Summary Completion Skill-Building Exercise 2

THE ORIGIN OF THE EARTH AND THE UNIVERSE- DIFFERENT THEORIES

When we talk of evolution, we generally refer to the biological evolution of living beings. However, evolution also refers to the processes by which galaxies, stars, planets, and the universe come into existence and change. Though these processes are quite different, the common fact is the change over time. But for centuries scientists held the belief that the universe always remained the same.

In 1929, Edwin Hubble, an American astronomer, made an interesting observation that distant galaxies and stars are moving away from the Earth in all directions. This led to Hubble's hypothesis that the universe is not static but is expanding. He also discovered that the speeds with which galaxies are racing away from each other increase with the increasing distances between them and this has been proved now by various repeated measurements.

Certain deductions can be made from Hubble's hypothesis of an expanding universe. One of them is that in a previous era the universe was more condensed. This suggests that all the matter and energy in the universe were earlier condensed in a tiny and extremely hot mass. A massive explosion, called the Big Bang, occurred around 13.8 billion years ago and it sent energy and matter expanding in every direction at a very high speed.

As the universe continued to expand, matter gathered into clouds that started to condense and then rotate, forming the predecessors of the galaxies. Due to the changes in pressure inside galaxies, including our own Milky Way, dust and gas formed distinct clouds. Further, some of these clouds collapsed due to the gravitational attraction as there was enough mass, and the correct forces were at play. When the cloud material mass was adequately compressed, nuclear reactions took place leading to the birth of a star. Our sun, for example, formed in the center of a flattened spinning disk of matter.

After the formation of the sun, the remaining dust and gas present in this disk collided and clumped into grains which further combined to form very small planets called planetesimals. Some of these were several hundred kilometers in diameter. These planetesimals then coalesced into nine planets with many satellites. The rocky planets like Earth were formed near the sun, while gaseous planets were located in distant orbits.

According to another theory, which is propounded by some religions as well as scientists, the universe was created by God. This theory also termed 'theistic evolution, claims that God is the driving force behind the physical and biological evolution that created the solar system and life on Earth. The proponents of this creationist theory have various viewpoints. Some feel that the Earth and universe are comparatively young - around 6,000 to 10,000 years old. These people also believe that the existing form of Earth is due to 'catastrophism' which included a worldwide flood, and there was miraculous creation of humans and all living things as they are today.

There are other advocates of creationist theory who accept the fact that the Earth, the stars, and the planets could have been in existence a million years ago. However, they argue that the presence of living organisms, especially humans, is due to the intervention of supernatural powers as creation shows 'intelligent design.' Even though such theories abound, there is no valid scientific information that suggests that Earth came into being only a few thousand years ago.

It is not surprising that there are so many theories trying to explain the origins of the Earth and the universe, as the vastness of space has always fascinated mankind. However, one has to ask, will

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researchers ever be able to prove what led to the creation of the universe and our wonderful planet or will we have to satisfy ourselves with various theories and conjectures? Only time will tell.

Questions 1 - 7
Complete the summary below.
*Write **NO MORE THAN TWO WORDS** from the passage for each answer.*

The belief regarding the permanence of the universe was contradicted when in 1929, Edwin Hubble discovered that the various celestial bodies are receding from **1** _____ in every direction and the speeds of recession are directly related to growing **2** _____. It gave the theory of a **3** _____ universe. It can be inferred from Hubble's hypothesis that initially, the universe was extremely hot and highly **4**_____ and a huge explosion resulted in its continuing expansion. Gradually, the matter combined to form clouds that started rotating, resulting in galaxies. In the presence of the right forces, physical and chemical interactions took place within the galaxies. Consequently, stars and other celestial bodies evolved from the gas and **5** _____.

On the other hand, according to 'theistic evolution' theory, God has created the universe. Though the supporters of this view are divided over the age of the Earth, and a group believes that the Earth evolved in its present form due to 6 _____, they all agree that all life forms especially humans are the creation of God due to their 7 _____.

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