[[1]](#footnote-2) UNIVERSITY OF KABIANGA

UNIVERSITY EXAMINATIONS 2015/2016

FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELORS OF SCIENCE, EDUCATION SCIENCE, AGRICULTURAL ECONOMICS AND EXTENSION, MICROBIOLOGY, BIOCHEMISTRY AND HORTICULTURE

Z00 110

BASIC ZOOLOGY

TIME; 3 HOURS

**Instructions to candidates**

**Answer any 10 questions**

**All questions carry equal marks**

**Q1**. Discuss how yolk distribution determines egg and cleavage types **(7 marks)**

**Q2**. With illustrations discuss the phylogenetic system of taxonomy **(7 marks)**

**Q3**.Discuss the basic tenets of binomial nomenclature  **(7 marks)**

**Q4**.Explain the features that set animals apart from other organisms **(7 marks)**

**Q5**.Using a diagram, discuss the salient features of eukaryotes **(7 marks)**

**Q6**.Explain the process of carrying out scientific study of animals **(7 marks)**

**Q7**.With illustrations, discuss the different types of body cavities in animals  **(7 marks)**

**Q8**. Discuss the importance of cephalization and metamerizisms in animals **(7 marks**)

**Q9**. Explain why arthropod are a very successful group of animals **(7 marks)**

**Q10.** Discuss the origin of metazoans

**Q11**.Explain the evolution of levels of organization in animal complexity **(7 marks)**

**Q12.**Differentiate between protosomes and deuterostomes **(7 marks)**

**UNIVERSITYY OF KABIANGA**

**UNIVERSITY EXAMINATION 2015/2016 EXAMINATION YEAR**

**FIRST YEAR FIRST SEMESTER EXAMINATION**

**BOT 110**

**BASIC BOTANY 1**

**TIME : 3 HOURS**

**SECTION A (28MKS)**

**INSTRUCTION: Answer ALL the questions in this section**

1. Distinguish between resolution and magnification (2mks)

2.Briefly describe

A] The structural and functional distinctions between rough and smooth ER (3 mks)

B] Two common characteristics of chloroplast and mitochondria. Consider both function and membrane structure (3mks)

3. Explain bow the fluid mosaic model describes the plasma membrane (2mks)

4. a] State the three fundamental parts of a cell theory (3mks)

b] List three major events in the history of cell biology (3mks)

5. a] compare stains used for light microscopy with those used for electron microscopy (2mks)

b] compare and electron microscope (2mks)

c] Which type of microscope would you use to study (i) changes in shape of a living white blood cell, (ii) details of surface texture of a hair, and (iii) detailed structure of an organelle (3mks)

6 a] What role do ribosome play in carrying out genetic instructions (2mks)

b] Describe the molecular composition of nucleoli and explain their function. (3mks)

**SECTION B**

**INSTRUCTION: ANSWER QUESTION 7 AND ANY OTHER TWO**

**7.** Describe the cell’s nucleus and its components (14mks)

8. With the aid of a well labeled diagram, state the functions of different parts of a light microscope (14mks)

9. Identify and describe three unique features of a plant cells (14mks)

10. Describe the roles of plastids in the life of a plant (14mks)

**UNIVERSITY OF KABIANGA**

**UNIVERSITY EXAMINATIONS 2015/2016 ACADEMIC YEAR**

**FIRST YEAR FIRST SEMESTER EXAMINAATION**

**COURS CODE: CHE 110**

**COURSE TITLE: BASIC CHEMISTRY I**

**`TIME : 3 HOURS**

**INSTRUCTIONS; Answer question one and any other two**

**QUESTION ONE (30MKS)**

1. State three assumptions on which Daltons theory is based (3mks)
2. Uranium has atomic number 92 and atomic weight 238,029. Give the number of electrons, protons and neutrons in its atom (3mks)
3. State the Hund’s rule for maximum multiplicity. (2mks)
4. Write the full and condensed electronic configuration of potassium (Z=19) (4mks)
5. Explain five characteristics of chemical equilibrium (5mks)
6. 100 cm3 of condensed hydrochloric acid were diluted to 1 dm3 with distilled water.26.8 cm3 of this diluted acid were needed to realize 25cm3 of 0.5M sodium carbonate solution, with methyl orange as indicator. What is the concentration in g/dm3 of the original aid (5mks)
7. A volume of air occupying 12.0dm3 at 98.9 Pa is compressed to a pressure of 119.0 Pa.The temperature remains constant .What is the new volume? (3mks)
8. Explain ways in which stress can be caused on a chemical equilibrium. (5mks)

**QUESTION TWO**

1. Explain conditions affecting the formation of an ionic bond. (8mks)
2. Differentiate between intermolecular and intramolecular hydrogen bond (4mks)
3. 60cm3 of oxygen were added to 10cm3 of gaseous hydrocarbon.After explosion and cooling,the gases occupied 50cm3 and after absorption by KOH solution 30cm3 of oxygen remained. Calculate the molecular formula of the hydrocarbon (temperature and pressure constant at room values(0
4. Differentiate between molarity and molality of a solution (3mks)

**QUESTION THREE (20MKS)**

1. The pressure of a gas in a flask is measured to be 797.7mmHg using a mercury-filled manometer .What is this pressure in Pascal’s atmospheres
2. Explain the kinetic theory of liquids (5mks)
3. Discuss factors influencing rate of chemical reactions (10mks)
4. State le chatelier’s principle ( 2mks)

**QUESTION FOUR (20MKS)**

1. What is the equilibrium expression for the reaction (3mks)

CH4g+H2Og ↔COg+3H2 g

2 Many gaseous reactions ccur in car engines and exhaust systems.One of these is

NO2+CO →NO+CO2 RATE=K[NO2]^m[CO]^n

Use the following data to determine the individual and overall reactions order.(7mks)

|  |  |  |  |
| --- | --- | --- | --- |
| experiment | Initial rate | Initial concentration of NO2 (mol/L) | Initial concentration of CO (mol/L) |
| 1 | 0.005 | 0.10 | 0.10 |
| 2 | 0.080 | 0.40 | 0.10 |
| 3 | 0.005 | 0.10 | 0.20 |

3)Distinguish beween real gases and ideal gases (5mks)

4)calculate the normality of a solution containing 3.15g of hydrated oxalic acid

(H2C2O4.2H2O) in 250ml of solution (Molar mass=126)

1. GOOD LUCK [↑](#footnote-ref-2)