



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
IN TELECOMMUNICATION AND INFORMATION TECHNOLOGY

SPH 316: INFORMATION TECHNOLOGY I

DATE: FRIDAY 30TH MARCH 2012

TIME: 11.00 A.M. – 1.00 P.M.

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

QUESTION 1

- a) Define the following terminologies used in Information Technology
- i. Data [1 Mark]
 - ii. Information [1 Mark]
 - iii. Knowledge [1 Mark]
- b) Outline five IT-enabled strategies that companies can use to achieve competitive advantage in their industry. [5 Marks]
- c) Describe three types of computer networks and explain briefly the major characteristics of each type of network [9 Marks]
- d) Explain the four-stage model of information systems planning and the importance of aligning information systems plans with business. [5 Marks]
- e) Describe the following concepts used in Information Theory [8 Marks]
- i. Noiseless channel
 - ii. Information capacity
 - iii. Optimum filters
 - iv. Redundancy

QUESTION 2

- a) Define the term Operating System [2 Marks]
- b) Describe three major functions of Operating Systems in a computer system [6 Marks]

- c) Write Shell Scripts using BASH language to perform the following system and network administration tasks on UNIX system :
- i. Verify whether two files are identical or contain the same data **[3 Marks]**
 - ii. Establish whether MySQL program is installed in the machine **[3 Marks]**
 - iii. Search for a given word in a specified file. **[3 Marks]**
 - iv. Determine whether an integer number is an odd or even number. **[3 Marks]**

QUESTION 3

- a) Distinguish between the intention and extension of a database **[2 Marks]**
- b) Explain briefly the following sub-languages of the SQL. Give typical examples to illustrate the usage of each language.
- i. Data Definition Language **[2 Marks]**
 - ii. Data Manipulation Language **[2 Marks]**
 - iii. Data Query Language **[2 Marks]**
 - iv. Data Control Language **[2 Marks]**
- c) The following is a set of fully normalized tables for the company database system
- EMPLOYEE (FNAME, MINIT, LNAME, SSN, BDATE, ADDRESS, SEX, SALARY, SUPERSSN*)
 - DEPARTMENT (DNAME, DNUMBER, MGRSSN*, MGRSSNDATE)
 - DEPT_LOCATIONS (DNUMBER*, DLOCATION)
 - PROJECT (PNAME, PNUMBER, PLOCATION, DNUM*)
 - WORKS_ON (ESSN*, PNO*, HOURS)
 - DEPENDENT (ESSN*, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP)

Write the SQL statements for the following queries :

- a) Retrieve all employees in department 5 whose salary is between \$30,000 and \$40,000 **[2 Marks]**
- b) Retrieve a list of employees and the projects they are working on, ordered by the department and, within each department, ordered alphabetically by last name, first name. **[2 Marks]**
- c) Retrieve the names of all employees who do not have supervisors **[2 Marks]**
- d) Retrieve the name of each employee who has a dependent with the same first name and same sex as the employee **[2 Marks]**
- e) Retrieve the names of employees who have no dependents **[2 Marks]**

QUESTION 4

- a) State four benefits of setting up a computer network in a business enterprise [4 Marks]
- b) Explain briefly the functions of the following components used in a computer network
- i. Hub [2 Marks]
 - ii. Switch [2 Marks]
 - iii. Router [2 Marks]
 - iv. Repeater [2 Marks]
- c) List and explain briefly four types of electronic commerce (E-commerce). [8 Marks]

QUESTION 5

- a) Justify the role of modeling and explain four models used in decision making. [5 Marks]
- b) Explain briefly five types of Management Information Systems used in business organization. Give typical examples for each type of system. [10 Marks]
- c) Describe four benefits of Web-based Management Support Systems. [5 Marks]
