## Que.1. How was the layered structure of the earth and its atmosphere developed?

## [Marks :(3)]

**Ans.** The earth has a layered structure. From the outermost end of the atmosphere to the centre of the earth, the material that exists is not uniform. The atmospheric matter has the least density. From the surface to deeper

depths, the earth's interior has different zones and each of these contains materials with different density and characteristics.

# Que.2. Explain the stages considered in the development of planets.

[Marks :(3)]

Ans. Stages in the development of planets are :

(i) The stars are localised lumps of gas within a nebula. The gravitational force within the lumps leads to the formation of a core to the gas cloud and a huge rotating disc of gas and dust develops around the gas core.

(ii) In the next stage, the gas cloud started to condense and the matter around the core developed into smallrounded objects. These small-rounded objects by the process of cohesion developed into what is called planetesimals. Larger bodies start forming by collision, and gravitational attraction caused the material to stick together. Planetesimals are a large number of smaller bodies.

(iii) In the final stage, these large number of small planetesimals accreted to form a fewer large bodies in the form of planets.

### Que.3. Match the following.

[Marks :(3)]

Scientist/philosopher	Concept/hypothesis
Edwin Hubble	Nebular Hypothesis
Chamberlain and Moulton	Wandering star Hypothesis
Immanuel Kant	Expanding universe Hypothesis

#### Ans.

Scientist/philosopher	Concept/hypothesis
Edwin Hubble	Expanding universe Hypothesis

Chamberlain and Moulton	Wandering star Hypothesis
Immanuel Kant	Nebular Hypothesis

Que.4. Following are the characteristics of the outer planet and the inner planet. Categorise them suitably.

[Marks :(3)]

Made up of rocks and metals and have relatively high density.

Have thick atmosphere mostly of helium and hydrogen.

Comparatively larger in size.

Comparatively smaller in size.

Jupiter-like.

Earth-like.

Ans.

Inner Planets	Outer Planets
Made up of rocks and metals and have relatively high density	Have thick atmosphere mostly of helium and hydrogen
Comparatively smaller in size	Comparatively larger in size
Earth- like	Jupiter- like

### Que.5. Match the following

[Marks :(3)]

Α	В
Origin of the earth	The big splat
Origin of the universe	Nebular hypothesis
Formation of moon	The big bang theory

### Ans.

A	A.
Origin of the earth	Nebular hypothesis

Origin of the universe	The big bang theory
Formation of moon	The big splat

Que.6. The process through which the gases were outpoured from the interior is called

[Marks :(1)]

Ans. Degassing.

Que.7. Illustrate the stages involved in the development of universe according to the big bang theory.

[Marks :(3)]

Ans. The following stages in the development of the universe.

(i) In the beginning, all matter forming the universe existed in one place in the form of a "tiny ball" (singular atom) with an unimaginably small volume, infinite temperature and infinite density.(ii) At the Big Bang the "tiny ball" exploded violently. This led to a huge expansion. There was particularly rapid

expansion within fractions of a second after the bang. Thereafter, the expansion has slowed down. Within first

three minutes from the Big Bang event, the first atom began to form.

(iii) Within 300,000 years from the Big Bang, temperature dropped to 4,500K and gave rise to atomic matter. The

universe became transparent.

# Que.8. Name the stages involved in the evolution of present atmosphere.

[Marks :(3)]

**Ans.** There are three stages in the evolution of the present atmosphere. The first stage is marked by the loss of primordial atmosphere. In the second stage, the hot interior of the earth contributed to the evolution of the atmosphere. Finally, the composition of the atmosphere was modified by the living world through the process of photosynthesis.