UNIVERSITY OF GHANA

FIRST SEMESTER EXAMINATION 2014-2015
DEPARTMENT OF BIOMEDICAL ENGINEERING
LEVEL 300: BACHELOR OF SCIENCE IN ENGINEERING
BMEN 301: HUMAN BIOLOGY- I (2 CREDITS)
TIME ALLOWED- (2 HOURS)

ATTEMPT ALL QUESTIONS **TOTAL MARKS: 100 MARKS**

A. Write briefly on the structure and morphological characteristics of the following:

i. Lacrimal gland
ii. Olfactory cells
iii. Palpebrae
iv. Papillae of tongue
v. Name the three pairs of extra-ocular muscle.
(15 marks)

B. Identify the epithelial tissue in the following:

i. The pulmonary alveoli of the lungs
ii. Lining of the GI tract lumen
iii. The outer layer of skin
iv. Lining of the urinary bladder cavity
v. Lining of the trachea and bronchial tubes
(10 marks)

C.

1. Explain the classification of sensory receptors based on **location** and type of **stimuli detected.**
   (10 marks)
2. Classify **Exocrine glands** based on **Structure** and **mode of secretion.**
   (10 marks)
3. Draw and label the detailed structure of the **Eye ball** and explain the functions of the various components?
   (10 marks)
4. Explain the different types of **Synovial** joints using diagrams and examples.
   (10marks)

D. Briefly describe the anatomical features of the following:

i. Reticular fibers
ii. Fibroblasts
iii. Collagenous fibers
iv. Elastic fibers
v. Mast cells
(10marks)

E. Muscles function to produce force and motion, and are also primarily responsible for maintaining and changing posture, locomotion and movement of internal organs.

i. There are three types of muscles. Distinguish each of them based on **microscopic structure, location and functions. (3 marks)**
ii. Draw the anterior view of **Quadriceps femoris** and label the four headed muscles. **(4 marks)**
iii. Describe the structure and origin of **Sartorius. (3 marks)**

F. State the detailed features and position of the human heart. **(5 marks)**

G. Draw the structure and give detailed functions of each of the following: **(10 marks)**

i. Red blood cells
ii. Lymphocytes
iii. Monocytes
iv. Neutrophils
v. Eosinophils