UGANDA MARTYRS UNIVERSITY

UNIVERSITY EXAMINATIONS

FACULTY OF SCIENCE

BSC (IT, GEN) FINAL EXAMINATION

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION SYSTEMS

RESEARCH METHODOLOGY II

SECOND YEAR EXAMINATION FOR BSC Information Technology/GENERAL

DATE: Tuesday December, 11th, 2012

TIME: 9.00 – 12.00 NOON

**Instructions:**

Read the *case study* carefully and attempt *all* questions in section A and one question in section B. All questions carry equal marks

DO NOT OPEN THIS BOOKLET UNTIL TOLD TO DO SO

**The Case**

Assume you are a Pupil Researcher (PR) about to undertake a major project research in the area of Computer Information Systems or Computer Science. In this project, you will be required to portray substantial amount of maturity in the selection of a research area, proposal develoment, research execution, report writing and research presentation. Besides, you will be required to show originality, innovativeness and resourcefullness in the whole project research development effort.

As a PR, you are expected to have substantial experience, knowledge and skills in students' project management, research techniques and tools, as well as soft skills in managing a software project throughout its life. Besides, you are well conversant with various, methodologies, techniques, and tools aimed at rapid and cost-efficient development of software systems.

Give enough thought to the "Registration Activity" within the confines of the processes, actors, information, and technologies. Confining yourself to the Constructive Research methods which basically involve 'Conceptual and Technical Development' of a software system, which is in-line with our area of interest, you will be required to show intellectual abilities in undertaking a student's research project in the "Registration Office" of Uganda Martyrs University (UMU) within a period of eight months given all the necessary resources.

With the above background in mind now attempt the questions that follow.

**SECTION A**

1. Come up with a brief background, problem statement, main objective, four specific objectives, and two main significances for your research project. (20 marks)

2. In form of a table, use the SDLC phases to formulate activities and corresponding deliverables within specified timeframes for your research project. (20 marks)

3. Develope the methodology section of your research project by coming up with the following:

   (a) Research methodology (research approaches and techniques). (10 marks)

   (b) Systems development methodology (methodology and tools). (10 marks)

4. Explain each of the following in relation to the "Registration Activity".

   (a) Three skills you can gain out of your project research. (6 marks)

   (b) Four topic areas you would include in your literature review. (8 marks)

   (c) One reason for explaining research methodology for your project. (2 marks)

   (d) Two reasons for explaining development methodology for your project. (4 marks)

**SECTION B**

5. Answer the following questions relating to the literature review of your research project.

    (a) State the difference between in-text reference and bibliographic reference.    (4 marks)

    (b) Differentiate between quoting and paraphrasing when reviewing literature.    (4 marks)

    (c) Using one of the referencing systems widely used in your profession, show how you can use quotation and paraphrasing when reviewing literature.    (8 marks)

    (d) Point out the significance of a literature review in your research project.    (4 marks)

6. Answer the following questions relating to the methodology section of your research project.

    (a) Carry out an evaluation of the use of questionnaire survey versus interview schedule as a means of collecting requirements for your system.    (8 marks)

    (b) Carry out an evaluation of the use of "Rapid Application Development (RAD)" and "Prototyping" as approaches to developing your software system.    (8 marks)

    (c) Explain four advantages for using Computer Aided Software Engineering Tools (CASE) during the design and development of your software system.    (8 marks)

    (d) Outline four important documents you would choose to review during the collection of requirements for your software system.    (2 marks)

END