



NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
2022_2

COURSE CODE: CIT703

COURSE TITLE: Information Technology and Software Development

CREDIT: 3 Units

TIME ALLOWED: 2½ Hours

INSTRUCTION: Answer Question ONE (1) and any other THREE (3) Questions

CIT 703 – Information Technology and Software Development

Theory Questions

QUESTION ONE

1(a) V-model is the development method which is used in many projects. Describe three most important steps of the V- model. (6 marks)

1(b) Outline the four processes to procure a standard software. (4 marks)

1(c) With the aid of a correct labelled diagram, describe a waterfall model (8 marks)

1(d) The Unified Modeling Language (UML) is used to specify, visualize, modify, construct and document the artifacts of an object-oriented software intensive system under development. UML diagrams represent two different views of a system model, namely structure diagram and behavior diagram. Classify the following diagrams into the structure and behaviour diagrams (5 marks)

- (i) Class diagram
- (ii) Activity diagram
- (iii) Sequence diagram
- (iv) Object diagram
- (v) Deployment diagram
- (vi) Timing diagram
- (vii) Communication diagram
- (viii) Profile diagram

(ix) State Machine diagram

(x) Component diagram

(f) A database model is a theory or specification describing how a database is structured and used. Several such models have been suggested. Outline five Common models (5 marks)

(g) What is mapping cardinality? (2 marks)

[30 marks]

QUESTION TWO

(a) Compare and contrast between entity and relationship. (3 marks)

(b) A database management system (DBMS) is a software package designed to store, retrieve, query and manage data. Briefly Discuss three features among those commonly offered by current Database Management Systems (6 marks)

(c) Briefly describe data flow diagram. (3 marks)

(d) Identify six Examples of Database Management Systems (6 marks)

(e) Outline four different high level programming languages used for coding (2 marks)

QUESTION THREE

(a) Discuss entity relationship modelling. (5 marks)

(b) Briefly describe requirement engineering. (3 marks)

(c) Discuss the coding phase of extreme programming. (4 marks)

(d) Why is maintenance considered an important aspect of software development process? (3 marks)

QUESTION FOUR

- (a) Define software verification. (2 marks)
- (b) Describe software technical reviews. (4 marks)
- (c) Discuss the followings as factors in requirement engineering. (6 marks)
 - (i) Prototypes
 - (ii) Measurable goals
- (d) Mention six (6) among the key goals of that software process aims to achieve. (3 marks)
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QUESTION FIVE

- 5(a) Describe three Components of DBMS (6 marks)
- 5(b) What is your understanding of software specification? (4 marks)
- 5(c) Write the three (3) types of conditions found in transition network systems. (3 marks)
- (d) A transition network is a set of states and the transitions between them. Briefly explain

QUESTION SIX

- (a) Appraise three (3) usefulness of physical flows in data flow diagram. (3 marks)
- (b) Describe the following concepts in entity relationship diagram. (4 marks)
- (c) Explain the major benefits of extreme programming. (3)
- (d) The diagram below represents a particular process in a data flow diagram, identify and summarize the meaning of each alphabet. (5 marks)