NOVA Video Questions: ***Hunting the Elements***

Name:
Per: **Seat #:**

http://www.pbs.org/wgbh/nova/physics/hunting-elements.html

The questions are in chronological order.
Times are estimates. You do not need full sentences.

1) Where does an element take its identity from? (4:30)

2) How much gold (Au) is extracted per ton of rock ore? (7:30)

3) How much does a gold (Au) bar weigh and how much is it worth? (12:00)

4) Why is copper (Cu) so widely sought on the world market and New York Mercantile Exchange? (15:00)

5) What is copper (Cu) combined with to make bronze? (17:00)

6) What makes metals like Copper (Cu) conductive to electricity? (19:00)

7) Bronze is an alloy. What is an alloy and why are they preferable at times? (21:00)

8) How does the atomic arrangement of atoms lead to its crystal structure like was seen in the sample of bronze with gold (Au) and tin (Sn) atoms? (31:00)

9) What is the atomic number and what does the atomic number indicate? (33:00)

10) Most of the periodic table is made of what type of elements? (34:00)

11) How did early chemists like Mendeleev classify the elements? (37:00)

12) How is the periodic table structured with regard to elements with similar properties? (39:00)

13) What makes noble gases stable? (42:00)

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14) Why is an alkali metal element like Sodium (Na) so reactive? (44:00)

15) What does chlorine (Cl-) do for sodium (Na+)? What tasty substance is produced when this happens? (47:00)

16) What powers explosions and fire? (54:00)

17) What elements are basic to all living things? (58:00)

18) Why is Carbon (C) so good for forming the structure of life? (1:05:00).

19) What are at least three (3) other elements that are used for life functions and what are their uses? (1:11:00)

20) Why are cyanobacteria from places like volcanic pools so important for the production of oxygen in our atmosphere? (1:16:00)

21) What was the original element formed moments after the Big Bang? What then created higher order elements? (1:18:00)

22) How does silicon shape our technological reality? (1:21:00)

23) How are rare earth elements like neodymium (Nd) important to our technological world? (1:26:00)

24) What is an isotope like Carbon-14? (1:41:00)

25) How can an isotope like Carbon-14 be used to date dead organisms? (1:43:00).

26) What is an unstable radioactive isotope? (1:45:00)

27) Why don't the man-made radioactive elements exist for very long? (1:57:00)

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