THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

Faculty of Engineering and Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

PRE CERTIFICATE IN INFORMATION TECHNOLOGY – PRECT 11M

APS 1003: FOUNDATIONS OF PHYSICS

END OF SEMESTER EXAMINATIONS

SERIES: AUGUST/SEPTEMBER 2011

TIME: 2 HOURS

Instructions to Candidates:
This paper consist of **TWO** sections **A** and **B**
Answer question **ONE (COMPULSORY)** and any other **TWO** questions from the list below
This paper consists of **THREE** printed pages

SECTION A COMPULSORY (30 MARKS)

Question 1

a) Define the following terms
- (i) Circuit
- (ii) Current
- (iii) Battery
- (iv) Reflection
- (v) Potential Difference
- (vi) Energy
- (vii) Beam
- (viii) Friction
- (ix) Insulator
- (x) Conductor   (10 marks)

b) Explain the causes of Static Electricity   (4 marks)

c) Explain the following terms

   (i)   Gravitational force   (3 marks)

   (ii) Electrostatic force   (3 marks)

SECTION B (ANSWER ANY TWO QUESTIONS)

*This section consists of **THREE** questions 20 marks each. Choose any two questions*

Question 2 (20 marks)

a) Define light   (2 marks)

b) Explain **TWO** sources of light   (4 marks)

c) State the **TWO** laws of reflection of light   (4 marks)

d) Explain the above laws   (4 marks)

e) Explain refraction with a clear illustration   (6 marks)

Question 3 (20 marks)

a) Differentiate between Distance and displacement   (4 marks)

b) In mechanics quantities can be divided into two groups. Explain   (6 marks)

c) Give **TWO** examples of the above named groups   (4 marks)

d) Mr. Kamau travelled 20 km in 2 hours. Determine the speed?

(N/B Convert (m/s))   (6 marks)

Question 4 (20 marks)

a) Define Force   (2 marks)

b) State the standard unit of force   (1 mark)

c) State the Newton Law of motion   (2 marks)

d) Differentiate between Mass and Weight   (4 marks)

e) What is the Net Force, in a tag of war, when one team is pulling the tag with a force of 150N and the other with 80N   (2 marks)

f) How much net force is required to accelerate a 1000kg car at 5m/s   (2 marks)

g) What is the acceleration of the book, if you apply a net force of 1N on 200g book   (4 marks)

h) When an object apply a force on a second object, the second object applies a force on the first that as an equal magnitude but opposite direction. Give an example of this statement
                                                                                                             (3 marks)