Astronomy

Astronomy:
derived from a greek word "Astron" means "star" and [illegible] is derived from the word "Nomos" means, "Law or culture"

Astronomy is a, Law or culture of stars.
NASA defines astronomy as simple "The ~~stars~~ study of stars, planets and space.
~~A~~study of the sun, moon, stars, planets, comets, gas nebulae galaxies, gas, dust and other non earthly ~~objects~~ bodies and phenomena.
⇒ Study of the universe & celestial bodies, gas, dust within it.
→ include observation / theories about solar system

Universe:

The totality of everything that exists, including all matter and energy, the planets, stars, galaxies and the contents of intergalactic space.

⇒ space b/w stars = interstellar space
space b/w galaxies = intergalactic space.

Astronomical system of Units

↳ is a system of measurement.
↳ Adopted by the international union IAU in 1976 significantly updated in 1994 & 2009.

SI = international system of units.

was develope bcz of difficulties in measuring and expressing astronomical data in SI unit.

ASOU → tridimensial system

it defines length → mass → time only.

Astronomical unit of time:-

The day D ← symbol

defined as 86400 sec

365.25 days → one year (Julian)

Astronomical unit of mass:

Solar mass → 1.98892×10^{27} kg

↓ standard way to express mass in astronomy.

it is equal to the mass of the sun

describe mass of ther stars & galaxies

Astronomical unit of length:

AU → the average distance b/w earth & sun

approx... 150 million or exactly 149,597,870,700 m

For Huge distances

⇒ light year ⇒ Parsec

Light year:

is the distance that light can travel in one year in a vacum, which is about 5.8×10^{12} miles or 63,240 AU or 9.46053×10^{12} Km

is a unit of distance = 3.26 light years or 3.085678×10^{13} Km

it is the distance at which a star would have a parallax of 1 sec of arc.

Origin of the Universe

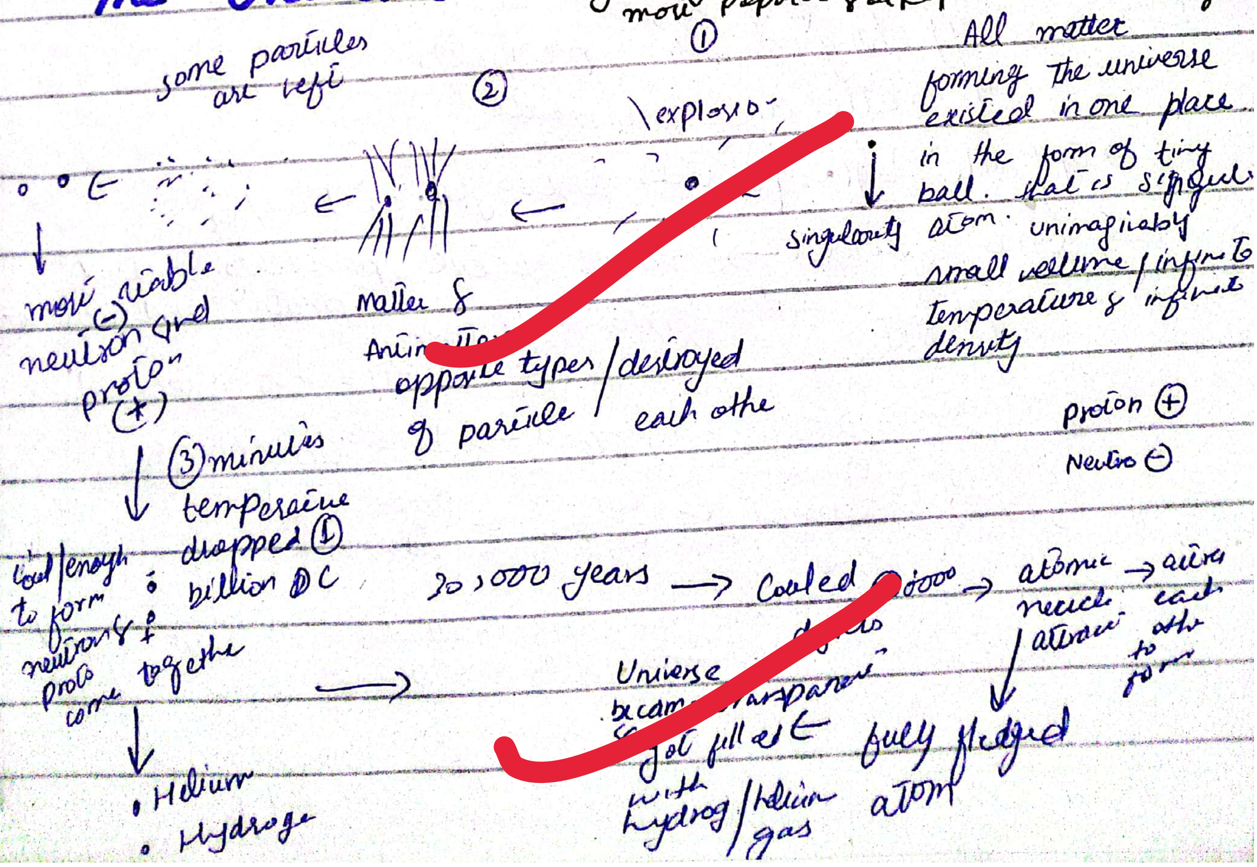
"The problem of the origin of the Universe is a bit like the old question: which came first, the chicken or the egg. In other words, What agency created the Universe? And what created that agency? OR perhaps, the universe, or the agency that created it, existed forever, and did not need to be created."

(Stephen hawking)

Past paper question:

Briefly describe the most popular & accepted theory about the origin of the Universe.

Big Bang theory considered the most popular & accepted theory about the origin



⇒ 9t was given in 1920s

⇒ Astronomers believe the universe began in a bigbang about 13.7 billion years ago

⇒ Infinite entire universe was inside a bubble (thousands times smaller than a pinhead)

hotter → singularity ← was named

denser

exploded → Time / space / matter → all began with the Big Bang.

in a fraction of secound

↓

The universe grew

↓

smaller atom

↓

bigger than a galaxy.

↓

and started expanding

(still expanding)

↓

↳ Universe expanded / cooled

↳ energy changed into particles of matter and antimatter

↳ opposite Types particles destroyed each other

↳ some survived → more stable particles called proton and neutron started to form when the universe was 1sec old.

over the next (3) minutes → temp. dropped → below 1 billion DC

forming hydrogen and helium ← come together ← proton + neutron

After 30,000 years → Universe cooled 3000 DC → Atomic nuclei capture e → formed Atoms

clouds of hydrogen & helium — Universe was filled with

Clouds of dust and gases formed all celestial bodies afterwards.

The bigbang theory → states that the Universe began as a hot and infinitely dense point.

millimetters
only a few mm wide
was similar to
supercharged blackhole

hot & infinite dense point

About 13.7 billion years ago this tiny singularity violently exploded

And it is from this explosion, this bang that all matter, energy, space and time were created.

Conciseness is fine!

Two majour stages of the Universe's evolution

سر Kindly بتا دیے کہ کیا میرے Notes ٹھیک ہے یا کچھ تبدیلی کرو۔ اس سے بھی short ہونے چاہیے کیا

Attempt and upload proper questions for evaluation; not notes