Observed Global Climate Change

The words in the box can be used to fill gaps 1 - 10. However, in many cases, you will either have to change the form or the tense. Use each word once only.

concur	onset	register	local	fluctuate
occur	alarm	intense	observe	convince

There is now, by and large, 1. _____ among scientists that Global Warming is real. The fact that an average surface temperature rise of approximately one degree was 2. _____ during the 20th century, in addition to the fact that the rate of warming 3. _____ in the latter half of same and was nearly double that of the first 50 years is enough to 4. _____ most scientists. Climate proxies also suggest that, with the exception of 5. _____ warming and cooling events such as Europe's Little Ice Age, this is the first significant and prolonged temperature 6. _____ in the best part of 2000 years on a global level. Further evidence in support of the warming hypothesis comes by way of the fact that, also during the 20th century, a considerable rise in sea levels was 7. _____ , and, across both hemispheres, southern and northern, glaciers went into retreat, and remain so. Oceanic warming, albeit gradual up to now, has also been confirmed, and the 8. _____ rate of melting of polar ice, coupled with a general rise in humidity and the increasingly early 9. _____ of spring each year are factors the likelihood of the simultaneous coincidental 10. _____ of which scientists say is virtually nil.

Causes of Climate Change

(a) The Role of Humanity: *Change the form of the word in square brackets suitably to fit each gap.*

The greenhouse effect is essentially the process by which the 1. _____ **[absorb]** and 2. _____ **[emit]** of infrared radiation by gases in the atmosphere warms the planet's lower atmosphere and surface. Put simply, the so-called greenhouse gases which cause this effect basically redirect heat that would otherwise escape back into outer space down towards the surface of the earth. This phenomenon is actually key to creating conditions 3. _____ **[conduct]** to life on Earth. Without the natural 4. _____ **[occur]** of these gases and consequent planetary warming, Earth would actually be a very 5. _____ **[hospitable]** place. The problem, however, began in the 1800s during the industrial revolution. The increased amount of industrial activity led to additional volumes of greenhouse gases being produced unnaturally as a result of human activity. Obviously, as the level of industrial activity has increased dramatically over the last several centuries, so too then has the rate of production and emission of greenhouse gases. Human activity has therefore altered the balance of things with 6. _____ **[concentrate]** of greenhouse gases such as CO2 and methane in the atmosphere significantly higher today than at any other time in the past 800,000 years of Earth's history. About two-thirds of the additional CO2 released is attributed to the burning of fossil fuels, while the rest of the increase in atmospheric greenhouse gas levels is put down to changes in land-use, in particular 7. _____ **[forest]**, and population growth, which, for example, has led to greater numbers of livestock than ever before being reared for 8. _____ **[consume]**, and a consequent significant increase in methane emissions. The 9. _____ **[deplete]** of the tropospheric ozone layer, caused by chlorofluorocarbons, has also had a significant warming effect on the Earth's surface, but this is not to be confused with the greenhouse effect as the two phenomena are largely 10. _____ **[relate]**. Given the relative 11. _____ **[abound]** of fossil fuels, our 12. _____ **[depend]** on them, and the 13. _____ **[emerge]** of new and more efficient methods of 14. _____ **[extract]**, the likelihood of a significant reduction in carbon emission levels in the near future seems very unlikely. Therefore, the problem of global warming also appears very unlikely to moderate. Besides, many scientists believe the damage already done may be 15. _____ **[reverse]**.

(b) Nature's Role: *Use the words from the box to fill gaps 1 - 6. You may have to change the tense or form, and you should only use each word once.*

exacerbate	emit	penetrate	reflect	intensify	reverse

If anything, while humankind has been 1. _____ the warming situation, nature herself, by happy coincidence, has been behaving in such a way as to partially 2. _____ the effects, and, over the last half a century or so, in particular, nature has had a significant cooling effect. For a start, there has been a significant 3. _____ of volcanic activity, and the consequent release of particulates and soot contributed to what is termed Global Dimming, a cooling phenomenon whereby more of the Sun's rays are prevented from 4. _____ the atmosphere and reaching the planet's surface, and are instead 5. _____ back out into space. Another cooling factor is that of solar output. If anything, less solar radiation has been 6. _____ by the Sun in the past thirty years or so.

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