NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF BUILT ENVIRONMENT

DEPARTMENT ARCHITECTURE

APPLIED STRUCTURAL STATICS AND DYNAMICS

AAR 1206

May 2017

This examination paper consists of 3 pages

Time Allowed:	**3 hours**
Total Marks:	**100**
Special Requirements:	**GRAPH PAPER**
Examiner's Name:	**Eng. V.V.DESAI**

INSTRUCTIONS

1. Answer all questions
2. Use of calculators is permissible

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
TOTAL	100

QUESTION ONE

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

QUESTION TWO

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.

QUESTION THREE

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

QUESTION FOUR

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

Q.1- Fig 1.0

Q.2- Fig 2.0

Q.3- Fig 3.0

Q.4- Fig 4.0