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 T_0 if $\theta_0 = 20^0$,given that $l = 20\,cm$ and $g = 980\,cm\backslash\sec^2$ **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**