



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS**

**UNIVERSITY EXAMINATION FOR THE DEGREE IN BACHELOR OF BUSINESS  
INFORMATION SYSTEMS**

**3<sup>TH</sup> YEAR 2<sup>ND</sup> SEMESTER 2016/2017 ACADEMIC YEAR**

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**COURSE CODE: IIS 3313**

**COURSE TITLE: SYSTEM DESIGN**

**EXAM VENUE:**

**STREAM: (CH )**

**DATE:**

**EXAM SESSION: SEP-DEC 2016**

**TIME: 2.00 HOURS**

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**INSTRUCTIONS:**

- 1. Answer Question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on the question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

### **QUESTION ONE (COMPULSORY) [30 MARKS]**

- a) More than 2000 patients are registered with a local health centre. The centre employs a number of general practitioners (i.e. doctors) and a few receptionists. Patients are officially registered with one doctor but can arrange appointments with any available one. These appointments may subsequently be cancelled. Some appointments result in one or more prescriptions, identifying a medicine to be taken. New patients are registered by a receptionist. When a patient is registered he/she provides his/her details such as name, date of birth, address, etc., and receives a unique patient number. To book an appointment a patient should contact a receptionist. The patient provides his/her number (or date of birth) and the receptionist provides a list of available time slots for appointments.

The appointment is booked with the patient's doctor or if the patient's doctor is not available with any available doctor. The date and time of the booked appointment are given to the patient as a confirmation. Patients can cancel booked appointments by contacting a receptionist who will cancel appointments on behalf of patients. A patient who attends an appointment should check in first using a special term in allocated in the waiting area of the health centre. The patient inputs his/her number (or date of birth). The system checks the details and confirms that the patient has been checked in. Doctors record appointment outcomes and details of prescriptions (if any) during the appointments i.e. all prescriptions issued by doctors are recorded on the patient's record. Patients who leave the area where the health centre is located are de-registered by a receptionist.

- i. Produce a context diagram of the health centre system described above. **(4 Marks)**
  - ii. Produce a diagram 1 of the health centre system. **(8 Marks)**
- b) State and explain any two team-oriented techniques used in the analysis phase. **(4 Marks)**
- c) Develop a test strategy and test plan of your term paper project **(6 Marks)**
- d) User involvement is important for the success of computer projects. The user can contribute to several stages of the project cycle. For THREE of these stages, describe how the user can contribute and how the computer project will benefit from this involvement. **(3 Marks)**
- e) State and explain any three different types of systems testing. **(3 Marks)**

### **SECTION B**

**QUESTION TWO [20 MARKS]**

- a) Describe any six principles of user centered design. **(12 Marks)**
- b) Information gathering is vital for any system development process ,discuss three Characteristics for gathering requirements **(3 Marks)**
- c) Suppose you have to redesign an interface used by clerical staff for data entry to a government database. The current interface is line-based. Your customer wants to redesign this interface to improve productivity and lower data entry error rates which are currently quite high. Describe the key interface features and functions you'd consider in putting together a design. **(5 Marks)**

**QUESTION THREE [20 MARKS]**

- a) Systems development projects flow from the information systems plan. List four components that make up the information's systems plan. **(4 Marks)**
- b) The JOOUST Mathematics department has acquired a system .The system is required which allows a user to input an unordered list of integer numbers into a computer. The system will store these numbers in the main store of the computer where they are to be sorted by the system into ascending numeric order and re-stored. Finally the system is to print out the list for the user.
  - (i) Draw a context diagram for this problem. **(8 Marks)**
  - (ii) Draw a level 1 data flow diagram for this problem. **(8 Marks)**

**QUESTION FOUR [20 MARKS]**

- a) Discuss risk management in an information system project development **(4 Marks)**
- b) Explain any three importance of prototyping in systems development. **(6 Marks)**
- c) Discuss any five factors affecting the cost of Maintenance **(10 Marks)**

**QUESTION FIVE [20 MARKS]**

- a) Briefly describe the Building the Baseline Project Plan for your term paper project **(10 Marks)**
- b) An online car sale organization has expanded the number of outlets around a city. At the moment the outlets use conventional cash tills. The organization would like to implement a Point-Of-Sale (POS) system in all its outlets with linkages to a centralized computer. Assume you are the organization's systems analyst and you have been asked to assist in the conversation process from the existing system to the new one: Evaluate the change-over options that are available and recommend the most suitable method for the new system. **(5 Marks)**

c) Describe the following in relations to systems analysis and design

**(5 Marks)**

- i. Logical System Description
- ii. Physical System Description