QUESTIONS ABOUT BASIC SCIENTIFIC KNOWLEDGE

(SELF-EVALUATION)

Participants are trusted not to use a computer while responding to this questionnaire, and not to receive any external help from any third party or through literature or the internet. The use of a calculator is allowed, although not preferred.

Name of participant (can be an alias):	
Location (can be approximate):	
Date and time:	
Time to respond:	Must be under 30 minutes
Name of examiner:	

GEOGRAPHY		ANSWER		IF REASONABLY CORRECT	IF INCORRECT OR NO ANSWER
1	What is the diameter of planet Earth?			+1	0
2	What is the total surface area of Earth's continents?			+1	0
3	What is the total surface area of Earth's oceans and seas?			+1	0
4	What is the lowest point on Earth, and what is its depth?			+1	0
5	What is the highest point on Earth, and what is its elevation?			+1	0
6	Could you name and locate all the countries of the world?	Yes	No	+1	0
7	If not, how many could you name? Please name them.			+1	0
8	How many coutries are intersected by the Equator? Can you name them?	Yes	No	+1	0
9	What is the mass of Earth?			+1	0

BASIC GEOMETRY, CHEMISTRY, AND PHYSICS

10	Can you demonstrate in less than two minutes the Pythagorean theorem the way Pythagoras probably did?	Yes	No	+1	0

11	If you do, please demonstrate it.			+1	0
12	Do you clearly understand the mechanism of human walk?	Yes	No	+1	0
13	If you do, please explain it.			+1	0
14	Do you clearly understand the mechanism of bicycle riding?	Yes	No	+1	0
15	If you do, please explain it.			+1	0
16	Do you clearly understand the mechanism of human nutrition and its primary reason?	Yes	No	+1	0
17	If you do, please explain it.			+1	0
18	What creates the buoyancy of floating objects and Archimedes thrust?			+1	0
19	Do you understand the effects of mass inertia?	Yes	No	+1	0
20	If you do, please explain the cause and reason behind the effects.			+1	0
21	Can you clearly explain not only the effects of electricity, but also its cause and reason?	Yes	No	+1	0
22	If you do, please explain the cause and reason of electricity.			+1	0
23	Can you clearly explain not only the effects of magnetism, but also its cause and reason?	Yes	No	+1	0
24	If you do, please explain the cause and reason of magnetism.			+1	0
25	Can you explain in a few words the Coriolis effect?	Yes	No	+1	0
26	If you do, please explain the Coriolis effect.			+1	0
27	Can you explain in a few words the gyroscopic effect?	Yes	No	+1	0

28	If you do, please explain the gyroscopic effect.			+1	0
29	Could you determine an exact algebraic formula to calculate the time taken by an object to fall towards Earth when dropped from any elevation, in the absence of atmosphere?	Yes	No	+1	0
30	If you do, please provide it.			+1	0
31	Can you provide an explanation for the concept of time without using the word "time"?	Yes	No	+1	0
32	If you do, please explain.			+1	0
33	Can you explain universal gravitation?	Yes	No	+1	0
34	If you do, please explain.			+1	0
35	Can you clearly explain the fundamental concept behind special relativity?	Yes	No	+1	0
36	If you do, please explain.			+1	0

COSMOGRAPHY

37	What is the distance from Earth to Sun, in kilometers?			+1	0
38	What is the distance from Earth to the closest star, in kilometers?			+1	0
39	What is the distance from Earth to the most distant star in our galaxy, in kilometers?			+1	0
40	What is the distance from Earth to the closest external galaxy, in kilometers?			+1	0
41	What is the age of Earth?			+1	0
42	Why are planets orbiting the sun?			+1	0
43	What is the shape of Earth’s orbit around the sun?			+1	0
44	What is the eccentricity of Earth's orbit?			+1	0
45	Could you calculate the orbit of Earth around the sun the way Newton did?	Yes	No	+1	0

46	Do seasons in the two hemispheres exactly mirror each other, at a 6 months interval?	Yes	No	+1	0
47	If so, what is the reason?			+1	0
48	What effect on solar irradiance have eccentricity and the precession of the equinoxes?			+1	0
49	What is the approximate period of the precession of the equinoxes?			+1	0
50	What is the equation of time?			+1	0
51	What is the exact duration of a year?			+1	0
52	Do you know a trigonometric formula that would return Earth's angular position and distance with respect to the sun as a function of time?	Yes	No	+1	0
53	Do you think there is such a formula?	Yes	No	+1	0
54	Do you know a trigonometric formula that would return time as a function of Earth's angular position and distance with respect to the sun ?	Yes	No	+1	0
55	Do you think there is such a formula?	Yes	No	+1	0
56	At Earth surface, is the moon's attraction greater or smaller than the sun's?			+1	0
57	What is the ratio of the two?			+1	0
58	What is driving the tide phenomenon?			+1	0

ATMOSPHERE AND EARTH

59	What are the four main constituents of air?			+1	0
60	What is the mass of air, per square meter of Earth surface?			+1	0
61	What is the mass of atmospheric carbon, per square meter of Earth surface?			+1	0
62	What is the average mass of atmospheric water vapor, per square meter of Earth surface?			+1	0

63	What is the mass of atmospheric argon, per square meter of Earth surface?			+1	0
64	What is the annual human discharge of carbon in the atmosphere, per square meter of Earth surface?			+1	0
65	What is the average annual increase of the mass of atmospheric carbon, per square meter of Earth surface?			+1	0
66	What is the average carbon content of surface biomass, per square meter of Earth surface?			+1	0
67	What is the average carbon content of all known fossil fuel deposits, per square meter of Earth surface?			+1	0
68	What is the average carbon content of all ocean waters, per square meter of Earth surface?			+1	0
69	What is the mass of all Earth carbon, per square meter of Earth surface?			+1	0
70	Where does biomass carbon come from?			+1	0
71	Where does fossil fuel carbon come from?			+1	0
72	Where does all other underground carbon come from?			+1	0
73	Where does atmospheric carbon originally come from?			+1	0
74	Where does atmospheric oxygen come from?			+1	0
75	Are you familiar with the carbon cycle?	Yes	No	+1	0
76	Is the natural carbon cycle balanced, or is there accumulation of carbon elesewhere, and if so where do you think it accumulates?			+1	0
77	What would be the direct consequence of halting overnight the burning of all fossil fuels and biomass, including forests?			+1	0

THERMODYNAMICS

78	Are you familiar with the mechanism of heat transfer?	Yes	No	+1	0
79	What is the heat capacity of air?			+1	0

80	What is the heat capacity of water?			+1	0
81	What is the heat capacity of water vapor?			+1	0
82	What is the heat capacity of ice?			+1	0
83	What is the average heat capacity of rocks, such as limestone of granite?			+1	0
84	What is the latent heat of fusion of water?			+1	0
85	What is the latent heat of vaporization of water?			+1	0
86	What is the value of the sun irradiance at the top of the atmosphere and at sea level between the tropics on a clear day?			+1	0
87	In a vacuum, what temperature would a black body reach when exposed to solar irradiance?			+1	0
88	What determines surface air temperature?			+1	0
89	Whenever the phenomenon occurs, why is the temperature on a given day significantly warmer or cooler than the day before or after?			+1	0
90	Why does air temperature vary with elevation and by how much?			+1	0
91	Why does atmospheric pressure vary with elevation and by how much?			+1	0
92	Do you think that the colloquial "the storm cooled the air" is logically correct?	Yes	No	+1	0
93	What is the average temperature difference between night and day at ground level onshore?			+1	0
94	What is the average temperature difference between night and day at sea level offshore?			+1	0
95	What is the average temperature difference between night and day 5,000 feet above ground?			+1	0
96	Do you think that temperatures at a given location are generally higher one month after the spring equinox or one month before the automnal equinox? Can you explain the reason?	Yes	No	+1	0

CLIMATE

97	When did the last glaciation maximum occur?			+1	0
98	What was the extent of the meltdown by the beginning of the Roman Empire?			+1	0
99	What produced glaciation?			+1	0
100	What produced the meltdown?			+1	0
101	Is there any reason to believe that the meltdown has stopped or has been reversed?	Yes	No	+1	0

TOTAL SCORE | | (maximum 101)

SELF-EVALUATION

102	Would you say you are knowledgeable about the subject matters addressed in this questionnaire?	Yes	No
103	Do you feel competent enough to have an educated opinion about climate change or climate invariance?	Yes	No

CLIMATE CHANGE OR INVARIANCE

104	Do you think climate is currently changing?	Yes	No
105	Do you think climate has been historically invariant?	Yes	No
106	Do you think climate change or climate invariance would be about the same in the absence of mankind?	Yes	No
107	Have you ever authored a comprehensive study of the interaction of carbon and climate?	Yes	No

COMPLIANCE

108	Did you use a computer while responding to this questionnaire?	Yes	No
109	Did you use a calculator while responding to this questionnaire?	Yes	No
110	Did you receive any external help from any third party while responding to this questionnaire?	Yes	No
111	Did you seek help from the internet while responding to this questionnaire?	Yes	No

112	Did you seek help from scientific literature while responding to this questionnaire?	Yes	No
113	Do you confirm you filled this questionnaire in under 30 minutes?	Yes	No