

**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**14/16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS**

**SCHOOL OF SCIENCE AND TECHNOLOGY**

**JUNE/JULY EXAMINATION**

**COURSE CODE: MTH308**

**COURSE TITLE:INTRODUCTION TO MATHEMATICAL MODELLING (3 units)**

**TIME ALLOWED:3 HOURS**

**INSTRUCTION: ANSWER ANY 4 QUESTIONS**

1. (a) Classify the following into fundamental or derived quantities

velocity ,acceleration,force,work-done,power, speed,time,temperature,amount of subtance,mass

**7½ marks**

(b) State four rules of dimension which validate any equation that state the general or theoretical relationship between two or more variable **10 marks**

2. (a) Formulate the dynamic stability of market equilibrium.**10 marks**

(b) Find if ,given that and **7½ marks**

3.(a) Explain the mathematical modelling  **7½ marks**

(b) Explain the steps involve in mathematical modelling**10 marks**

4. (a) Explain the essential steps you will follow to a model a problem **10 marks**

(b) A rain drop begining at rest ,falls fom a cloud 705.6m above the ground .How long does it takes to reach the ground**7½ marks**

5.(a) Explain the two basic mathematical modelling **7 marks**

(b) Mention 3 types of modelling and explain each **10 ½ marks**

6.(a) Which types of modelling will you use for the launching of a rocket / satellite for meteorological

purpose?**7½ marks**

(b) How would you made (i) Velocity

(ii) Acceleration

(iii) Momentum **10 marks**

