



MACHAKOS UNIVERSITY

Special/Supplementary Examinations 2017/2018

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BSC (IT)

SIT 208: SOFTWARE ENGINEERING

DATE: AUGUST 2018

TIME: 2 HOURS

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 Marks).

- (a) Differentiate between software engineering and software re-engineering. (4marks)
- (b) (i) What is software life cycle? Discuss the generic waterfall model. (4 marks)
ii) List the advantages of using waterfall model instead of adhoc build and fix model. (4marks)
- (iii) Differentiate between the following
 - (i) Deliverables and milestones (ii) Product and process (4marks)
- (c) State THREE factors to be considered when selecting a programming language. (6 marks)
- (d) The process of software development can be complex hence challenging. Explain how the following techniques are applied in reducing the complexity and minimize the challenge.
 - (i) Software project management. (6marks)
 - (ii) Configuration management
 - (iii) Software quality assurance
- (e) Define the following terms: (2marks)
 - (i) Validation (ii) Verification

Question 2.

(a) Discuss the prototyping model. What is the effect of designing a prototype on the overall cost of the project? (8marks)

(b) Software maintenance has become an important activity of a large number of organizations. Explain the different types of maintenance that a software product management need. (8marks).

(c) What are the advantages of developing the prototype of a system? (4 marks)

Question 3.

(a) Define the following terms used in software Engineering (10marks)

(i) Coupling (ii) cohesion (iii) Abstraction (iv) Inheritance (v) Polymorphism.

(b) Explain four major shortcomings that we might face if we use the classical waterfall model for developing all types of software products. (4marks)

(c) Software design has two fundamental different approaches. State and give two advantages of each approach. (6marks).

Question 4.

(a) A software development life cycle is a structure imposed on the development of a software product. Discuss the six activities carried out in software development life cycle. (6marks)

(b) Explain how both the waterfall model of the software development and the prototyping model can be accommodated in the spiral process model. (6marks).

(c) Describe four types of non-functional requirements that may be placed on a system. Give examples of each of these types of requirements. (8marks)

Question 5.

(a) Software testing is one of major approaches in software development. Discuss the FIVE software testing strategies. (10marks)

(b) The goal of the requirements engineering process is to create and maintain a system requirements document. The overall process includes four high level requirements engineering sub-processes. With the aid of a diagram illustrate the relationship between these activities. (10marks)