OBAFEMI AWOLOWO UNIVERSITY, ILE-IFE
FACULTY OF EDUCATION
DEPARTMENT OF SPECIAL EDUCATION AND CURRICULUM STUDIES

B.Sc. Ed. DEGREE EXAMINATION
200712008 **RAIN SEMESTER EXAMINATION, OCTOBER, 2008**
SEC 314/316/318/322/336: SPECOA; METHODS IN BIOLOGY/CHEMISTRY/
PHYSICS/MATHEMATICS/INTEGRATED SCIENCE

SECTION I

INSTRUCTION: Answer one question in Section I and the two questions in Section II
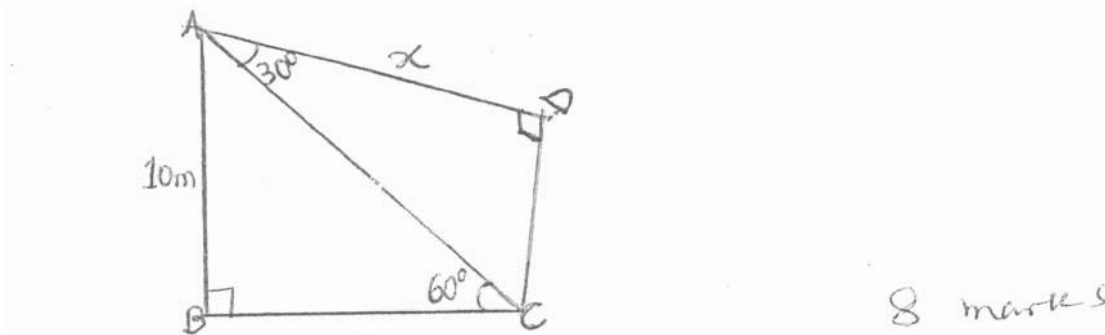
TIME ALLOWED: 2 hours.

SECTION 1: Answer one question only in your subject area.
Suppose an SS II student is having a problem in answering any of the questions below, describe precisely how you would assist the student in solving the problem.

1. (a) The probabilities that Bukola and Tunde will pass a mathematics test is 0.6 and
0.8 respectively and the probability that Basirat will not pass the same test is 0.25
Find the probability that;
   (i)   all of them passed;
   (ii)   none of them passed;
   (iii)   one of them failed.   7 marks.

  (b) Three of the angles of a hexagon are 122°, 71°, and 95° and the other three angles
are in the ratio 2:3:3. Calculate the size of each of the unknown angles.
5 marlts

  (c) In the diagram below, find the value of x

  (2) (a) Explain the following modes of nutrition which occur in plants
   (i)   Autotrophic
   (ii)   Chemosynthetic
   (iii)   Carnivorous   6 marks

(b) Give one example each of a plant which undergoes the modes of nutrition listed in 2 (a) above   3 marks

(c) (i) What are hormones?   **3** marks
   (ii) In a tabular form, state four differences between nervous coordination and hormonal coordination in human beings?   4 marks

(c) (i) What are social insects?
   (ii) List two characteristics which are common to all insects   4 marks

(3)   (a) (i) What are isotopes?   2 marks

   (ii)   Lithium exists as ^6_3Li and ^7_3Li in the ratio 2:25. Calculate the relative atomic mass of Lithium.   3 marks

(b) Define the following in terms of electron transfer
   (i)   Oxidation
   (ii)   Reduction   2 marks

(c) (i) Determine the oxidation state of phosphorus in each of the following formulae

   I. $POCl_3$
   II. PH_3 **4 marks**

(d)   (i) What is a homologous series:
   (ii)   Give two homologous series present in petroleum.
   (iii)   Give one example of a compound belonging to each of the homologous series in 3d (ii) above,
   (iv)   Name two fractions obtained from the fractional distillation of petroleum
   (v)   Why is there a gradual change in the physical properties of petroleum fractions ?   9 marks

4.   (a) (i) Define simple harmonic motion
   (ii) Mention two-examples of bodies that perform simple harmonic motion.
   (iii) A body executes simple harmonic motion.
       State the relationship between the restoring force and the displacement from its mean position   6 marks

(b) A particle makes 300 revolutions per minute on a circle of radius 5m. Calculate its:
   (i)   Period
   (ii)   Angular velocity
   (iii)   'Linear velocity,