KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

KAPSABET BOYS HIGH SCHOOL
COMPUTER STUDIES
PAPER 1
MARKING SCHEME

KAPSABET BOYS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

COMPUTER STUDIES (THEORY)

451/1 Paper 1

MARKING SCHEME

1. - It require well trained expertise which may not be available
    - Crimes constantly change
    - Some leave no evidences
    - Some crimes can not be linked to an individual or organization.

2. - Ring topology – all devices are connected to one another in the shape of a closed loop
    - Star topology : all devices are connected to a central hub.

3. - Lack of trained personnel
    - Some areas are not connect to power supply
    - Lack of enough funds to purchase ICT equipments

4. It condition in which a person becomes psychological immersed in an artificial environment generatal by a computer system.

5. - Set of rules and procedures that govern communication between two different devices or people.
    - Is any devices that can be configured to provide access to WAN or internet
    - Maximum amount of data that a transmission medium can carry, at any one time.

6. - Has icons representing commands
    - Provide help
    - Has common menu like file, view, etc
    - Does not keep user for long without explanation
    - Free from bugs
    - meet all user's requirements

7. - Easy to develop dures that use binary language
    - Simplify technology for developing hardware and soft ware
    - Digital devices are reliable
    - Digital devices are small in size

8. - Bachelor or science in computer engineering
    - Bachelor of science in computer science
    - Bachelor of science in ICT
    - Bachelor of science in software engineering

9. Sorting – arrangement of data in descending or ascending order
    Filtering – hiding of column or rows in worksheet.
    Or displaying data that meet a certain criteria

10. - System consists of related independent entities that work together to achieve a stated goal
    - Information system is an arrangement of people, data processer and information that work together to support and improve the day –to- day operations in a business and the decision making process.

11. i) $76 CD_{16}$

    7 $\longrightarrow$ 0111
    6 $\longrightarrow$ 0110
    C $\longrightarrow$ 1100
    D $\longrightarrow$ 1101

    $76CD_{16} = 0111011011001101_2$

    ii) 123_8

$$1 \longrightarrow 001$$
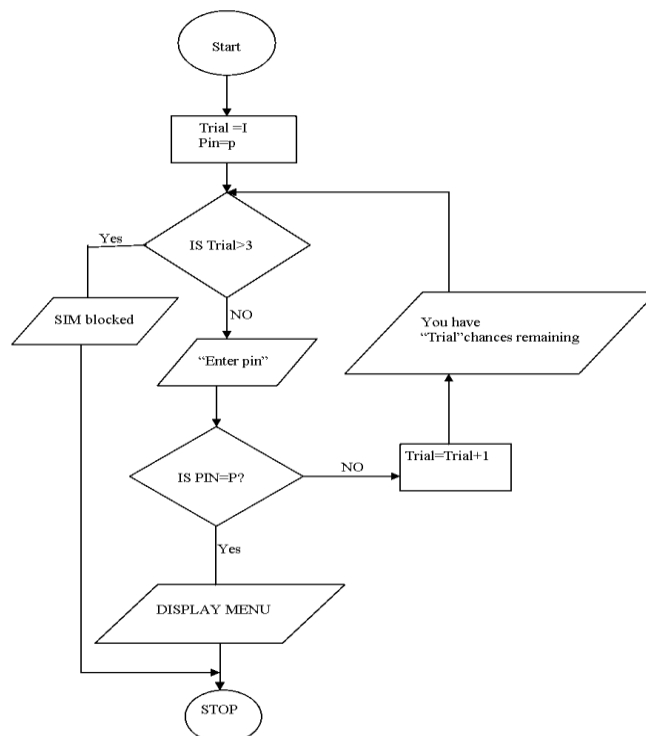$$2 \longrightarrow 010$$
$$3 \longrightarrow 011$$

$123_8 = 001010011_2$

12.   -   DRAM memory chip offer more capacity, and are cheap but slower than SRAM.
       -    SRAM cost more than DRAM but has higher level of performance.

13.   -   Unshidded twisted pair
       -    Shielded twisted pair

14.   -   **Master files** – main file containing permanent records
       -    **Transaction files-** contain individual data about transactions
       -    **Reference file** – Used for look- up purpose
       -    **Backup files** - hold duplicate copies for security
       -    **Sort files –** Created from existing files by arranging data

15.   -   Icons for commands
       -    Wireless communication (LAN)
       -    Voice recognition
       -    Multimedia e.g video player. Mp3 player
       -    Java applications

16.   a)   -   Language processor such as assemblers, interpreter and compliers that convert the
              sources code into object node.

     b)   **Assembler** – translate assembly language into machine language
       Interpreter- translate source code line – by – line allowing CPU to execute one line before translating the next.
       Complier – translate entire source code into object code.

c)

Flowchart:
- Start
- Trial = I, Pin = p
- IS Trial > 3 — Yes → SIM blocked → STOP; NO → "Enter pin"
- "Enter pin" → IS PIN=P? — Yes → DISPLAY MENU → STOP; NO → Trial=Trial+1 → You have "Trial" chances remaining → back to IS Trial>3

     d)   Object code – refers to the progion code that is in machine readable form
       Source code – program code entered in program editor and is human readable

17.   a)   Data and information should be vaest secure against loss or exposure
       -    Data should be transferred to other countries without owner's permission

- Data and information should be accurate and upto date.
- Data and information to be collected for use should be kept for specified

  lawful purpose.

b) - **Viruses** – destructive programs that attached itself to other files and instales itself without owner permission
   - **Unathorisedaccess** – gainging acess to data or information without permission intentionally or accidentally
   - **Compliererrors**- caused by people making mistakes when using a program or developing a program
   - **Theft** – stealing of data and information or computer hardware for a gain
   - Natural disasters – such as stoms, volcanicity or earth quakes that destroy computer systems.

c) - Check mails
   - Compose message
   - Send mail
   - Saving messages
   - Printing mails
   - Cultural erosion
   - Fraud e.g stealing of credit card number
   - Spread of malicious softwares e.g viruses and warms

18. a) - Process of transforming raw data into meaning output
    b) - Wrong entry of data
       - Wrong dates types
    d) i) **Multiprocessing**- processing more than one task at the same time on different processors of the same computer
       ii) **Multiprograming** – More than one program are executed apparently at the same time by a single processor
       iii) **Realtime** – involves processing of incoming data as soon as it occurs, up – data the transaction file and gives an immediate response that would affect the current as they happen.
       iv) Online processing- data is processed immediately it is received

19. a) - Use of electronics devices and software to emulate the neurological structure of the human brain.
    b) - Neuronodes can be trained to distinguish between what constitutes what constitutes a signal and what does not.
       - are capable of recogning patterns in large amount of data that are too complex for human brain.
    c) CVS- is a eye health problem associated with using computer screens with unsuitable screen resulation and at a very close range to the eye.
       RSI – injuries resulting from wrist, hard, arm and muscle strain, tendonitis and neck strain due to force repetitive movement
    d) EPA- encourage use of devices that saves energy through minimal use of power.
    e) - Job creation – new employment opportunities that never existed before
       - Job replacement – computer illiterate people have been replaced with those who have desired computer skills
       - Displacement – employee moved to another department where computer skills are not required.
    f) - Revising current information system and making recommendations on her to replace it with a more efficient one.
       - Working with programmes to construct and test the system
       - Co- ordinating training for users of the new system

         -      Project leader

20.   -   ASCII

         -      BCD

         -      EBCDIC

b)   i) 101.001_2

Whole part $\Rightarrow (1 \times 2^0) + (0 \times 2^1) + (1 \times 2^3) = 1 + 0 + 8 = 9$

Fraction part $\Rightarrow (0 \times 2^{1}) + (0 \times 2^{-2}) + (1 \times 2^3) = 2^{-3} = 0.125$

$\therefore 101.001_2 = 9.125_{10}$

ii) $12 \Rightarrow 2^4 2^3 2^2 2^1 2^0$

12-16-12-8- 4 -4 0-2 0-1 $= 0.1100_2$

  0   1   1   0   0

$0.6875 \times 2 = 1$

$0.375 \times 2 = 0$

$0.75 \times 2 = 1$

$0.5 \times 2 = 1$

$= 12.6875_{10}$ 1100.1101_2

iii)   110011.0101

    $\underline{110.0100^2}_2$

    11111.1001_2

d) 13_{10} to binary

13 − 16 13 − 8 5 − 4 1 − 2 1-1

  6   1   1   0   1

$13_{10} = 01101_2 \longrightarrow$ 8-bit $\longrightarrow 00001101_2$

10_{10} to binary

10 − 16   10 − 8 2 − 4 2 − 2 0 − 1

 0   1   0   1   0

$\longrightarrow \dfrac{10}{10}$ $= 01010_2 \longrightarrow$ 8-bit $\longrightarrow 00001010_2$

Ones complement of 00001010_2 ~~11110101_2~~

Two's complement 11110101_2

            $\underline{+1}$

        11110110_2

$13_{10} + (-10_{10}) = 00001101_2$

$\underline{+ 111101101_2}$

        (1) 00000101_2

       $= 00000101_2$

               (2 marks)