COVENANT UNIVERSITY

CANAANLAND, KM 10, IDIROKO ROAD
P.M.B 1023, OTA, OGUN STATE, NIGERIA.

TITLE OF EXAMINATION: B.Sc EXAMINATION
COLLEGE: Science and Technology
DEPARTMENT: Computer and Information Sciences
SESSION: 2016/2017
COURSE CODE: CSC411
COURSE TITLE: SOFTWARE ENGINERRING
INSTRUCTION: Answer Question 1 and any other Three (3) Questions

SEMESTER: ALPHA
UNIT: 3
TIME: 2 ½ Hhrs

Question One (25 marks)

a). i. What do you understand by Software Engineering and Software Product? **[3mks]**

ii. Describe three (3) key challenges facing software engineering? **[4 ½mks]**

b). i. What is a legacy system? **[1mk]**

ii. Distinguish between re-engineering and reverse engineering. Why are they important? **[4 mks]**

c).Based on your experience with a bank ATM, draw a Sequence diagram modelling the transactions involved when a customer withdraws cash from the machine. **[6mks]**

d). For the given scenario below, generate five (5) Test Cases for the CULIB System. **[5mks]**

A student in Covenant University is undertaking a study in Data Analysis and needs to find materials using the automated Library System of the institution called CULIB. He logs on to the system and uses the search facility to discover if he can access all the relevant documents from the system. He discovers that he is allowed to download only four relevant materials per day. To download more, he requires further authorization from the library officer. He uses the facility in CULIB that can request such permission to register his request. If granted, he will be allowed to download not more than two additional documents.

e. Describe the relevance of UML to software development **[1½mks]**

Question Two (15 marks)

a. What are **'creeping requirements'**? Recommend **two (2) approaches**, with appropriate justification that could solve the problem of **'creeping requirements'** in software engineering **[6 mks]**.

b. i) What do you understand by Architectural Designs? ii) Outline how the following attributes: **Performance, Safety, Security, Availability** and **Maintenance** of a system are achieved with the aid of software architecture. **[5mks]**

c. What is a System Model? State three uses of System Models **[4mks]**

Question Three (15 marks)

a. Write short notes on the following Software
i) Real-time Software ii) Embedded Software iii) Artificial Intelligence Software **[6 mks]**

b. Describe four (4) principles of the Agile Method **[4mks]**

c. How does software process models such as Component-based Development and SOA support Heterogeneity? **[5 mks]**

Question Four (15 marks)

a. Give four (4) reasons why you think a software development company may **NOT** want to imbibe the idea of using CASE tools. **[4 mks]**

b. What is Requirements Engineering? Discuss the stages of Requirements Engineering **[7 mks]**

c. Why is there a need for rapid action software development? Explain the characteristics of RAD processes. **[4mks]**

Question Five (15 marks)

a. What is Software Testing? Describe the Software Testing Process. Include the appropriate diagram **[6mks]**

b. Differentiate between White Box and Black Box Testing **[5mks]**

c. What are the essential attributes of a good Hospital Information System (HIS)? **[4mks]**

Question Six (15 marks)

a. Explain the following terms as used in software life-cycle modeling
i) Incremental Model ii) eXtreme Programming (XP) iii) Waterfall Model **9mks]**

b. Discuss the differences between verification and validation, and explain why validation is a particularly difficult process. **[3mks]**

c. Explain why it is not necessary for a program to be completely free of defects before it is delivered to its customers. To what extent can testing be used to validate that the program is fit for its purpose? **[3mks]**