**Global Warming quiz 4- Feedback and climate models version D**

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1. Stefan-Boltzmann radiation is called a negative feedback mechanism because if the sun's radiation increases, the Stefan-Boltzmann law ensures that more heat is lost from the planet to compensate.

|  |  |
| --- | --- |
|  | a) true |
|  | b) false |

2. Analysis of the uncertainties associated with feedback suggests that the "worst-case" scenario is easier to model.

|  |  |
| --- | --- |
|  | a) true |
|  | b) false |

3. The Stefan-Boltzmann law plays a central role in establishing a planets temperature as the sun heats the planet until the thermal (infra-red) radiation away the planet rises to match the solar radiation onto the planet

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| --- | --- |
|  | a) true |
|  | b) false |

4. The [cryosphere](https://en.wikipedia.org/wiki/cryosphere) refers to

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| --- | --- |
|  | a) the upper atmosphere |
|  | b) two of these are true |
|  | c) the highest mountains |
|  | d) the north and south poles |

5. Analysis of the uncertainties associated with feedback suggests that the "worst-case" scenario is more difficult to model.

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| --- | --- |
|  | a) true |
|  | b) false |

6. Computer modeling has conclusively established that anthropogenic warming has occurred since 1910.

|  |  |
| --- | --- |
|  | a) true |
|  | b) false |

7. Changes in ice-albedo refers to changes in

|  |  |
| --- | --- |
|  | a) how much ice is melted during the summer months |
|  | b) how much CO2 is absorbed by the sun |
|  | c) how much the Earth's surface absorbs or reflects incoming sunlight |

8. Stefan-Boltzmann radiation is called a negative feedback mechanism because if the sun's radiation increases, the Stefan-Boltzmann law ensures that this heat is retained by the planet.

|  |  |
| --- | --- |
|  | a) true |
|  | b) false |

9. While computer modeling indicate that the warming since 1970 is dominated by man-made greenhouse gas emissions, they are unable to conclusively ascertain whether the warming from 1910 to 1945 was anthropogenic.

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| --- | --- |
|  | a) true |
|  | b) false |

10. Computer models accurately model feedback mechanisms associated with the role of clouds as a feedback mechanism.

|  |  |
| --- | --- |
|  | a) true |
|  | b) false |

11. Computer models accurately model feedback mechanisms associated with how the soil will retain or release CO2 as the earth warms.

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| --- | --- |
|  | a) true |
|  | b) false |

12. How is the validity of a computer model typically tested?

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| --- | --- |
|  | a) by verifying its ability to calculate past climate conditions. |
|  | b) by verifying its ability to calculate current climate conditions. |
|  | c) by making predictions about future years and seeing if they come true. |
|  | d) all of these are true |

13. The Stefan-Boltzmann law plays a central role in establishing a planets temperature as the sun heats the planet with thermal (infra-red) radiation adding to the other solar radiation onto the planet

|  |  |
| --- | --- |
|  | a) true |
|  | b) false |