Faculty of Computers & Artificial Intelligence | **Benha University**
2st Term (2019-2020) Final Exam | **Final Date**: 7 / 6 /2020
class: year **1st Medical Informatics** | **Total Marks:** Pass / Fail
Course Code: MIS161 | **Examiner(s):** Dr. Mohamed Abd El fattah
Course name: Clinic Enterprise Operations

Research submission: From 31 May to 7 June 2020

a) Write a research project in ONE of the following topics:

Topic No. 1

A hospital makes an excellent information systems model. It serves as a very large information storage facility with text, audio, and video data archives. Look up the definitions for each term listed below and briefly explain by diagram a hospital's equivalents.

A) Select two subsystems from hospital organization to describe information system activities using diagrams.

B) Describe the types of information system on hospital, Provide a real-world example of each type.

A) Using (SDLC) system development life cycle to Design OPD Registration Process, Discuss the significance of the patient identification number (PIN) to achieve integrity inside a hospital information system. Why should the PIN not have an internal meaning? What could happen when the PIN contains the date of birth or other patient characteristics?

C) ***Write a report (3-6 pages) describing the following topics (definition, functions, architecture, case study):*** medical informatics, Laboratory Information Systems, Clinical Information System.

Topic No. 2

design a system (context diagram and data flow diagrams) to automate the process of day to day activities of Hospital like Room activities, Admission of New Patient, Discharge of Patient, assign a Doctor, and finally compute the bill etc., online facilities to the multiple users etc.

A) Describe an Information System Activities for Application Components in Outpatient Units

B) using system development life cycle SDLC to design Medical supply Process

C) Describe the Architectures of Hospital Information Systems, Discuss the significance of the patient identification number (PIN) to achieve integrity inside a hospital information system. Why should the PIN not have an internal meaning? What could happen when the PIN contains the date of birth or other patient characteristics?

D) ***Write a report (3-6 pages) describing the following topics*** *(definition, functions, architecture, case study)*: bioinformatics, Patient Management Information System, Pharmacy Information System

Topic No. 3

A) Find three examples of information processing for each of the following areas in a hospital**.** Which information is processed during which activities, and which tools are used? Take computer-based information processing into consideration in your examples.

- Information processing on a ward.
- Information processing in the hospital administration

B) Take an HIS strategic information management plan of a given hospital Answer the following questions concerning HIS infrastructure and architecture: What is the HIS infrastructure? What is the general HIS architecture? Describe by diagrams the architecture at the logical tool layer in the

computer supported part? Explain the architecture at the physical tool layer in the computer supported part?

C) Using (SDLC) system development life cycle to Design OPD Registration Process

D) In a heterogeneous society like Egypt with significant disparity in accessibility of health care facilities between urban and rural communities, hospital management systems may help to bridge the gap in availability of patient, associated patient data analysis systems (PDAs) with enhanced storage and analysis of patient data enabling physicians to reach improved clinical decisions on patient care. Similarly, clinical information systems capture clinical data to enhance prompt and efficient decision making. ***Write a report (3-6 pages) For Integrating*** **Hospital Information Systems into Health Information Systems**

Topic No. 4

A) **Design a graphical process model of nursing documentation**. **Use DFD diagrams** with the typical symbols for activities, transitions, branching, conditions and synchronization, responsible roles, and entities to model the following process:
Every time a patient is admitted to the ward, a new nursing plan is created: the nursing patient history is written down, together with the problems of the patients, the corresponding goals of the nursing treatment, and the tasks to be executed. The patient history is written on paper-based forms and then inserted in the paper-based patient record. The other parts are created with the aid of a computer-based application component known as NDS and then printed out and inserted in the paper-based patient record. At the beginning of each shift, the nurse reads the printed nursing plan to see which measures are to be executed. She copies the tasks to be executed during her shift onto a note that she carries with her. On this note, she marks the tasks which have been taken care of. At the end of each shift, the nurse documents which tasks that have been executed in the printed nursing plan (by signing each task). She writes a short report on a special form about special occurrences during her shift. Finally, she validates the nursing plan and adapts it to the new state of the patient's problems and the nursing goals. During the patient's stay in the hospital, the nursing plan can be changed several times. The new plan is then again printed out and inserted into the paper-based record.

B) What kind of paper-based and what kind of computer-based information processing tools are used in the hospital?

C) Discuss the significance of the patient identification number (PIN) to achieve integrity inside a hospital information system. Why should the PIN not have an internal meaning? What could happen when the PIN contains the date of birth or other patient characteristics?

D) ***Write a report (3-6 pages) describing the following topics*** *(definition, functions, architecture, case study)*: bioinformatics, Electronic Patient Record Systems, Clinical Information System.

b) **<u>Notes: please, your research must contain the following elements:</u>**

- **Introduction**
- **Case study (examples)**
- **Support your research by diagrams and examples**

GOOD LUCK,

Examiner(s) **Program Coordinator**

Dr. Mohamed Abd El fattah