SCHOOL OF ACCOUNTING AND BUSINESS
BSc. (APPLIED ACCOUNTING) GENERAL / SPECIAL DEGREE
PROGRAMME

YEAR I SEMESTER II (Group B)
END SEMESTER EXAMINATION – JULY 2015

ICT 10130 Introduction to Information Technology

Date   :   3rd July 2015
Time   :   5.30 p.m. – 8.30 p.m.
Duration   :   Three (03) hours

Instructions to Candidates:

- This paper consists of two parts (A and B)

- Part A – Answer **all** questions in the sheet provided

  Part B – Answer any **Two (2)** questions out of the Three (3) questions

- The total marks for the paper is 60.

- The marks for each question are shown in brackets.

- Answers should be written neatly and legibly.

Part A
Multiple Choice Questions

Answer **ALL** Questions

1. Which of the following is **NOT** a component of a Computer ? :
    a. Central Processing Unit (CPU)
    b. Memory
    c. Mass Storage
    d. Uninterrupted Power Supply (UPS)

2. Which of the following invention resulted in the most substantial increase in processing power of early computers while bringing their sizes down :
    a. Invention of the Vacuum Tubes
    b. Invention of punch cards to store data
    c. Invention of the Boolean Algebra
    d. Invention of the Integrated Circuits (ICs) and Micro Processors

3. How would you represent the decimal value of 44 in Hexadecimal?
    a. 1E
    b. 30
    c. 2C
    d. 11010

4. Based on the operational principal of computers which of the following category does not exist?
    a. Analog
    b. Hexadecimal
    c. Digital
    d. Hybrid

5. Which of the following devices can be classified as both Input and Output Device :

   a. Touch Screen

   b. Keyboard

   c. Head Set

   d. Plotter

6. Which of the following storage devices does not allow access to information in a Random Access Mode?

   a. CD-R

   b. DVD

   c. Hard disk

   d. Magnetic tape

7. In programming, converting high level language into machine language line by line and executing is known as:

   a. Crunching

   b. Compiling

   c. Parsing

   d. Translating

8. A key disadvantage of Impact Printers is?

   a. Cannot print multi-part forms

   b. Cannot withstand dusty environments

   c. Generally noisy

   d. Consumes a lot of power

9. Operating system is an example of _____.

      a. Programming Software

      b. Application Software

      c. System Software

      d. None of these

10. Which of the following Character Encoding can accommodate alphabets from multiple languages?

      a. ASCII

      b. EBCDIC

      c. Unicode

      d. Mandarin

11. Which of the following is not a System Software?

      a. Windows 8.1

      b. MS Office 2013

      c. Disk Defragmenter

      d. Virus Guard

12. Which of the following correctly lists different types of memory in the order of access speed – low to high ?

      a. Hard Disk → Cache → CPU Registers → RAM

      b. Hard Disk → RAM → Cache → CPU Registers

      c. CPU Registers → RAM → Cache → Hard Disk

      d. RAM → CPU Registers → Cache → Hard Disk

13. Which of the following is not a shortcoming of conventional file based data storage ?

    a. High redundancy

    b. Limited Data Sharing

    c. Better Access Control

    d. Low Data Integrity

14. Select the answer with the best matching pairs of Top Level Domain Category and an example belonging to that Category :

a. Generic top-level domains	p. වෙබ්.රජය.ලංකා
b. Country code top level domains	q. bbc.co.uk
c. Infrastructure top-level domain	r. cnn.com
d. Internationalized top-level domains	s. 121.45.34.132.in-addr.arpa

    a. (a) – (q) | (b) – (r) | (c) – (s) | (d) – (p)

    b. (a) – (r) | (b) – (q) | (c) – (s) | (d) – (p)

    c. (a) – (s) | (b) – (q) | (c) – (r) | (d) – (p)

    d. (a) – (r) | (b) – (s) | (c) – (q) | (d) – (p)

15. In the Three Schema Architecture what is the External Schema ?

    a. Describes the physical storage structures and access paths

    b. Describes the various user views

    c. Describes the structure and constraints for the whole database

    d. Entity Relationship Diagram of the Database
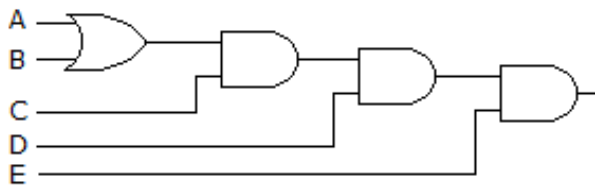
16. Point of Sale counters at a Super Market is a great example for :
    a. a Centralized System
    b. a Client Server Model
    c. a Distributed System
    d. a Multi Programming System

17. Which of the following Network Topology is most expensive to implement?
    a. Mesh
    b. Bus
    c. Star
    d. Ring

18. One of the following is a very recent development in the use of ICT in designing complex buildings :
    a. 3D Models of the Building
    b. 3D Printing of the Building
    c. Virtual Reality Walkthroughs inside the Building
    d. Beam Stress Analysis

19. Simultaneous bi-directional Data Transmission is called _____.
    a. Simplex
    b. Duplex
    c. Half-Duplex
    d. None of these

20. It is the central command center of an Operating System. It is the part of the Operating System that loads first, and it remains in main memory.

    a. Task Manager
    b. CPU
    c. Memory Manager
    d. Kernel

21. Which is the subset of SQL commands used to manipulate Oracle Database structures, including tables?

    a. Data Definition Language(DDL)
    b. Data Manipulation Language(DML)
    c. Both of above
    d. None

22. An equivalent representation for the Boolean expression $\bar{A} + A$ is:

    a. 0
    b. A
    c. 1
    d. $\bar{A}$

23. What is the full form of SQL?

    a. Structured Query Language
    b. Structured Query List
    c. Simple Query Language
    d. None of these

24. Which of the following is a characteristic of Solid State Storage devices?

  a. They have greater storage capacity than Hard disks.

  b. They have no moving parts.

  c. They consume a lot of power.

  d. Data cannot be erased from them once written.

25. Derive the Boolean expression for the logic circuit shown below:

  a. C(A + B)DE

  b. $\left[C(A + B)D + \bar{E}\right]$

  c. $\left[\overline{[C(A + B)D]\bar{E}}\right]$

  d. ABCDE

26. Applying DeMorgan's theorem to the expression, $\overline{ABC}$ we get _____.

  a. $\bar{A} + \bar{B} + \bar{C}$

  b. $\overline{A + B + C}$

  c. $A + \bar{B} + C\bar{C}$

  d. A(B + C)

27. Which of the following is not a type of Multiplexing?

  a. Time Division Multiplexing

  b. Wavelength Division Multiplexing

  c. Packet Multiplexing

  d. Frequency Division Multiplexing

28. _____ provides two bytes to identify Network ID and leaves the remaining two bytes available for Host ID.

    a. Class A

    b. Class B

    c. Class D

    d. Class C

29. Microwave transmission is a typical example of _____.

    a. Line of sight transmission

    b. Ground Wave

    c. Infrared Wave

    d. Radio Waves

30. What is the Outernet?

    a. Broadcast of Internet through Satellites Transmission

    b. Internet Access through the local ISPs

    c. Network infrastructure within a City

    d. Local Area Network

31. Which of the following is not a Switching Technique?

    a. Token Switching

    b. Circuit Switching

    c. Packet Switching

    d. Message Switching

32. Which of the following is not a SQL Transaction Control Language (TCL) Command?

    a. SELECT

    b. ROLLBACK

    c. SAVEPOINT

    d. COMMIT

33. Which of the following is a traditional scheme of IP Addressing?

    a. IPv6

    b. IPv4

    c. Broadcasting

    d. None of these

34. Which of the following is not a stage in Database Access granting process?

    a. Identification

    b. Authentication

    c. Broadcasting

    d. Authorization

35. Which of the following is not a transmission medium?

    a. Telephone lines

    b. Coaxial cables

    c. Modem

    d. Microwave systems

36. Serial and parallel transmission:

    a. Differ in how many bits are transferred per character

    b. Are used in synchronous and asynchronous systems, respectively

    c. Both a and b

    d. Differ in whether the bits are on separate wires or on one

37. What is one principal difference between synchronous and asynchronous transmission?

    a. The bandwidth required is different

    b. The pulse heights are different

    c. The clocking is mixed with the data in asynchronous

    d. The clocking is derived from the data in synchronous transmission

38. What is not true about the Google Driverless Car which can navigate the Streets without a human driver?
    a. Uses GPS / GIS Technology for Navigation
    b. Uses Magnetic Levitation
    c. Uses Image Processing to identify other Vehicles on the road
    d. Can sense / detect objects around the Vehicle

39. The Domain Name System (DNS) is primarily used to:
    a. Determine the Physical (MAC) address of a host, given its IP address.
    b. Determine the IP address of a host, given its Physical (MAC) address.
    c. Remove the need for a user to indicate a host they wish to communicate with by means of an IP address expressed in binary form.
    d. Determine the domain name of a host, given its IP address.

40. What is the type of multiplexing used in AM / FM / Analog Television Broadcasting?
    a. Time Division Multiplexing
    b. Frequency Division Multiplexing
    c. Wave Division Multiplexing
    d. None of the above

Part B

Open-Ended Questions

Answer any **TWO (2)** questions out of the THREE (3) questions

Question No. 01

a. Network Connectivity can be categorized in to the following two types based on the Message Capacity (amount of communication channels that can be transmitted). Discuss how these two types differ from each other.

    i)   Baseband

    ii)   Broadband

(6 marks)

b. The Internet community originally defined five address classes to accommodate networks of varying sizes. The class of address defines which bits are used for the network ID and which bits are used for the host ID. It also defines the possible number of networks and the number of hosts per network. List the 3 main address classes and briefly describe each of them.

(4 marks)

(Total 10 marks)

Question No. 02

a. Understanding the characteristics of different types of communication media and how they relate to other aspects of a network is necessary for the development of a successful network. Network communication media can be divided into two categories :

    i.   Guided (wired) media

    ii.   Unguided (wireless) media

Briefly describe three types of media from each of the above two categories.

(6 marks)

b. A software license is a legal instrument governing the use or redistribution of software. A typical software license grants an end-user permission to use one or more copies of software in ways where such a use would otherwise potentially constitute copyright infringement of the software owner's exclusive rights under copyright law.

Software Licensing can be broadly categorized based on the Access to the Source Code and the Pricing Structure. List 2 such categories and give at least two examples for each category.

(4 marks)

(Total 10 marks)

Question No. 03

a. Boolean operators (AND, OR, and NOT) form the basis of mathematical sets. Boolean logic is a mathematical way of combining sets.

When you want to search for two words in the Internet:

   AND - means both words must appear
   OR   - means that either word may appear
   NOT - means that the second word must not appear

Illustrate the application of each of these Boolean Operators using Sets with a related example.

(4 marks)

b. A Truth Table is a breakdown of a Boolean function by listing all possible values the function can attain. Construct the Truth Table for the following Boolean function :

$$(\overline{X}+\overline{Y})(X+\overline{Z})(\overline{Y}+Z)$$

(6 marks)

(Total 10 marks)