



ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE AND FOOD
SYSTEMS DEVELOPMENT

DEPARTMENT OF INFORMATION SYSTEMS

EXAMINATION PAPER

COURSE CODE : BIS 211
COURSE TITLE : Systems Analysis and Design
SPECIAL REQUIREMENTS : None
DURATION : 3 Hours
LEVEL : 2.1
DATE : May 2024

10 JUN 2024

INSTRUCTIONS TO CANDIDATES:

1. This paper consists of 2 sections
2. Answer **ALL** Questions in SECTION A and **ANY THREE** Questions from SECTION B in booklet provided.
3. Start each Question on a new page

There are 3 printed pages for this question paper

SECTION A

Answer **ALL** questions from this section.

QUESTION 1

- a. The Spiral model is a realistic approach to the development of large-scale systems and software. Justify and explain the model [6]
- b. Explain the major phases of the system development life cycle [6]
- c. Define a system. Explain the components of a system [8]
- d. Explain how is system analysis related to system design process? [5]

QUESTION 2

- a. Explain the difference between a waterfall and Spiral Development Life Cycle. Illustrate your answer with diagrams. [15]

SECTION B

Answer any **Three** questions from this section

Question 3

Case Study

Local Health Centre

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 terminal located 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.

- a. Produce a context diagram of the health centre system described above. [6]
- b. Produce a logical top level data flow diagram of the health centre system. [14]

Question 4

- a. Clearly highlight and explain on any five major attributes that an analyst should possess. [10]
- b. Provide a brief explanation of the following characteristics/attributes of good software design: Efficiency, Flexibility, Reusability. [10]

Question 5

- a. Explain the following change over strategies
 - i. Parallel run [3]
 - ii. Direct changeover [3]
 - iii. Pilot scheme [2]
 - iv. Describe the purpose of the entity relationship diagram (ERD) in the structured development strategy. [4]
- b. Explain how the following terms contribute to system development:
 - i. User Acceptance Testing
 - ii. System Maintenance [8]

Question 6

- a. Suggest the problems that might arise to a project from
 - i. Insufficient user participation [4]
 - ii. excessive user participation [4]

- b. If an order of \$500 or more is received from a creditworthy customer a discount of 5% is allowed and an order less than \$500 attracts 3% discount, otherwise the case is referred to the manager for decision.
Draw a decision table for the above situation. [12]

End of paper!!!!!!

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