



NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
MARCH/APRIL 2016 EXAMINATION

SCHOOL OF SCIENCE AND TECHNOLOGY

COURSE CODE: CIT412
COURSE TITLE: MODELLING AND SIMULATION

Time: 2 HOURS

INSTRUCTION: *Answer any five questions.*

1.
 - a) Write brief notes on the following:
 - i. physical model and
 - ii. mathematical model
 - b) Briefly explain what simulation is listing its benefits.
2.
 - a) Briefly explain the steps involved in modelling.
 - b) Describe what a random number is and explain how it is generated and its use in computer simulation.
3.
 - a) Briefly explain what the Monte Carlo algorithm is listing its four steps.
 - b) Use the Monte Carlo method to compute the value of π .
4.
 - a) Using a sketch explain what a normal random distribution is.
 - b)
 - i. Briefly explain what a standard normal distribution is.
 - ii. Write down the formula for obtaining a standard z-Score variable z from a normal random variable X.
5.
 - a) Distinguish between the following application areas of computer simulation:
 - i. Education
 - ii. Training
 - b) Distinguish between following types of models:
 - i. Conceptual
 - ii. Visual
6.
 - a) Briefly explain the salient features of queuing theory.
 - b)** Write down Little's Queuing formula and explain what theorem it represents.