



**EASTERN UNIVERSITY, SRI LANKA.**  
**FIRST EXAMINATION IN SCIENCE 2005/2006 & 2006/2007 - REPEAT**  
**FIRST SEMESTER (AUG/SEPT 2007)**  
**CH 101 PERIODICITY AND BONDING.**

Time allowed: **ONE Hour**

Answer all the questions

The use of a non-programmable calculator is permitted

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You may find the following data useful.

Atomic no of As is 35 and Se is 34

1. a) (i) Write molecular orbital electronic configurations of  $N_2$ ,  $N_2^+$  and  $N_2^-$ .
- (ii) Arrange, giving reasons, the species  $N_2$ ,  $N_2^+$  and  $N_2^-$  in order of increasing bond length and increasing bond energy.
- (iii) Indicate their magnetic property.
- b) Draw the Lewis structure of each of the following molecules and predict the shapes of the molecules using VSEPR theory.
- (i)  $AsF_5$  (ii)  $OF_2$
- 2) a) Predict the geometry of the following molecules using the concept of hybridization.
- (i)  $SeF_6$  (ii)  $BeH_2$
- b) (i) Write the electronic configuration of phosphorus atom (atomic number is 15) and give the quantum numbers  $n$ ,  $l$ ,  $m_l$  and  $m_s$  for each of the unpaired electrons.
- (ii) Explain the following, giving an example of each.
- a) Pauli's Exclusion principle  
b) Hund's rule

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**(Repeat)**

**ZL 101-CELL BIOLOGY & BIOCHEMISTRY**

Time : **Two** hours

Answer **all** questions.

(Illustrate your answers with clear labeled diagrams where necessary).

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1. Write an essay on an animal cell membrane and its properties and functions.
  
2. Write brief notes on any **two** of the following:
  - a. Golgi Complex
  - b. Lysosomes
  - c. Endoplasmic reticulum
  
3. Describe the processes of protein synthesis in an eukaryotic cell.
  
4. Comment on any **two** of the following:
  - a. Deamination of amino acids
  - b.  $\beta$ -oxidation of fatty acids
  - c. Glycogenolysis

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