PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE
SECOND SEMESTER EXAMINATION - 2022
THIRD YEAR BACHELOR OF SCIENCE IN COMPUTER SCIENCE

CS321 SOFTWARE ENGINEERING

TIME ALLOWED: 3 HOURS

INFORMATION FOR CANDIDATES

1. Write your student number and name clearly on the front of the examination answer booklet.

2. You have 10 minutes to read this paper. You must not write during this time.

3. **There are five (5) short answer questions. You should attempt all the questions.**

4. All the answers must be written in the answer booklet. No other written materials will be accepted.

5. Start the answer for each question on a new page.

6. Do **not** use red pen or pencil to write your answers.

7. **MOBILE PHONES MUST BE SWITCHED OFF** for the entire duration of the examination. Students failing to do so will be penalised.

MARKING SCHEME

Marks are indicated at the beginning of each question. The total is **100 marks**.

Question 1 [2 + 4 + 2 + 2 + 4 + 2 + 2 + 2 = 20 MARKS]

a) Software engineering is criticized as inadequate for modern software development. Many of these so-called software failures are a consequence of two factors. List them.
b) All good software are benchmarked against four attributes. List them.
c) Give two examples of application frameworks that can be used to develop an online store. (Other than Django)
d) What does "localhost" mean?
e) Software engineering has four fundamental activities. What are they?
f) Explain why writing comments on large blocks of programming code is important.
g) A software development life cycle (SDLC) is also known as a _____.
h) List two commonly used examples of content management systems (CMS).

Question 2 [2 + 4 + 3 + 4 + 5 + 2 = 20 MARKS]

a) Give two examples of commonly used software development life cycles.
b) Suggest why it is important to make a distinction between developing the user requirements and developing system requirements in the requirements engineering process.
c) Explain what code refactoring is?
d) Explain why a Process Model is important when developing software?
e) What are the five phases of the waterfall software development life cycle model?
f) State two disadvantages with the waterfall software development life cycle model.

Question 3 [3 + 3 + 8 + 2 + 2 + 2 = 20 MARKS]

a) Describe the Agile Process Model.
b) List three examples of the Agile Process Model.
c) Explain how the principles underlying Agile methods lead to the accelerated development and deployment of software.
d) What is a scrum?
e) What is a scrum sprint?
f) What happens to unfinished work after a scrum sprint?

Question 4 [4 + 3 + 4 + 2 + 3 + 4 = 20 MARKS]

a) Explain the fundamental techniques involved in requirements elicitation.
b) Requirement engineering involves three key activities. List them.
c) Why is it important to do a feasibility study early in the requirements engineering process?
d) System requirements are classified into two categories. Name them.
e) What is requirements engineering?
f) Explain what Unified Modelling Language (UML) is and its importance in requirements engineering.

Question 5 [5 + 5 + 6 + 2 + 2 = 20 MARKS]

a) Which process model would you recommend for an online store? Explain your answer.
b) Why is it important that we test software before it is released to customers to use?
c) Commercial software systems go through three stages of testing. List and explain each of them.
d) Explain what debugging is?
e) Explain what a critical path in a Gantt chart is.

END OF EXAMINATION