UNIVERSITY EXAMINATIONS

UNIVERSITEITSEKSAMENS

UNISA university of south africa

COS1521 (483884) May/June 2012
RCO1521 (499060)

COMPUTER SYSTEMS: FUNDAMENTAL CONCEPTS

Duration 2 Hours 100 Marks

EXAMINERS

FIRST MR S SSEMUGABI

SECOND MRS D BECKER

This paper consists of 29 pages and the instructions for the completion of a mark-reading sheet

Please complete the attendance register on the back page, tear it off and hand it to the invigilator

Instructions:

1 All the questions in this paper are **multiple-choice**
2 There are 80 questions in total Your total mark out of 80 will be converted to a final exam mark out of 100
3 Answer all the questions There is also space for rough work
4 Using a pencil, answer all the questions on the mark-reading sheet
5 Remember to fill in the **unique number** (see top of page) on the mark-reading sheet
6 You are not allowed to use a calculator

EVERYTHING OF THE BEST!

This paper consists of 80 multiple-choice questions.
Each question is worthy 1 mark.
Your total out of 80 will be converted to give a final exam mark out of 100.

Mark only one alternative per question with a pencil on the mark-reading sheet.
(Remember to fill in the unique number.)

Section A: Numbers system, data storage, operations on data and logic (27 marks)

QUESTION 1
On which model are today's computers based?
1 Von Neumann
2 Pascal
3 Charles Babbage
4 Bill Gates

QUESTION 2
Since 1950, historians have divided computer software and hardware into generations Which generation witnessed the appearance of microcomputers?

1 Second
2 Third
3 Fourth
4 Fifth

QUESTION 3
Convert $(55)_{10}$ to a hexadecimal number

1 $(49)_{16}$
2 $(37)_{16}$
3 $(16)_{16}$
4 $(51)_{16}$

QUESTION 4
Convert $(1011\ 11)_2$ to an octal number
1 $(11\ 3)_8$
2 $(51\ 3)_8$
3 $(13\ 6)_8$
4 $(17\ 6)_8$

QUESTION 5

Which one of the following number representations is NOT correct?

1 $(11\ 2)_2$
2 $(11\ 1)_8$
3 $(A1B)_{16}$
4 $(58)_{10}$

QUESTION 6

What is the 2's complement representation of –22 using 6 bits?

1 $(101001)_2$
2 $(010011)_2$
3 $(010110)_2$
4 $(101010)_2$

QUESTION 7

Convert $(101101.01)_2$ to normalised form

1 $(0\ 10110101)_2 \times (2^{-6})_{10}$
2 $(0\ 10110101)_2 \times (2^{6})_{10}$
3 $(1\ 0110101)_2 \times (2^{-5})_{10}$
4 $(1\ 0110101)_2 \times (2^{5})_{10}$

Rough work

QUESTION 8

If you wanted to know the precision of the fractional part of a normalised number stored in a computer you would check its _____

1 mantissa
2 sign
3 exponent
4 floating point

QUESTION 9

Which one of the following refers to the process of rounding the value of a sample to the closest integer value when storing audio?

1 Sampling
2 Quantisation
3 Encoding
4 Compression

QUESTION 10

Which one of the following is an application of the AND operator?

1 To set specific bits in a bit pattern
2 To flip specific bits in a bit pattern
3 To unset specific bits in a bit pattern
4 To complement all the bits in a bit pattern

QUESTION 11

Calculate $(1011\ 01)_2 + (111)_2$

1 $(1101\ 00)_2$
2 $(10010\ 01)_2$
3 $(1101\ 01)_2$
4 $(10010\ 00)_2$

Apply Boolean algebra rules in the following THREE questions.

QUESTION 12

What is the simplest form of the Boolean function $x + (x'\ y)$?

1 1
2 **x + y**
3 $x' + y'$
4 x y

QUESTION 13

What is the simplest form of the Boolean function $xy' + xy'z' + xy'z$?

1 $xy'(z' + z)$
2 $xy'z' + xy'z$
3 1
4 xy'

QUESTION 14

What is the simplest form of the Boolean function $(x+ y)' y'$?

1 $x'y'$
2 $x'y$
3 $x + y$
4 $x' + y'$

Rough work

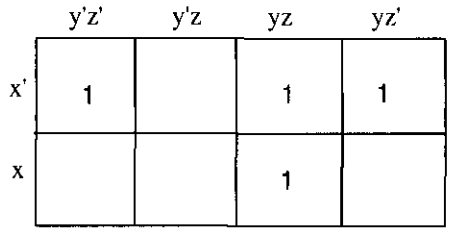
QUESTION 15

Consider the following Boolean function

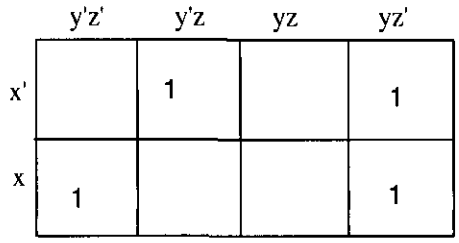
$$F(x,y,z) = m_1 + m_2 + m_5 + m_7$$

Which one of the following four Karnaugh diagrams represents the given function?

1



2



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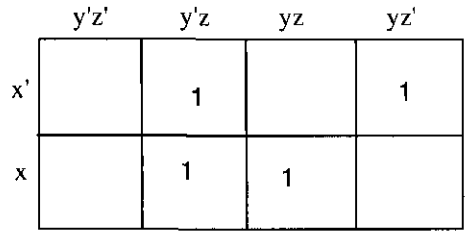

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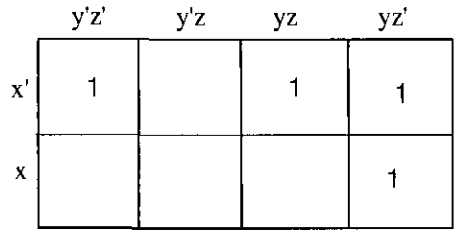
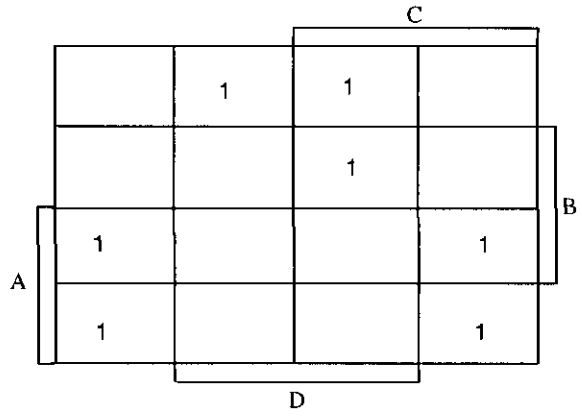


Rough work

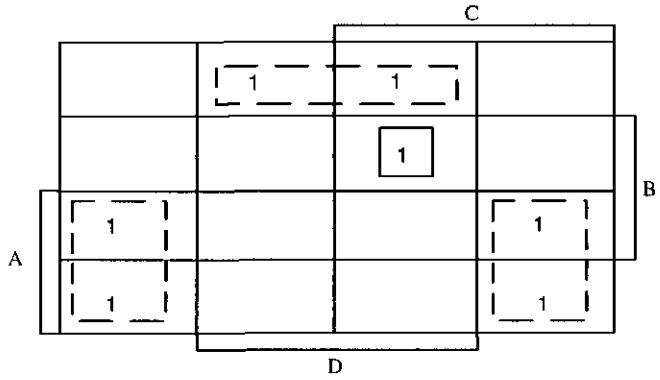
QUESTION 16

Consider the following Karnaugh map



Which one of the following four Karnaugh maps reflects the correct forming of groups?

1



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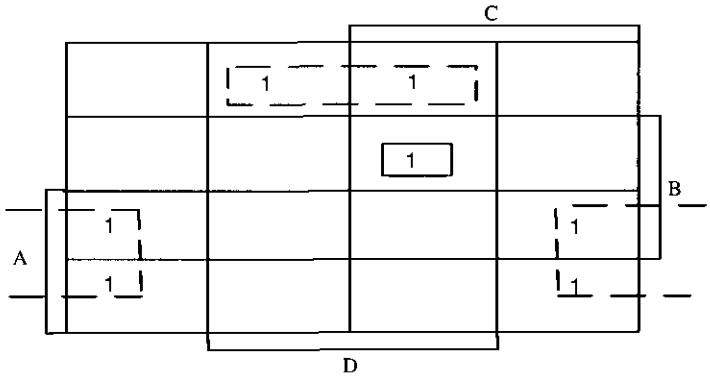

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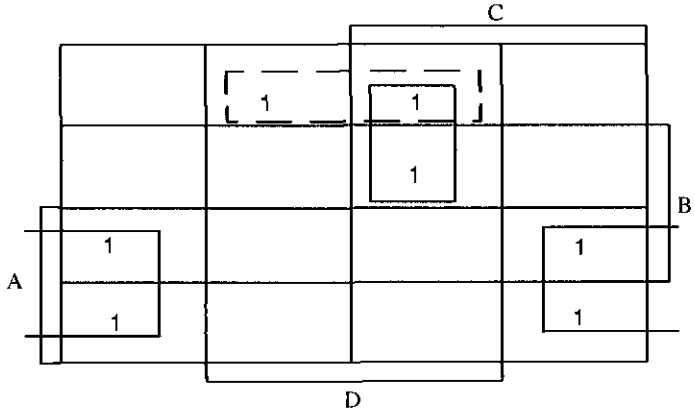

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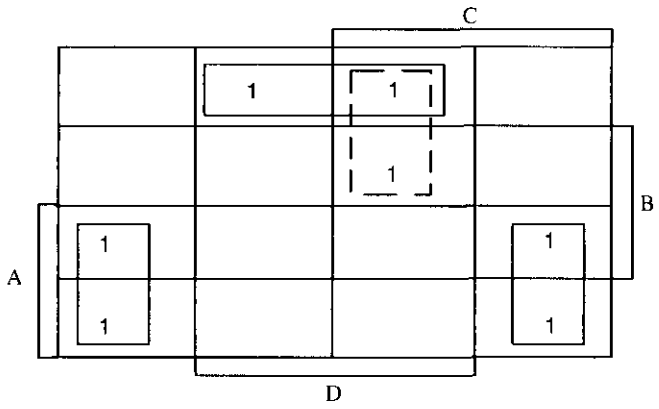
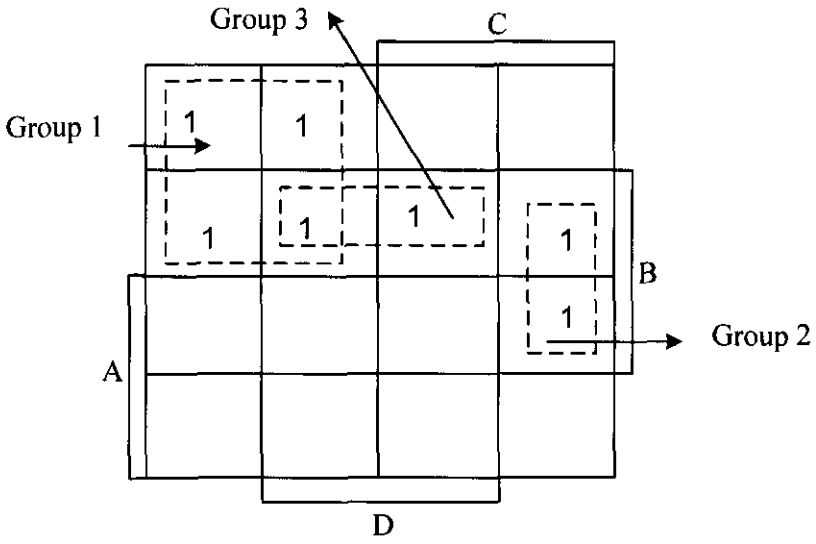


Rough work

The next THREE questions refer to the Karnaugh map below:



QUESTION 17
Which term represents Group 1?

1 A′C′
2 AC
3 A
4 A′

QUESTION 18
Which term represents Group 2?

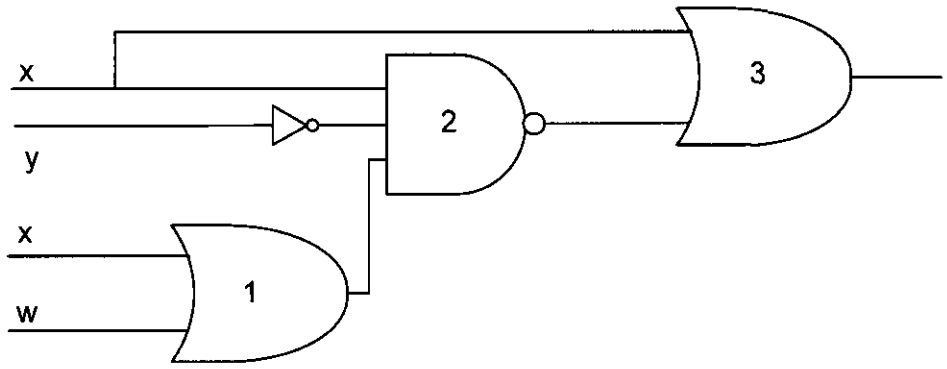
1. BC
2 BC′D′
3 BCD′
4 AC

QUESTION 19
Which term represents Group 3?

1 ABD
2 D
3 ACD
4 A′BD

Rough work -

The next THREE questions refer to the following combinational logic circuit:



QUESTION 20
What is the output of Gate 1?

1 $x' + w$

2 $x\ w$

3 $x' + w'$

4 $x + w$

QUESTION 21
What is the output of Gate 2?

1 **$[(x + w).y'.x]'$**

2 $(x' + w) + y' + x$

3 $[(x.w) + y' + x]'$

4 $(x' + w').y'\ x$

QUESTION 22
What is the output of Gate 3?

1 $(x\ w) + y' + x]' . x$

2 $[(x' + w').y'\ x] . x'$

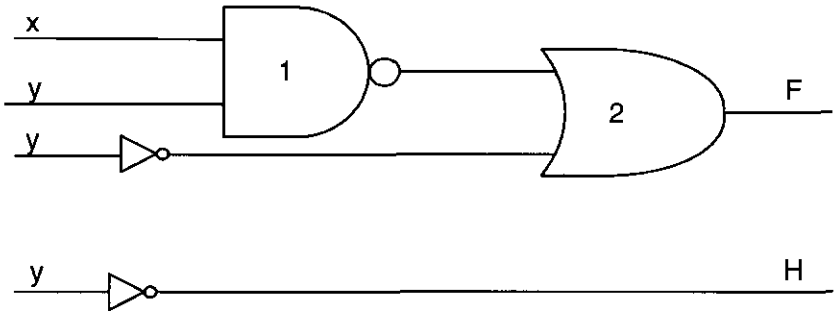
3 $[(x + w)\ y'\ x]' + x$

4 $[(x' + w) + y' + x] . x'$

Rough work

QUESTION 23

Consider the following two logic circuits



These two logic circuits are not equivalent $F = (xy)' + y'$ and $H = y'$ One of the two gates can be changed so that the circuits can become equivalent Which gate can be changed and what kind of gate must it become?

1 Gate 2 must change to an AND gate
2 Gate 1 must change to an AND gate
3 Gate 2 must change to a NAND gate
4 Gate 1 must change to an OR gate

Rough work

Consider the following scenario:

A family has three mobile phones (cell phones) in their home The mother wants to go to a shopping centre (mall) to buy groceries

Cell Phone A has Bluetooth and Camera, **Cell Phone B** has Bluetooth and a GPS, and **Cell Phone C** has 3G and a GPS

If the mother takes Cell Phone A then variable A = 1, If the mother takes Cell Phone B then variable B = 1 and If the mother takes Cell Phone C then variable C = 1 For example, if A = 1, B = 1 and C = 0, it means that the mother takes both cell phones A (Bluetooth and Camera) and B (Bluetooth and GPS) with her In this case she will have facilities for Bluetooth, Camera and GPS

A Boolean function F(A,B,C) is defined as follows **F(A,B,C) = 1 when the mother has facilities for <u>at least</u> Bluetooth and GPS while at the mall,** otherwise F(A,B,C) = 0

Different combination inputs for A, B and C are given in the tables in the following FOUR questions. The question that should be answered in each case is: Which alternative shows the correct outputs for F?

QUESTION 24

			Alternative 1	Alternative 2	Alternative 3	Alternative 4
A	**B**	**C**	**F**	**F**	**F**	**F**
0	0	0	0	1	0	1
0	0	1	0	1	1	0

QUESTION 25

			Alternative 1	Alternative 2	Alternative 3	Alternative 4
A	**B**	**C**	**F**	**F**	**F**	**F**
0	1	0	0	1	0	1
0	1	1	0	1	1	0

QUESTION 26

			Alternative 1	Alternative 2	Alternative 3	Alternative 4
A	**B**	**C**	**F**	**F**	**F**	**F**
1	0	0	0	1	0	1
1	0	1	0	1	1	0

QUESTION 27

			Alternative 1	Alternative 2	Alternative 3	Alternative 4
A	**B**	**C**	**F**	**F**	**F**	**F**
1	1	0	0	1	0	1
1	1	1	0	1	1	0

Rough work

Section B: Computer systems, organisation and networks (18 marks)

QUESTION 28
What name is given to the fast stand-alone storage locations in a CPU that hold data temporarily?

1 Registrars
2 Control units
3 ALU
4 Addresses

QUESTION 29
What is the last step of the procedure when the CPU needs to access a word in main memory?

1 The CPU checks the cache
2 The CPU checks the registers
3 The CPU accesses the cache and copies the word
4 The CPU accesses the registers and copies the word

QUESTION 30
How many bytes are there in a gigabyte?

1 2^{10}
2 2^{20}
3 2^{30}
4 2^{40}

QUESTION 31
A computer has 1024 MB of memory Each word in this computer is 32 bytes How many bits are needed to address any single word in memory?

1 24
2 25
3 26
4 27

QUESTION 32
In the fetch stage of the machine cycle used by the CPU, _____

1 instructions are decoded by the control unit
2 the contents of two input registers are added
3 the task order is sent to a component in the CPU
4 the address of the instruction to be copied is held in the program counter register

QUESTION 33
Which one of the following statements best describes the main characteristic of RISC computer architecture?

1 It is easier than other designs because there is a single instruction for both simple and complex tasks
2 A complex instruction is transformed into a set of simple operations and then executed by the CPU
3 A small set of instructions does a minimum number of simple operations
4 Micromemory holds the set of operations for each complex instruction in the instruction set

QUESTION 34
Which network topology requires the largest number of cabling and input/output ports?

1 Ring
2 Star
3 Bus
4 Mesh

QUESTION 35
What is the name of a central controller on which all the other computer network devices are connected using dedicated point-to-point links?

1 A hub
2 A ring
3 A backbone
4 A workstation

QUESTION 36
Which set of rules has been created for the Internet to divide the services needed to perform a task?

1 Principles
2 Packets
3 Protocols
4 Procedures

QUESTION 37
Which of the following is NOT involved during the setting up of an email service?

1 SMTP
2 POP3
3 FTP
4 IMAP

QUESTION 38

There are several layers in a TCP/IP protocol suite What is the role of the transport layer?

1 The movements of individual bits from one node to the next
2 Node-to-node delivery of frames
3 Provision of services to the users
4 The logical delivery of a message between client and server processes

QUESTION 39

Which of the following is NOT a basic requirement for the WWW?

1 Domain name
2 Web server
3 Browser
4 HTTP

QUESTION 40

Which one of the following statements regarding the evolution of computer operating systems and hardware is NOT TRUE?

1 Batch operating systems were designed in the 1950s to control mainframe computers
2 DOS was one of the first single-user operating systems on personal computers
3 Distributed systems require more than one CPU on a single computer
4 Multiprogramming and time-sharing required the operating system to do scheduling

QUESTION 41

An operating system (OS) can be designed as a modular architecture The purposed is to allow higher layers to be changed over time without affecting the lower layers This property refers to the _____ of the OS

1 extensibility
2 reliability
3 compatibility
4 portability

QUESTION 42

Multiprogramming without swapping can be called _____

1 demand paging
2 paging
3 demand segmentation
4 queuing

QUESTION 43

Which of the following best describes monoprogramming?

1 One program is written for the computer
2 One program occupies the computer memory at a time
3 One program is always in the waiting state mode
4 One program occupies the hard drive

QUESTION 44

Which of the following can ONLY be in ready, waiting or running states?

1 Program
2 Process
3 Scheduler
4 Job

QUESTION 45

The operating system synchronises different processes with different resources but a deadlock can occur There are four necessary conditions for a deadlock to occur Which of the following is the correct description of the 'MUTUAL EXCLUSION' condition?

1 The operating system cannot temporarily relocate a resource
2 A process holds a resource even though it cannot use it until other resources are available
3 All processes and resources involved form a loop
4 Only one process can hold a resource

Section C: Computer algorithms, programming and software development

(18 marks)

QUESTION 46

A list contains the following elements

8 12 19 21 38 42 55 70 77 82 85 99 121 155 200

At the beginning, first = 1, mid = 8 and last = 15 What are the values of first, mid and last respectively after two more iterations of the binary search algorithm if the goal is 82?

1 8, 11, 15
2 9, 10, 11
3 9, 12, 15
4 13, 14, 15

QUESTION 47

Suppose a list contains the following elements

45 49 61 37 78 30 100

What is the order of the elements in the list after three passes if selection sort is used?

1 30 37 45 49 78 61 100
2 30 37 61 49 78 45 100
3 30 45 37 49 61 78 100
4 30 37 45 49 61 78 100

QUESTION 48

How many constructs do computer scientists recommend for any structured program or algorithm?

1 2
2 3
3 4
4 5

QUESTION 49

Which one of the following statements regarding search algorithms is NOT TRUE?

1 A sequential search is very slow
2 A sequential search is usually used for small lists
3 A binary search requires the list to be sorted
4 A binary search starts at the beginning of the list

QUESTION 50

An English-language-like representation of a step-by-step solution that expresses a logical solution to a particular problem of interest is best described as _____

1 A process
2 An algorithm
3 A pseudocode
4 A program code

QUESTION 51

What is a pictorial representation of an algorithm?

1 Pseudocode
2 UML
3 A subroutine
4 A subalgorithm

QUESTION 52

The only language understood by computer hardware is _____ language

1 high-level
2 natural
3 machine
4 mnemonic

QUESTION 53

Compilation_____

1 translates the whole source program into the object module before executing it
2 is a slow process in comparison to interpretation
3 is used in the *first approach* to interpretation
4 translates and executes the source code a line at a time

QUESTION 54

The two methods that are used for translating a program to machine language both follow the same translation process What is the SECOND step in the process?

1 Syntax analysis
2 Semantic analysis
3 Lexical analysis
4 Code generation

QUESTION 55

In which two forms can a final program in Java be?

1 An application or a function
2 A function or a procedure
3 A procedure or an applet
4 An application or an applet

QUESTION 56

With which computer language paradigm are the terms *inheritance*, *polymorphism* and *methods* associated with?

1 Procedural
2 Functional
3 Object-oriented
4 Declarative

QUESTION 57

Which programming language paradigm uses the principle of logical reasoning to answer queries?

1 Functional
2 Declarative
3 Procedural
4 Object-oriented

QUESTION 58

The waterfall model is one of the most common models for the development process of the software lifecycle Which one of the following provides the correct order of phases of the model?

1 Analysis, Design, Testing & Implementation
2 Design, Analysis, Testing & Implementation
3 Design, Analysis, Implementation& Testing
4 Analysis, Design, Implementation & Testing

QUESTION 59

Which of the following diagrams is best suited to use as modelling tool during the object-oriented analysis process in software development?

1 Class diagram
2 Data flow diagram
3 Entity-relationship diagram
4 State diagram

QUESTION 60

The design phase in the software life cycle uses a well-established principle called _____, where the whole task is divided into smaller tasks

1 polymorphism
2 subpackaging
3 modularity
4 encapsulation

QUESTION 61
Which one of the following statements about modules in a software system is NOT TRUE?

1 Coupling between modules must be minimised
2 Cohesion between module must be maximised
3 Coupling is a measure of how closely the modules are related
4 Loosely coupled modules are less likely to create errors in related modules

QUESTION 62
Transferability is one of the measures for software quality Transferability includes_____

1 Changeability, reusability and correctability
2 Reusability, interoperability and portability
3 Flexibility, portability and interoperability
4 Reliability, changeability and flexibility

QUESTION 63
Documentation is needed for proper and efficient usage and maintenance of software System documentation_____

1 describes the installation and the servicing of the software
2 defines the software itself
3 can be a very powerful marketing tool
4 shows how to use the software step by step

Section D: Computer data and file structure, and databases (17 marks)

QUESTION 64
In an array, for example SCORES [2], the ordinal number in the square brackets, such as 2 in this example, is the _____ of the array

1 ordinal
2 index
3 element
4 format

QUESTION 65
A linked list is an ordered collection of data in which each element contains the _____ of the next element

1 node
2 array
3 field
4 location

QUESTION 66

A record is a type of data structure Which one of the following statements about a RECORD is NOT TRUE?

1 The elements can be of the same or different types
2 Each element is called a field
3 All elements must be related
4 Fields must be assigned ordinal (number) values

QUESTION 67

Which one of the following statements best describes a data structure?

1 It is a sequenced collection of elements usually of different data types
2 It is a set of data items that share general relationships
3 It is a collection of related variables that can be accessed individually or as a whole
4 It is a set of data items of different data types

QUESTION 68

Which two components make up a linked list?

1 Data and link
2 Data and value
3 Link and pointer
4 Node and value

QUESTION 69

Which one of the following statements regarding a linked list is NOT TRUE?

1 It is an efficient data structure for storing data that will go through a number of insertions and deletions
2 It is a dynamic data structure
3 It can start with no nodes
4 A node cannot easily be deleted without affecting other nodes

QUESTION 70

There are three basic types of changes in all sequential file updates Which of the following is not one of the three?

1 Add transactions
2 Delete transactions
3 Error transactions
4 Change transactions

QUESTION 71
Which of the following set of file types have random access file structures?

1 Indexed and inverted
2 Indexed and hashed
3 Inverted and indexed
4 Flat and inverted

QUESTION 72
Which of the following is not a hashing method?

1 Indirect hashing
2 Direct hashing
3 Modulo division hashing
4 Digital extraction hashing

QUESTION 73
What name is given to the event that occurs when a hashing algorithm produces an address for an insertion key but the address is already occupied?

1 Resolution
2 Deadlocking
3 Starvation
4 Collision

QUESTION 74
Which of the following statements regarding directories is NOT TRUE?

1 Directories are provided by most operating systems for organising files
2 In most operating systems directories are organised like a tree abstract data type in which each directory, except the root directory, has a parent directory
3 A subdirectory specifically refers to a directory within a root directory
4 In most operating systems a directory is represented as a special type of file that holds information about other files

QUESTION 75
Which of the following best describes a combination of hardware, software, data, users and procedures?

1 Database
2 Database administrator
3 Database management system
4 Database architecture

QUESTION 76
Which of the following database models are obsolete?

1 Hierarchical and network
2 Hierarchical and object-oriented
3 Network and relational
4 Object-oriented and distributed

QUESTION 77
Which of the following is NOT a defined operation on relational databases?

1 Delete
2 Join
3 Update
4 Add

QUESTION 78
In a relational database, each row in a relation is called _____

1 a tuple
2 an attribute
3 a field
4 an entity

QUESTION 79
What is TRUE about the database abbreviation SQL?

1 It stands for Standard Query Language
2 It is a declarative language
3 It is a procedural language
4 It was developed for use in object-oriented databases

QUESTION 80

According to the prescribed textbook of this module / subject, on which model is a distributed database based?

1 Relational
2 Object-oriented
3 Network
4 Hierarchical

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EXAMINATION MARK READING SHEET EKSAMEN-MERKLEESBLAD

PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT e g PSY100-X
STUDIE EENHEID bv PSY100-X

1

PAPER NUMBER
VRAESTELNOMMER

2

INITIALS AND SURNAME
VOORLETTERS EN VAN

3

DATE OF EXAMINATION
DATUM VAN EKSAMEN

4

EXAMINATION CENTRE (E G PRETORIA)
EKSAMENSENTRUM (BV PRETORIA)

5

STUDENT NUMBER
STUDENTENOMMER

6

7

UNIQUE PAPER NO
UNIEKE VRAESTEL NR

8

9

For use by examination invigilator

Vir gebruik deur eksamenopsiener

IMPORTANT

1 USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
2 MARK LIKE THIS
3 CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
4 ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
5 CHECK THAT YOUR STUDENT NUMBER HAS BEEN FILLED IN CORRECTLY
6 CHECK THAT THE UNIQUE NUMBER HAS BEEN FILLED IN CORRECTLY
7 CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
8 DO NOT FOLD

BELANGRIK

1 GEBRUIK SLEGS N HB POTLOOD OM HIERDIE BLAD TE VOLTOOI
2 MERK AS VOLG
3 KONTROLEER DAT U VOORLETTERS EN VAN REG INGEVUL IS
4 VUL U STUDENTENOMMER VAN LINKS NA REGS IN
5 KONTROLEER DAT U DIE KORREKTE STUDENTENOMMER VERSTREK HET
6 KONTROLEER DAT DIE UNIEKE NOMMER REG INGEVUL IS
7 MAAK SEKER DAT NET EEN ALTERNATIEF PER VRAAG GEMERK IS
8 MOENIE VOU NIE

PART 2 (ANSWERS/ANTWOORDE) DEEL 2

10

1	c1 c2 c3 c4 c5	36	c1 c2 c3 c4 c5	71	c1 c2 c3 c4 c5	106	c1 c2 c3 c4 c5
2	c1 c2 c3 c4 c5	37	c1 c2 c3 c4 c5	72	c1 c2 c3 c4 c5	107	c1 c2 c3 c4 c5
3	c1 c2 c3 c4 c5	38	c1 c2 c3 c4 c5	73	c1 c2 c3 c4 c5	108	c1 c2 c3 c4 c5
4	c1 c2 c3 c4 c5	39	c1 c2 c3 c4 c5	74	c1 c2 c3 c4 c5	109	c1 c2 c3 c4 c5
5	c1 c2 c3 c4 c5	40	c1 c2 c3 c4 c5	75	c1 c2 c3 c4 c5	110	c1 c2 c3 c4 c5
6	c1 c2 c3 c4 c5	41	c1 c2 c3 c4 c5	76	c1 c2 c3 c4 c5	111	c1 c2 c3 c4 c5
7	c1 c2 c3 c4 c5	42	c1 c2 c3 c4 c5	77	c1 c2 c3 c4 c5	112	c1 c2 c3 c4 c5
8	c1 c2 c3 c4 c5	43	c1 c2 c3 c4 c5	78	c1 c2 c3 c4 c5	113	c1 c2 c3 c4 c5
9	c1 c2 c3 c4 c5	44	c1 c2 c3 c4 c5	79	c1 c2 c3 c4 c5	114	c1 c2 c3 c4 c5
10	c1 c2 c3 c4 c5	45	c1 c2 c3 c4 c5	80	c1 c2 c3 c4 c5	115	c1 c2 c3 c4 c5
11	c1 c2 c3 c4 c5	46	c1 c2 c3 c4 c5	81	c1 c2 c3 c4 c5	116	c1 c2 c3 c4 c5
12	c1 c2 c3 c4 c5	47	c1 c2 c3 c4 c5	82	c1 c2 c3 c4 c5	117	c1 c2 c3 c4 c5
13	c1 c2 c3 c4 c5	48	c1 c2 c3 c4 c5	83	c1 c2 c3 c4 c5	118	c1 c2 c3 c4 c5
14	c1 c2 c3 c4 c5	49	c1 c2 c3 c4 c5	84	c1 c2 c3 c4 c5	119	c1 c2 c3 c4 c5
15	c1 c2 c3 c4 c5	50	c1 c2 c3 c4 c5	85	c1 c2 c3 c4 c5	120	c1 c2 c3 c4 c5
16	c1 c2 c3 c4 c5	51	c1 c2 c3 c4 c5	86	c1 c2 c3 c4 c5	121	c1 c2 c3 c4 c5
17	c1 c2 c3 c4 c5	52	c1 c2 c3 c4 c5	87	c1 c2 c3 c4 c5	122	c1 c2 c3 c4 c5
18	c1 c2 c3 c4 c5	53	c1 c2 c3 c4 c5	88	c1 c2 c3 c4 c5	123	c1 c2 c3 c4 c5
19	c1 c2 c3 c4 c5	54	c1 c2 c3 c4 c5	89	c1 c2 c3 c4 c5	124	c1 c2 c3 c4 c5
20	c1 c2 c3 c4 c5	55	c1 c2 c3 c4 c5	90	c1 c2 c3 c4 c5	125	c1 c2 c3 c4 c5
21	c1 c2 c3 c4 c5	56	c1 c2 c3 c4 c5	91	c1 c2 c3 c4 c5	126	c1 c2 c3 c4 c5
22	c1 c2 c3 c4 c5	57	c1 c2 c3 c4 c5	92	c1 c2 c3 c4 c5	127	c1 c2 c3 c4 c5
23	c1 c2 c3 c4 c5	58	c1 c2 c3 c4 c5	93	c1 c2 c3 c4 c5	128	c1 c2 c3 c4 c5
24	c1 c2 c3 c4 c5	59	c1 c2 c3 c4 c5	94	c1 c2 c3 c4 c5	129	c1 c2 c3 c4 c5
25	c1 c2 c3 c4 c5	60	c1 c2 c3 c4 c5	95	c1 c2 c3 c4 c5	130	c1 c2 c3 c4 c5
26	c1 c2 c3 c4 c5	61	c1 c2 c3 c4 c5	96	c1 c2 c3 c4 c5	131	c1 c2 c3 c4 c5
27	c1 c2 c3 c4 c5	62	c1 c2 c3 c4 c5	97	c1 c2 c3 c4 c5	132	c1 c2 c3 c4 c5
28	c1 c2 c3 c4 c5	63	c1 c2 c3 c4 c5	98	c1 c2 c3 c4 c5	133	c1 c2 c3 c4 c5
29	c1 c2 c3 c4 c5	64	c1 c2 c3 c4 c5	99	c1 c2 c3 c4 c5	134	c1 c2 c3 c4 c5
30	c1 c2 c3 c4 c5	65	c1 c2 c3 c4 c5	100	c1 c2 c3 c4 c5	135	c1 c2 c3 c4 c5
31	c1 c2 c3 c4 c5	66	c1 c2 c3 c4 c5	101	c1 c2 c3 c4 c5	136	c1 c2 c3 c4 c5
32	c1 c2 c3 c4 c5	67	c1 c2 c3 c4 c5	102	c1 c2 c3 c4 c5	137	c1 c2 c3 c4 c5
33	c1 c2 c3 c4 c5	68	c1 c2 c3 c4 c5	103	c1 c2 c3 c4 c5	138	c1 c2 c3 c4 c5
34	c1 c2 c3 c4 c5	69	c1 c2 c3 c4 c5	104	c1 c2 c3 c4 c5	139	c1 c2 c3 c4 c5
35	c1 c2 c3 c4 c5	70	c1 c2 c3 c4 c5	105	c1 c2 c3 c4 c5	140	c1 c2 c3 c4 c5