UNIVERSITY OF CAPE COAST

COLLEGE OF AGRICULTURE AND NATURAL SCIENCES

SCHOOL OF PHYSICAL SCIENCES

DEPARTMENT OF CHEMISTRY

CHE 107 – GENERAL CHEMISTRY

QUIZ 2 1 **HOUR**

**INDEX NUMBER…………………………………….. GROUP NUMBER…………………..**

**ATTEMPT ALL QUESTIONS**

1. What electron transition in a hydrogen atom, ending in the orbit n = 3, will produce light of wavelength 1090 nm?

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1. Write acceptable Lewis structures for the following species

, , CS2, NO3

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1. Assign formal charges to the atoms in the following species and select the most likely skeletal structure.
2. NFO or FNO

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1. OCCl2 or OCClCl

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1. Predict in each case whether a reaction is likely to occur. If so, write a net ionic equation.
2. Cu(NO3)2(aq) + FeCl2(aq)
3. Na2CO3(aq) + CuCl2(aq)
4. Write Lewis structures for the following species.
5. Aluminium nitride ……………………………………………………………………..
6. Calcium phosphide……………………………………………………………………..
7. N2H4 ………………………………………………………………………………….
8. NO2+…………………………………………………………………………………...
9. Write the electronic configuration (using the spdf notation) of the following species and predict their period and group numbers.
10. 15P…………………………………………………………………………………… ………………………………………………………………………………………..
11. 35Br…………………………………………………………………………………… …………………………………………………………………………………………..
12. 20Ca…………………………………………………………………………………………………………………………………………………………………………………..
13. Write and balance the following redox reaction in a basic medium.

H2O2(aq) + MnO4-(aq) O2(g) + Mn2+(aq)

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1. Classify the following substances as strong electrolytes, weak electrolytes and nonelectrolytes; CH3OH, NH3, NH2OH, KOH, MgBr2, AgCl, C6H5OH, NaCl

|  |  |  |
| --- | --- | --- |
| Strong electrolyte | Weak electrolyte | Nonelectrolyte |
|  |  |  |

1. Write an appropriate value for each of the missing quantum numbers.
2. n = 2, l = ?, ml = 2, ms = +

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1. n = 3, l = 2, ml = ?, ms = -

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1. n = ?, l = 1, ml = 0, ms = ?

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1. Determine the energy change of the line in the Paschen series of hydrogen corresponding to the transition from n = 5.

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[h = 6.626 x 10-34 Js, c = 3 x 108 ms-1; RH = 2.179 x 10-18 J]