



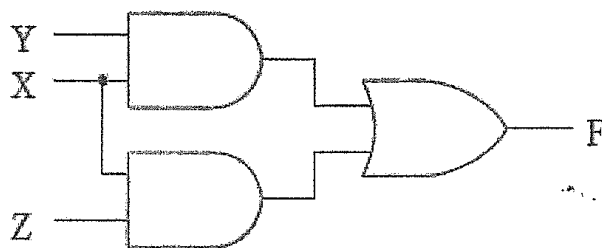
Answer the following questions as you can: Show your work. Do NOT use a calculator!

Problem 1: (15 Marks)

1. What is the difference between ROM and RAM? (3 Marks)
2. What is the component of CPU? (3 Marks)
3. Convert the following **binary** numbers to the **decimal** numbers (3 Marks)
 - a) 0.11001, b) 00101100, c) 10.01
4. Convert the following **decimal** numbers to the **binary** numbers (3 Marks)
 - a) 0.125, b) 128, c) 15.018
5. The result of $60_{10} + F1_{16} - 1001001_2$ is _____ (in decimal). (4 Marks)

Problem 2: (15 Marks)

1. Construct the Truth Table of AND, OR and NOT Gates. (6 Marks)
2. What is the output of the following circuit for the binary inputs? (6 Marks)



3. Application of digital techniques to the solution of control problem often involves use of complex logical operations (Digital Signals).

Note:

$$A = \begin{cases} 1 & \text{High level} \\ 0 & \text{Low level} \end{cases}, \quad B = \begin{cases} 1 & \text{High pressure} \\ 0 & \text{Low pressure} \end{cases} \quad \text{and} \quad C = \begin{cases} 1 & \text{High temp.} \\ 0 & \text{Low temp.} \end{cases}$$

Construct Truth Table of the logical expression: $Alarm = D = \bar{A} \cdot B + A \cdot C + A \cdot B \cdot \bar{C}$ and implement the circuit for inputs A, B and C. (6 Marks)



Answer the following two questions: Software Part (two pages)

Question 1 (12 Marks)

- (a) Explain *only* by drawing, the internal architecture of CPU (Central Processing Unit).
- (b) There are two main types of memories for *storing* data in computer. Mention them with examples.
- (c) Mention different types of viruses that affect the PC.
- (d) Mention the main kinds of Network cables.
- (e) By drawing, compare between the TCP and OSI Models. Mention some names of Protocols using in networks.
- (f) Mention the main components to make a *full* for computer network.
- (g) What is the benefits and Educational Uses of the wireless network.

Question 2 (18 Marks)

A. Choose the suitable answer:

- [1] What unit is used to measure the speed of a CPU?
A) MHZ B) MB C) KB D) Bit
- [2] The firewall has certain mechanisms in networks
A) block and permit traffic B) On or OFF C) Up or Down D) Not of the previous
- [3] Anti-virus program is considered an ----- program
A) application B) database C) virus D) operating system
- [4] Computer architecture depends on -----
A) hardware B) software C) user D) All the previous
- [5] Removing Unused Programs refers to -----
A) Defragment B) Recovery C) Check errors D) Uninstall a program
- [6] Which storage device cannot be erased?
A) Hard Disk B) Floppy disk C) Magnetic tape D) CD-ROM
- [7] ----- is not an application program.
A) Linux B) Anti-virus C) Internet Explorer D) Media programs
- [8] ----- is a *system* of interconnected networks.
A) Internet B) WWW C) Intranet D) Extranet
- [9] WLAN likes ----- which requires network *adapter* cards
A) LAN B) WAN C) Intranet D) Extranet
- [10] In a wireless network, an ----- has a similar function to the hub in wired networks.
A) hub B) access point C) router D) switch

04

- [11] An *ad hoc/peer-to-peer* arrangement is used in-----
A) Protocols B) Wireless networks C) Routers D) All the previous
- [12] In Software Copyright & Law, the Freeware software means downloaded -----
A) free trial period B) fully free C) not free D) Not of the previous
- [13] *ADSL* is the ----- that allows data to be sent over existing copper telephone lines
A) recent technology B) Intranet C) UNIX D) Not of the previous
- [14] One of the famous mobile device operating systems is -----
A) Android B) Dos C) UNIX D) Windows
- [15] Information security covers protection *against* ----- to protect computer from failure.
A) viruses & hackers B) passwords C) Laws D) Not of the previous
- [16] Make an image for my operating system with all its contents refers to -----
A) Clean Up B) Backup C) Recovery D) Format
- [17] In Computer troubleshooting, ----- problems are the easiest type of problems to solve.
A) network B) software C) hardware D) Not of the previous
- [18] Touch Screen (in ATM machine) is an ----- device.
A) Memory B) Input C) Input / Output D) Not of the previous

B. Confirm if the following sentences are Right or Wrong : (correct the false answer)

- 1- Any Game software is an application program.
- 2- Network is a collection of PC's connected together (server with clients).
- 3- Cache memory is one of the primary storage memory.
- 4- Touch-Pad is one of the famous memory devices.
- 5- CD-ROM device can hold more data than DVD device.
- 6- One of the famous *supercomputer* operating systems is Linux.
- 7- Making a *copy* to the specific disc to ensure it is an exact copy refers to Backup
- 8- Formatting a disk results in all the data being deleted from the disk.
- 9- ALU is the part of the computer performs the arithmetic calculations.
- 10- Machine Language is classified as a 4th Generation programing Language.
- 11- Speaker is one of the famous input devices.
- 12- In Software Copyright Issue, the *Shareware* software means download trial period software
- 13- Network *adapter* cards are one of the new wireless technologies in the laptop structure.
- 14- Unix is an operating system program.
- 15- *Smart Card* is one of the secondary memory device.
- 16- Digital Camera is one of the famous output devices.
- 17- If a computer is described to have 512 Mbytes of memory, it refers to ROM memory.
- 18- Router is one of the important protocols used among the Internet.

With my Best wishes

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