

## UNIT 2 - UNIVERSE AND SPACE

**Class: VII**

**Subject: Science**

### I. Choose the correct answers

- The moon takes \_\_\_\_\_ days to complete one revolution around the Earth  
a. 25                      b. 26                      **c. 27**                      d. 28
- If the Moon is appearing in the sky today near the star Karthikai, the position of the Moon after 27 days is near the star  
a. Bharani                b. Karthikai                c. Rohini                **d. Asvini**
- Telescope was invented by  
**a. Han Lippershey**    b. Galilio                      c. Nicolus Copernicus                d. Ptolomy
- The galaxy containing young and hot stars is  
a. elliptical galaxy    b. irregular galaxy    c. cluster                **d. spiral galaxy**
- With the launch of this satellite, ISRO became capable of launching 4 ton heavy satellites.  
a. GSAT- 13                b. GSAT- 14                c. GSAT- 17                **d. Way par GSAT- 19**

### II. Fill in the blanks.

- Waxing of moon means growing or expanding.
- Heliocentric model is proposed by Nicolus Copernicus.
- The Big Bang Theory is the prevailing model of Evolution of the Universe
- Ursa Major is a large constellation which covers a large part of the sky.
- Aryabhata is the first satellite launched by India

### III. True or False - If False give the correct answer

- On a full moon day, when the Sun is setting in the west, moon rises in the West. **False**
- The word crescent refers to the phases where the moon is less than half illuminated. **True**
- Galilio accepted the Geo-centric model. **False**
- Our Milky Way galaxy is identified as an elliptical galaxy. **False**
- The planet Venus in our solar system doesn't have a moon. **True**

### IV. Match the following

- Rohini                      -    SLV -3
- GSAT                        -    GSLV-D5
- GSAT-19                    -    14 -GSLA Mark III MI

4. Chandrayan 2 - GSLV.Mark III
5. Mangalyam - PSLV-XLC25

### V. Analogy

1. Older stars : elliptical galaxies :: younger stars : Irregular galaxies.
2. Nearest galaxy : Andromeda :: Nearest star : Alpha Centauri.

### VI. Very short answer

1. The word crescent refers to the phases where the moon is less than half illuminated. (crescent / gibbous)
2. Mercury, and Venus planets never appear in the mid-night sky.
3. Number of days taken by the Mars to orbit around the Sun. 687 days.
4. In which phase does the size of the planet Venus is small?  
When it was in Gibbous phase.
5. The only evidence of the big bang theory is  
The only evidence of the big bang theory is a faint glow in space, called cosmic microwave background.
6. The galaxy which contains abundant amount of gas and dust is  
Spiral galaxy.
7. Which country launched the world's first artificial launch vehicle?  
Russia launched the world's first artificial launch vehicle.

### VII. Short Answer Questions

#### 1. What is epicyclic model?

To explain the puzzling phenomena astronomers in early times proposed a change in the simple geocentric model. This is called as epicycle model.

#### 2. Name the four different types of galaxies.

- Spiral galaxy
- Elliptical galaxy
- Irregular galaxy
- Barred spiral galaxy

#### 3. What is constellation?

A constellation is a recognizable pattern of stars in the night sky when viewed from the Earth.

#### 4. Give the expansions of PSLV and GSLV

The Polar Satellite Launch Vehicle (PSLV) for launching satellites into polar orbits and the Geosynchronous Satellite Launch Vehicle (GSLV) for placing satellites into geostationary orbits.

### VIII. Answer in Detail

#### 1. Explain the waxing and waning phases in Venus

- As the Venus went around the epicycle, as shown in the diagram Venus would exhibit phases.
- Also at times the planet would be nearer, making the apparent size grow bigger and at times far making the apparent size smaller.
- If the Venus was going around the Sun, and its orbit is inside that of Earth, Venus would appear always near the Sun in the sky.
- It can never be seen in the midnight sky. Two when it is near the Earth, it would be brighter and bigger compared to when it is on the other side of the Sun.
- Thirdly only if the Venus is revolving around the Sun, it can exhibit gibbous phase, and the size of the gibbous phase smaller than the crescent phase.
- If the Venus was revolving around the Earth, we can never see the gibbous phase of the Venus and it would be seen only if it is orbiting the Sun.

#### 2. Write short notes on constellations.

- A constellation is a recognizable pattern of stars in the night sky when viewed from the Earth.
- International Astronomical Union has classified 88 constellations to cover the entire celestial sphere.
- Many of the old constellations have Greek or Latin names and are often named after mythological characters.
- Ursa Major (Saptha Rishi Mandalam) is a large constellation and it covers a large part of the sky.
- The most striking feature of this constellation is a group of seven bright stars known as big dipper (seven Sages in Indian astronomy).
- Ursa Minor in Latin means 'the little bear' it lies in the northern sky.
- The Pole star - Polaris (Dhruva) lies within this constellation.
- The main group, 'little dipper', consists of seven stars and is quite similar to that found in Ursa Major.

## IX. HOT Question

1. Neelan and Mala are having a conversation about our Universe. Neelan is telling our earth will be the only planet in the entire Universe to have a life with. But, Mala is opposing his view by citing certain points. What would be the argument of Mala. Do you support Mala? Justify your stand.

- I would like to support Neelan, because Life is possible only on the Earth due to presence of water, oxygen, various gases and suitable temperature, which enables us to live.

Mala opposed Neelan's view based on the following points :

- Like the Sun, there might be billions of other stars with their own planets revolving around them.
- Thus there are many chances of any planet getting the suitable conditions for supporting life.

