**CHEM TEST QUESTIONS**

1. Who was the first person in history to propese the concept of atom?
2. Why didn't this concept catch on?
3. How did the ancient Greeks view the World?
4. What is phlogistone and what was its role in the history of chemistry?
5. Compare the proton, neutron and electron.
6. What is periodicity?
7. What is atomic number?
8. What is an ion?
9. What is an isotope?
10. What is the Aufbau principle?
11. What is an orbital? What are possible shapes of orbitals? What orbitals can you name?
12. What is Hund's rule?
13. Interpret the notation 1s22s22p1.
14. What is common to the elements in the same row?
15. What is common to the elements in the same column?
16. What is the relative atomic mass number?
17. What is Carbon-14 dating? Explain how it is done.
18. How many atoms/mollecules are in one mole of a substance?
19. How many liters does one mole of substance occupy in gaseous form at standard temperature and pressure (0 oC , 1 bar)?
20. Fill the electron shells for the following elements:

|  |  |
| --- | --- |
| a) 9 F   | b) 16 S  |

1. **Which one** of these element's doesn't belong and **why**?

|  |  |  |  |
| --- | --- | --- | --- |
| a) |  | b) |  |
| c) |  | d) |  |
| e) |  | f) |  |

1. Make aluminum – sulphate.

1. Make Calcium – nitrate.

 **BIO TEST QUESTIONS**

1. Darwin collected many organisms from these volcanic islands off the coast of South America.
2. What is the title and publication date of Darwin's most significant publication?
3. Darwin acquired his degree in which field?
4. Who was Darwin's greatest oponnent and a believer in gradualism?
5. Who propesed the theory of gradualism and at what time frame?
6. Who developed a nerly identical theory of natural selection around the same time as Darwin?
7. Who created the binomial classification system for organisms that is still in use today?
8. What was the name of the theory proposed by Georges Cuvier in which periodic natural disasters wiped out large groups of organisms?
9. Give Darwin's age at each of the following points in his life: a) going to college b) setting sail on the Beagle c) publishing his book
10. Who believed in the view of nature that assumed organisms were fixed and not evolving and could be laced on a ladder of increasing complexity? (hint: think Ancient Greece)
11. Approximately how old is Earth, according to geologic dating?
12. Approximately when did life on Earth first appear in the geologic record?
13. What are protobionts?
14. Name one of the energy sources thought to drive the anabolic reactions of the first molecules of life.
15. What does anabolic and catabolic mean?
16. What is spontaneous generation and what is biogenesis?
17. What is a gene?
18. What are alleles of a gene?
19. What is a phenotype?
20. If you unwound a DNA molucule, how long would it be?
21. What are nucleic acids?
22. Who were James Watson, Francis Crick and Maurice Wilkins?
23. What is the name of the DNA duplication process? What is the main enzyme that participates in it?
24. What is a "codon"?
25. What holds one strand against the other in the double helix?
26. Where was the discovery of DNA first announced?
27. What is mitosis and what is meiosis?
28. How many stages does mitosis have?
29. How many stages does meiosis have?
30. Name all the stages of mitosis.
31. What are centrosomes?
32. What are microtubules?
33. How many chromosomes does a healthy human cell have?
34. What is the haploid and what is the diploid number of chromosomes for a human?
35. What are histones?
36. Write the appropriate DNA strand to match the following: A T C G G A T G .
37. How many different amino-acids make up all the proteins in a human body?
38. Sort the early stages of development from earliest to latest: emryoblast, zygote, morula, hapoid cells, organ development.
39. What makes embrionic stem cell so special?
40. Name three diseases caused by bacteria.
41. List three beneficial bacteria.
42. Approximately what percentage of the human body are bacteria?
43. What is the difference between eukaryotes and prokaryotes?
44. Sketch and label the main parts of a bacterium.
45. When was penicillin invented and by whom?
46. Why do we say that viruses are between the living and non-living world?
47. Sketch and label the main parts of a virus.
48. Describe the life cycle of a virus.
49. What is cell lysis?
50. What is a retrovirus? Why are they especially sinister?
51. What are bacteriophages?
52. List three diseases caused by viruses.
53. What is diffusion? Elaborate.
54. What is osmosis? Elaborate.
55. What does hypotonic and hypertonic mean?
56. Where is osmosis important in the human body?
57. Write everything you know about red blood cells. (at least 3 pieces information required)
58. Sketch a neuron and list its main parts.
59. Why is the sodium-potassium pump important to the functioning of our nervous system?
60. How does the sodium-potassium pump work?
61. What is the main fuel molecule used in the human body, also used in the sodium-potassium pump?