TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATIONS FOR DEGREE IN:
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
BACHELOR OF SCIENCE IN INFORMATION COMMUNICATION TECHNOLOGY
(BTIT 12S/BSIT 12J)

EIT 4312/ICS 2403: DISTRIBUTED SYSTEMS

END OF SEMESTER EXAMINATION
SERIES: APRIL 2015
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer Booklet*

This paper consists of **FIVE** questions.
Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

Question One (Compulsory)

a) What are the TWO major designing issues in distributed computing **(4 marks)**

b) Briefly explain the following topics as used in distributed computing **(8 marks)**
(i) Load balancing and load sharing
(ii) Remote procedure call and remote method invocation

c) State and explain the characteristics of communications in distributed systems **(4 marks)**

d) State any THREE languages specifically tailored for distributed programming **(3 marks)**

e) With the aid of a diagram, explain the architectural design of a distributed system **(6 marks)**

f) State and explain the advantages of a distributed system over centralized system approach **(5 marks)**

Question Two

a) List down various partitioning and allocation in respect to loading process **(4 marks)**

b) With a suitable diagram, explain the chart-server Architecture in a distributed system **(10 marks)**

c) List and explain the various application areas where distributed system is used **(6 marks)**

Question Three

a) State and explain the different types of servers respectively with their resources **(4 marks)**

b) In Mombasa, traffic lights are placed at specific sites, where double roads have intersected. Write a programming code using C++ programming language for light traffic sequencing explaining its distributed pattern. **(16 marks)**

Question Four

Observe the table and answer the following questions:

IdNo	Cust Name	Product	Quantity	Price	Date	Branch N
3310	John, Alex	TV	10	10000	3/4/2014	Mombasa
2204	Aggrey, Tom	Video	15	200,000	2/3/2013	NRB
0670	John, Mbugua	Pen	100	400	4/5/2015	Kisumu
8934	Karanja, Jane	Fridge	50	560879	6/3/2015	Mombasa
3934	Peter, Otieno	Hand Bags	100	39300	2/3/2014	Kisumu
6356	Jane Tot	Pen	30	6000	4/5/2014	Mombasa
0123	Mary, Akinyi	Shoes	67	43009	6/6/2014	Kisumu
3467	Dama, Ruth	Comptuers	93	489000	7/8/2014	NRB
8930	Julio Nyatha		43	938001	9/3/2014	NRB
1111	Maureen, Atieno	CD	88	39427	6/3/2014	NRB

a) Define distributed database **(2 marks)**

b) With a suitable diagram, explain the types of distributed database in detail **(10 marks)**

c) By using the above table, explain the different strategies of fragmentation. With respect to search engine **(8 marks)**

Question Five

a) State the relative advantages of synchronous and asynchronous data replication and partitioning or 3 major approaches for distributed database design **(10 marks)**

b) Explain the various of distributed computing system modern **(10 marks)**