Past Papers

Date: 28/May/23

Topic:- Environmental Scienc:

Sub-topic: Atmosphere

Year:- 2023.

Question: 4d - 23.

Q- What are the different layers of the atmosphere? On what basis these layers are classified? In which layer 'Auroras' are formed and where do satellites orbit?

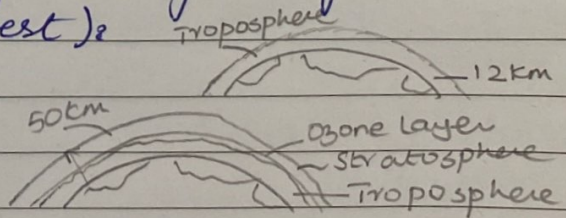
Ans:- Our Earth is surrounded by a thin layer of gases called atmosphere. It is basically, a layer of gases surrounding a planet that is held in place by the gravity. Atmosphere of Earth is mostly composed of Nitrogen (78.09%) and oxygen (20.94%) by volume thus making the bulk of atmosphere. The atmosphere blankets Earth, keeping temperatures stable and protecting living organisms from harmful solar radiation.

a- Layers of the atmosphere:

The protective combination of gases extends hundreds of kilometers, from the planet's surface to outer space forming and being distinguished as major five layers of the atmosphere namely (from the lowest):

i- Troposphere

ii- Stratosphere



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iii- Mesosphere:

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iv. Thermosphere:

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v- Exosphere:-

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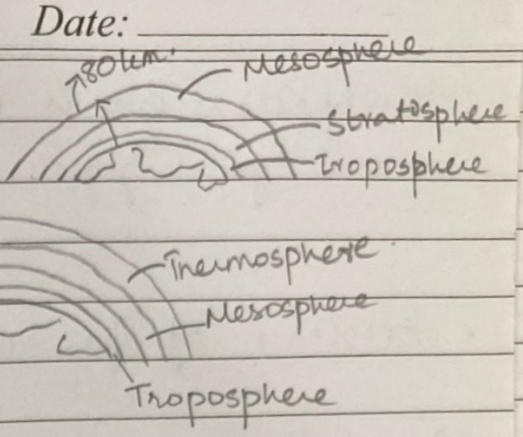

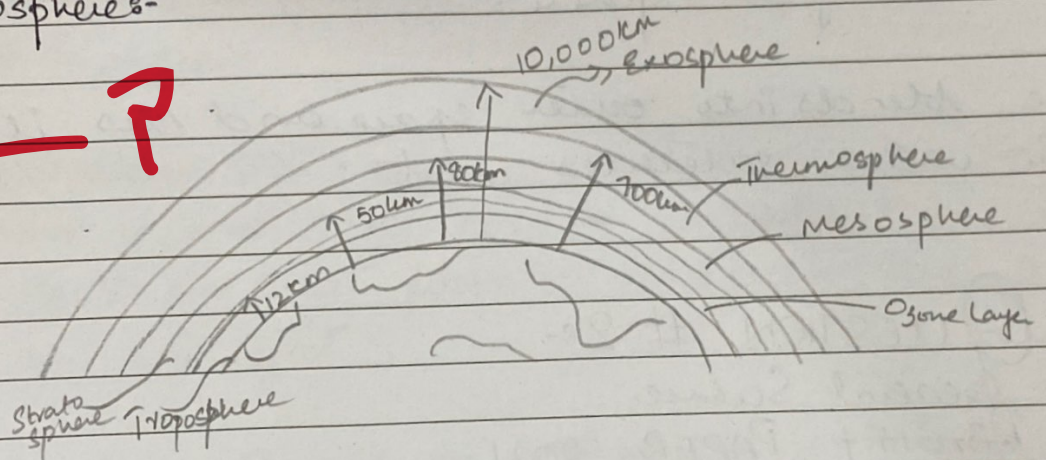

b- Classification of the layers of atmosphere:-

The classification of the layers is based on temperature. There is no doubt, that there is no ~~con~~ regular pattern of directly proportional or inversely proportional with altitude. Hence the scientist have adopted the zigzag temperature pattern to define five distinct atmospheric layers.

The hottest layer:- The thermosphere being the hottest layer. The temperature in this layer increases with altitude and reaches maximum to 2000°C.

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Mesosphere:- This is the coldest layer. The temperature decreases as we go higher in this layer and falls to about -93 °C.

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- Existence of Auroras and Satellites:

- Auroras are formed in thermosphere because of the charged particles of ionosphere.

- Exosphere blends into outer space and this it is the layer in which satellites orbit.

QUESTION # 28-

General Science

Q4 a) ~~ABILITY~~ PAPER 2021.

Q- What is the sequence of strata of atmosphere and on what factors does it depends?

a- What is the atmosphere?

A planet is surrounded by a thin layer of gases for protection and other purposes which is known as the atmosphere.

b- Stratas of the Earth's atmosphere?

Our Earth's atmosphere is majorly divided into five layers primarily depending upon the temperature with

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altitude. The following five layers are the strata of atmosphere. The closest to Earth is troposphere and so on..

i. Troposphere:- This layer directly surrounds the surface of the Earth and extends from the surface to about 12 km. This is where life exists. The formation of the clouds, weather, ~~airs~~ commercial aircrafts fly in this layer of the atmosphere.

ii. Stratosphere:- This layer extends to about 50 km (12-50). It is the second layer and it contains Ozone layer. Hence it protects the Earth from UV radiation that comes directly from the sunlight.

iii. Mesosphere:- This is the 3rd highest or the middle layer of the atmosphere. This is the coldest layer and the ~~of the~~ temperature decreases with increasing altitude. It extends to about 80-85 km. The meteors burn up upon entering the atmosphere. It is the coldest layer because of the lack of solar heating and very strong radiative cooling from CO_2. Its average temp is: -85°C - -93 °C.

iv - Thermosphere:- This is the 4th from the bottom and 2nd from the top layer extends to about 700 km and is the hottest of all the layers as its name suggests. This is where auroras occur.

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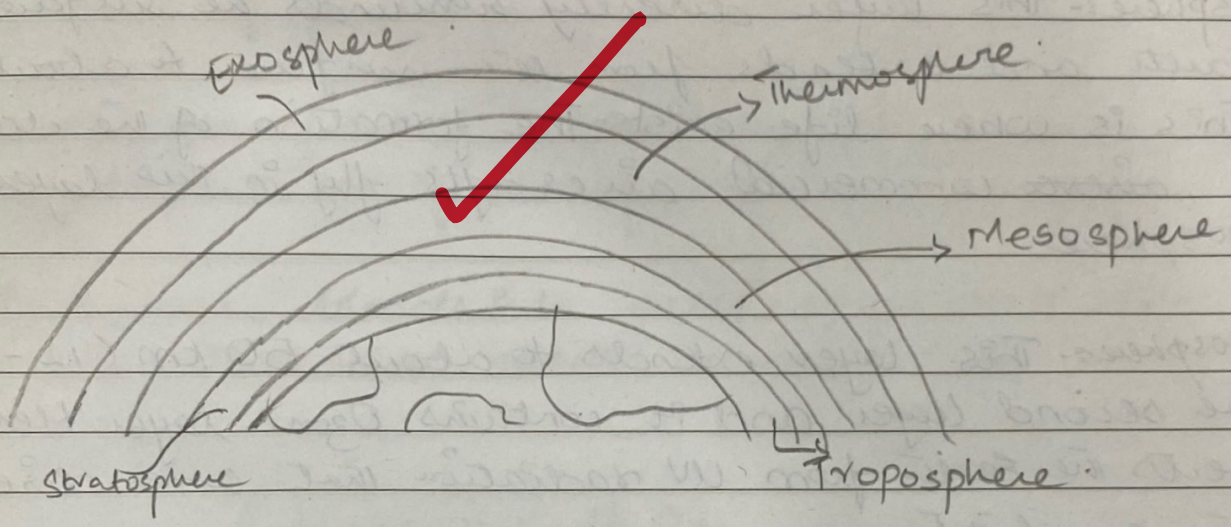
v. Exosphere:- It is the outermost of the atmosphere and extends to about 10,000 km. It gradually merges with the vaccum of outer space. This is where satellites orbit.



c. The factors it depends on:- attempt neatly.

Majorly it depends on the temperature with increasing altitude. The temperature does not follow a regular pattern hence it fluctuates with every layer hence the Scientists have adopted the zigzag methodology to measure. The temperature of ~~Exo~~ ~~Strato~~sphere Troposphere and Mesosphere gradually decreases with increase in altitude. ~~The other factors might be:-~~ The other contributing factors: Density Composition of gases play ~~the~~ the role in distinguishing.

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