NA TIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE
BACHELOR OF ARCHITECTURAL STUDIES (HONOURS) DEGREE
2012-2013 ACADEMIC YEAR
PART I – SECOND SEMESTER EXAMINATIONS – MAY 2013
AAR 1206 – APPLIED STRUCTURAL STATICS AND DYNAMICS

Instructions ***Duration: 3 Hours***

Answer all questions

QUESTION 1

*Figure 1.0 shows the free body diagram for the systems of concurrent forces which are in equilibrium. Determine the magnitude and direction of the unknown forces marked **X** and **Y.***

[25]

QUESTION 2

*A uniform rod is in equilibrium under the action of weights as shown in Figure 2.0. Calculate the value of **W** and the reaction at the fulcrum ignoring the weight of the rod.*

[25]

QUESTION 3

Draw the BM and SF diagrams for the beam loaded as shown in Figure 3.0.

[25]

QUESTION 4

Determine the position of the center of the area of the shapes shown in Figure 4.0 and calculate the value of $I_{xx.}$

[25]