAA carry out?

Answer:

IUCAA which is present in PUNE carries out fundamental research in astronomy.

Question 3.

Define constellation.

Answer:

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A group of stars occupying a small portion of the celestial sphere is called constellation.

Question 4.

What is Nakshatra?

Answer:

The moon completes one revolution around the earth in approximately 27 days. The portion celestial sphere traversed by the moon in one day is called a nakshatra.

Question 5.

What is yogatara?

Answer:

A nakshatra is known from the brightest star that it contains. The brightest star is called the yogatara.

Define the following:

Question 1.

Horizon

Answer:

Far away the sky seems to be touching the ground. The line at which they meet is caled horizon.

Question 2.

Zenith

Answer:

While standing on the ground the point on the celestial sphere exactly above our head is called the Zenith.

Question 3.

Nadir

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Answer:

While standing on the ground the point on the celestial sphere exactly below our feet is called the nadir.

Question 4.

Meridian

Answer:

The great circle which passes through both the celestial poles and the observer's zenith and nadir is called a meridian.

Question 5.

Celestial equator

Answer:

If we uniformly expand earth's equator in all directions indefinitely, it will penetrate the celestial sphere along a circle. This circle is known as the celestial equator.

Question 6.

Ecliptic

Answer:

The earth moves around the sun, but seen from the earth, the sun appears to move along a circle on the celestial sphere. This circle describing the apparent motion of the sun around the ' earth is called the ecliptic.

Question 7.

Zodiac sign

Answer:

The ecliptic has been imagined to divided into 12 equal parts. Each part subtends 30 degrees at the centre of the celestial sphere. Each of these part is called a raashi or zodiac sign.

Question 8.

Mrug Nakshatra or Orion

Answer:

It has 7 – 8 starts of which four are at the comers of quadrangle. The line passing through the three middle stars of the constellation when extended meets a very bright star. This is Vyadh or Sirius.

Find out.

Answer the following questions

Question 1.

Using a Marathi calendar collect information about 27 nakshatras, and divide them into the following 3 categories.

(i) Monsoon Nakshatra (ii) Winter Nakshatra (iii) Summer Nakshatra

Answer:

27 nakshtras: Ashwini, Bharani, Krittika, Rohini, Mrigashirasha, Ardra, Punarvasu, Pushya, Ashlesha, Magha, PurvaPhalguni, Uttara Phalguni, Hasta, Chitra, Swati, Vishakha, Anuradha, Jyeshtha, Mula, Purva Ashadha, Uttara Ashadha, Abhijit, Shravana, Dhanishtha, Shatabhishta, Purva Bhadrapada, Uttara Bhadrapada, Revati

Monsoon Season	Winter Season	Summer Season
Ashwini Karthe	Krittika	Visakha
Bharani Karthe	Rohini	Anuradha
Arudra Karthe	Mrigashirsha	Jyeshtha
Pushyani	Ardra	Mula
Aslesha	Punarvas	Purva

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	u	Ashadha
Magha		Uttara Ashadha
Purva Phalguni		Shravana
Uttara Phalguni		
Chitra		
Hasta		

Question 2.

Write the difference between constellations Saptarshi and Mrug nakshatra

Answer:

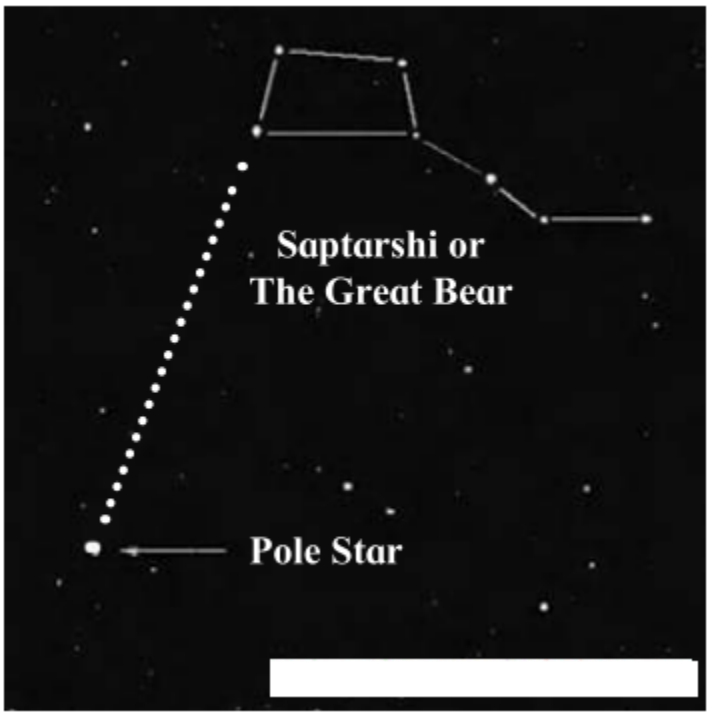
Saptarshi	Mrug nakshatra
1. It is made up of five bright stars which are distributed along the figure of the letter M.	1. It is made up of seven-eight stars of which four are at the corners of a quadrangle.
2. Pole star is the brightest star in the constellation.	2. Sirius is the brigh $jv_{eu}tr_{0n}$ $Star^{ie}$ constellation.
3. It is on the meridian in the month of April and in the month of October.	3. It is on the meridian in the month of February and in June.
4. In English, it is called the Great Bear.	4. In English, it is called Orion.

Question 3.

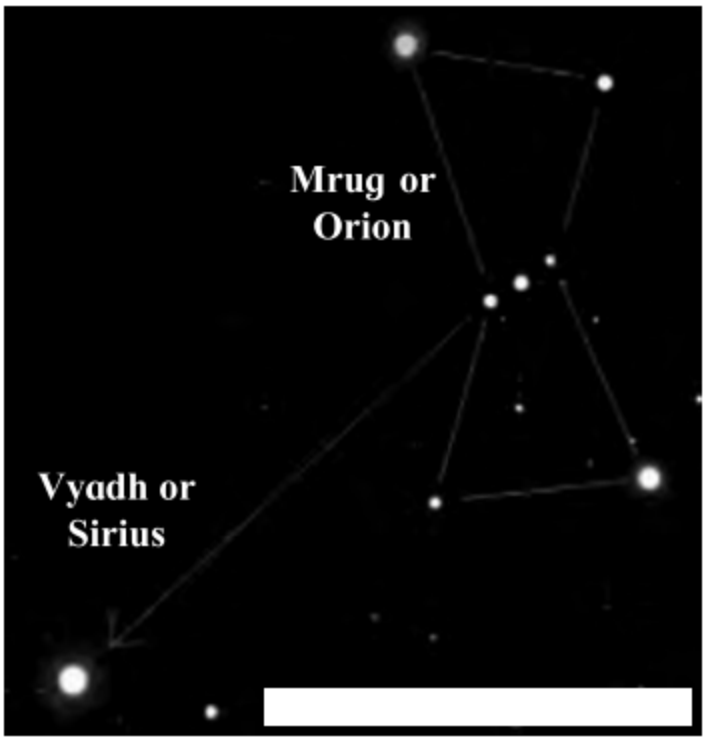
Draw sketches to show the relative position of prominent stars in Ursa major and Orion.

Answer:

a. Ursa major (Saptarshi) appears like a big dipper, (or kite shape). There are 3 bright stars in the handle and 4 stars in the bowl of the dipper. (It can be seen during April in summer in northern skies).



(b) Orion appears like a hunter. Three bright stars appear in the belt, 5 bright stars are arranged in the form of a quadrilateral. (It is visible during winter in the northern skies)



Question 4.

Why is the pole star important for sky watch?

Answer:

1. Identifying the Pole Star in the north makes the sky watch easier. Hence the pole star should be used as a reference point for skywatch.
2. If we extend one side of the quadrangle of Saptarshi, it reaches the Pole Star. The pole star has Saptarshi on one side and Sharmishtha on the other.

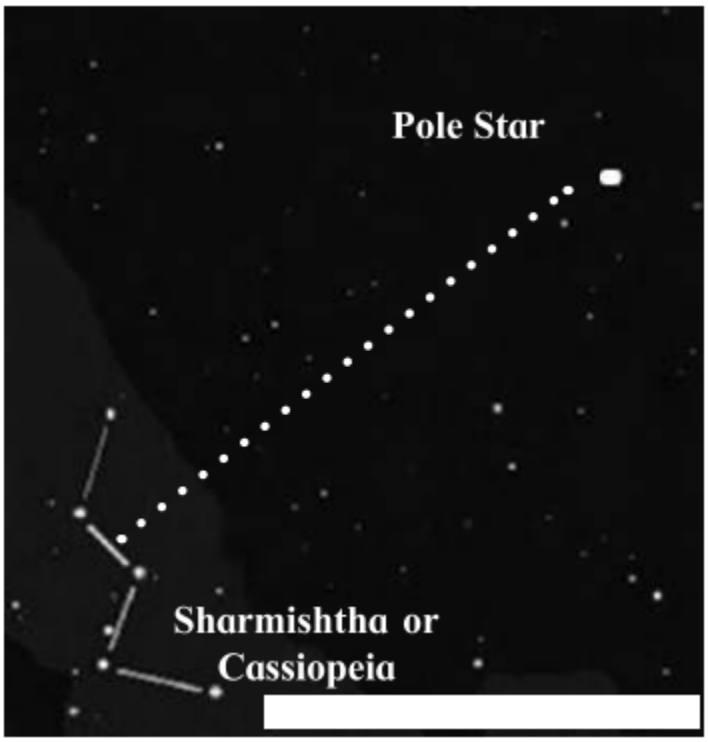
Question 5.

What is the relation between the pole star and the constellations Saptarshi and Sharmishtha?

Answer:

1. Saptarshi is in the shape of a quandrangle with a tail made up 3 stars resembling a kite. If we extend one side of the quadrangle it reaches the Pole Star.
2. The constellations of Saptarshi and Sharmishtha are useful in locating the Pole Star.

3. The perpendicular bisector of the line joining the third and fourth stars in Sharmishtha goes towards the Pole star.
4. The Pole Star has Saptarshi on one side and Sharmishtha on the other.



Use your brain power!

Answer the following questions.

Question 1.

One Zodiac Sign = ……. nakshatras

Answer:

27 nakshatras. Each nakshatra is divided in padas or charan. Every nakshatra has 4 padas. These 27 nakshatra complete the entire circle of 360° of zodiac.

The zodiac comprises of 360°.

Question 2.

Is sun the only star present in our Milky Way galaxy?

Answer:

No. Sun is not the only star present in the Milky Way. There are lakhs of stars in the Milky Way, some of them being many times bigger than our sun. Some of them have their own planetary systems with a great diversity in colour, brightness, as well as size.



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- Chapter 1- The Living World: Adaptations and Classification
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- Chapter 4- Nutrition in Living Organisms
- Chapter 5- Food Safety
- Chapter 6- Measurement of Physical Quantities
- Chapter 7- Motion, Force and Work
- Chapter 8- Static Electricity
- Chapter 9- Heat
- Chapter 10- Disaster Management
- Chapter 11- Cell Structure and Micro-organisms
- Chapter 12- The Muscular System and Digestive System in Human Beings
- Chapter 13- Changes - Physical and Chemical
- Chapter 14- Elements, Compounds and Mixtures
- Chapter 15- Materials We Use
- Chapter 16- Natural Resources
- Chapter 17- Effects of Light
- Chapter 18- Sound: Production of Sound
- Chapter 19- Properties of a Magnetic Field
- Chapter 20- In the World of Stars

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The Maharashtra State Board of Secondary and Higher Secondary Education or MSBSHSE (Marathi: महाराष्ट्र राज्य माध्यमिक आणि उच्च माध्यमिक शिक्षण मंडळ), is an **autonomous and statutory body established in 1965**. The board was amended in the year 1977 under the provisions of the Maharashtra Act No. 41 of 1965.

The Maharashtra State Board of Secondary & Higher Secondary Education (MSBSHSE), Pune is an independent body of the Maharashtra Government. There are more than 1.4 million students that appear in the examination every year. The Maha State Board conducts the board examination twice a year. This board conducts the examination for SSC and HSC.

The Maharashtra government established the Maharashtra State Bureau of Textbook Production and Curriculum Research, also commonly referred to as Ebalbharati, in 1967 to take up the responsibility of providing quality textbooks to students from all classes studying under the Maharashtra State Board. MSBHSE prepares and updates the curriculum to provide holistic development for students. It is designed to tackle the difficulty in understanding the concepts with simple language with simple illustrations. Every year around 10 lakh students are enrolled in schools that are affiliated with the Maharashtra State Board.

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The Maharashtra State Board of Secondary & Higher Secondary Education, conducts the HSC and SSC Examinations in the state of Maharashtra through its nine Divisional Boards located at Pune, Mumbai, Aurangabad, Nasik, Kolhapur, Amravati, Latur, Nagpur and Ratnagiri.

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