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MAT. HR. SEC. SCHOOL

Virudhunagar District

Common First Mid Term Test – 2024

STANDARD 11

COMPUTER SCIENCE

PART – I

I. ANSWER ALL THE QUESTIONS:

1. a. warm booting

2. d. 64

3. d. Universal

4. c. VGA connector

5. b. System software

6. c. F2

7. a. Finger print scannr

8. b. 0 to 7

9. c. Pentium III

10. b. 0.5

PART – II

II. ANSWER ANY FIVE QUESTIONS.(QUESTION NO. 17 IS COMPULSORY)

11. What is computer?

Computer

❖ It is an electronic device that processes the input according to the set of instructions provided to it and gives the desired output at a very fast rate.

12. Convert $(34)_{10}$ into Binary number.

$(34)_{10} = (100010)_2$

13. Write the Associate laws.

Associative Law
$A+(B+C) = (A+B)+C$
$A.(B.C) = (A.B).C$

14. What is an Instruction?

Instruction

- ❖ A command which is given to a computer to perform an operation on data is called an **instruction**.

15. What is GUI?

GUI:
- ❖ The GUI is a window based system with a pointing device to direct I/O, choose from menus, make selections and a keyboard to enter text.
- ❖ Its vibrant color's attract the user very easily.

16. Differentiate copy and Move.

Copy	Move
To copy a file or folder, first select the file or folder	To move a file or folder, first select the file or folder
Click on the **Edit → Cut** or **Ctrl + X** Or right **click → cut** from the pop-up menu.	Click **Edit → Paste** from edit menu or **Ctrl + V** using keyboard.
The file will be available in both source and destination (new) location.	The file will be available only in destination (new) location.

17. What is Logic gate?

- ❖ A gate is a basic electronic circuit which operates on one or more signals to produce an output signal.
- ❖ There are three fundamental gates namely AND, OR and NOT.

❖ The other logic gates like NAND, NOR, XOR and XNOR are derived gates which are derived from the fundamental gates.

❖ NAND and NOR gates are called Universal gates, because the fundamental logic gates can be realized through them.

PART – III

III. ANSWER ANY FIVE QUESTIONS.(QUESTION NO. 24 IS COMPULSORY)

18. Write the applications of Computer.

The various applications of computers in today's arena :

1. Business   2. Education   3. Marketing

4. Banking   5. Insurance   6. Communication

7. Health Care   8. Military   9. Engineering Design

19. What is Booting?

❖ An Operating system is a basic software that makes the computer to work.

❖ When a computer is switched on, there is no information in its RAM.

❖ At the same time, in ROM, the pre-written program called POST (Power on Self Test) will be executed first.

❖ This program checks if the devices like RAM, keyboard, etc., are connected properly and ready to operate.

❖ If these devices are ready, then the BIOS (Basic Input Output System) gets executed.

❖ This process is called Booting.

20. Write short notes on ASCII.

❖ Different types of coding schemes are used to represent the character set and numbers.

❖ The most commonly used coding scheme is the **American Standard Code for Information Interchange** (ASCII).

❖ Each binary value between 0 and 127 is used to represent a specific character.

❖ The ASCII value for (blank space) is 32 and the ASCII value of numeric 0 is 48.
❖ The range of ASCII values for lower case alphabets is from 97 to 122 and the range of ASCII values for the upper case alphabets is 65 to 90.

21. Differentiate PROM and EPROM.

PROM	EPROM
Programmable read only memory	Erasable Programmable Read Only Memory
PROM is non-volatile.	EPROM is non-volatile.
PROM programmer or a PROM burner is used to write data to a PROM chip.	The content can be erased using ultraviolet rays.
The process of programming a PROM is called burning the PROM.	EPROMs are used widely in personal computers because they enable the manufacturer to change the contents of the PROM to replace with updated versions

22. List out the key features of Operating System?

key features of Operating system
   * User Interface   * File Management
   * Memory Management   * Process Management
   * Fault tolerance   * Security Management

23. What are the functions of Windows Operating System?

Functions of Windows Operating System are:
❖ Access applications on the computer (word processing, games, spread sheets, calculators and so on).
❖ Load any new program on the computer.
❖ Manage hardware such as printers, scanners, mouse, digital cameras etc.,
❖ File management activities (For example creating, modifying, saving, deleting files and folders).

24. What is the format of specification of an algorithm?

Let **P** be the required property of the inputs and **Q** the property of the desired outputs. Then the algorithm S is specified as

1. **algorithm_name (inputs)**
2. **--inputs : P**
3. **--outputs: Q**

PART – IV

III. ANSWER ALL THE QUESTIONS.

25. Explain the generation of computers.

SN	Generation	Period	Main Component used	Merits/Demerits
1	First Generation	1942-1955	Vacuum tubes	• Big in size • Consumed more power • Malfunction due to overheat • Machine Language was used
	First Generation Computers - ENIAC , EDVAC , UNIVAC 1 ENIAC weighed about 27 tons, size 8 feet × 100 feet × 3 feet and consumed around 150 watts of power			
2	Second Generation	1955-1964	Transistors	• Smaller compared to First Generation • Generated Less Heat • Consumed less power compared to first generation • Punched cards were used • First operating system was developed - Batch Processing and Multiprogramming Operating System • Machine language as well as Assembly language was used.
	Second Generation Computers IBM 1401, IBM 1620, UNIVAC 1108			
3	Third Generation	1964 -1975	Integrated Circuits (IC)	• Computers were smaller, faster and more reliable • Consumed less power • High Level Languages were used
	Third Generation Computers IBM 360 series, Honeywell 6000 series			
4	Fourth Generation	1975-1980	Microprocessor Very Large Scale Integrated Circuits (VLSI)	• Smaller and Faster • Microcomputer series such as IBM and APPLE were developed • Portable Computers were introduced.
5	Fifth Generation	1980 - till date		• Parallel Processing • Super conductors • Computers size was drastically reduced. • Can recognize Images and Graphics • Introduction of Artificial Intelligence and Expert Systems

(OR)

Perform the following Binary computations.

    a) $14_{10} - 12_{10}$ b) $-12_{10} + 5_{10}$

> **a) $14_{10} - 12_{10}$ = $(0010)_2$**
>
> **b) $-12_{10} + 5_{10}$**
>
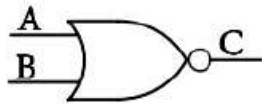> -12_{10} = $(11110100)_2$
>
> 5_{10} = $(0101)_2$
>
> **$-12_{10} + 5_{10}$ = $(11111001)_2$**

26. Explain Derived Gates with expression and truth table.

NOR Gate

- ❖ The NOR gate circuit is an OR gate followed by an an inverter.
- ❖ Its output is "true" if both inputs are "false" Otherwise, the output is "false".

Logic symbol of NOR Gate

The output of NOR gate is

$$C = (\overline{A + B})$$

NAND Gate
  ❖ The NAND gate operates an AND gate followed by a NOT gate.
NOR Gate
  ❖ The NOR gate circuit is an OR gate followed by an inverter.
  ❖ Its output is "true" if both inputs are "false" Otherwise, the output is "false".

  ❖ The output of NOR gate is
$$C = (\overline{A + B})$$
  ❖ The Truth Table of NOR Gate

Input		Output
A	B	C
0	0	1
0	1	0
1	0	0
1	1	0

NAND Gate
  ❖ The NAND gate operates an AND gate followed by a NOT gate.
  ❖ It acts in the manner of the logical operation "AND" followed by inversion.
  ❖ The logical circuit of NAND gate is

  ❖ The output of the NAND gate is
      C = (A . B)

Input		Output
A	B	C
0	0	1
0	1	1
1	0	1
1	1	0

Truth Table for NAND Gate

XOR GATE:

❖ In Boolean algebra (Exclusive - OR) operator $\oplus$ or "encircled plus".

$C = A \oplus B$.

The **Truth Table** for XOR gate is

Input		Output
A	B	C
0	0	0
0	1	1
1	0	1
1	1	0

The logical symbol of XOR gate is

XNOR GATE.

❖ The XNOR (exclusive - NOR) gate is a combination XOR gate followed by an inverter.

❖ Its output is "true" if the inputs are the same, and "false" if the inputs are different.

The truth table for AND Gate is

Input		Output
A	B	C
0	0	0
0	1	0
1	0	0
1	1	1

(OR)

Write the procedure to create shortcut in Windows OS.

Creating Shortcuts on the Desktop

Shortcuts to your most often used folders and files may be created and placed on the Desktop to help automate your work.

➢ Select the file or folder that you wish to have as a shortcut on the Desktop.

➢ Right click on the file or folder.

➢ Select **Send to** from the shortcut menu, then select Desktop (create shortcut) from the sub-menu.

A shortcut for the file or folder will now appear on your desktop and you can open it from the desktop in the same way as any other icon.

27. Explain the characteristics of a Micro Processor.

A Microprocessor's performance depends on the following characteristics:
a) Clock speed
b) Instruction set
c) Word size

a) Clock Speed
❖ Every microprocessor has an **internal clock** that regulates the speed at which it executes instructions.
❖ The speed at which the microprocessor executes instructions is called the **clock speed**.
❖ Clock speed is measured in MHz (Mega Hertz) or in GHz (Giga Hertz).
❖

b) Instruction Set
❖ A command which is given to a computer to perform an operation on data is called an **instruction**.
❖ Basic set of machine level instructions that a microprocessor is designed to execute is called as an **instruction set**.
❖ This instruction set carries out the following types of operations:
• Data transfer   • Arithmetic operations   • Logical operations
• Control flow   • Input/output

c) Word Size
❖ The number of bits that can be processed by a processor in a single instruction is called its word size.
❖ **Word size** determines the amount of RAM that can be accessed by a microprocessor at one time and the total number of pins on the microprocessor.
❖ Total number of input and output pins in turn determines the architecture of the microprocessor.

(OR)

Explain the process management algorithms in operating system.

- ❖ Process management is function that includes creating and deleting processes providing mechanisms for processes to communicate and synchronize with each other.

The following algorithms are mainly used to allocate the job (process) to the processor.

1. FIFO   2. SJF   3. Round Robin   4. Based on Priority

1. FIFO (First In First Out)Scheduling:
- ☞ This algorithm is based on queuing technique.
- ☞ The process that enters the queue first is executed first by the CPU, followed by the next and so on.
- ☞ The processes are executed in the order of the queue (row).

2. SJF (Shortest Job First)Scheduling:
This algorithm works based on the size of the job being executed by the CPU. Consider two jobs A and B.
1) A = 6 kilo bytes 2) B = 9 kilo bytes. First the job "A" will be assigned and then job "B" gets its turn.

3. Round Robin Scheduling
- ☞ The Round Robin (RR) scheduling algorithm is designed for time sharing systems.
- ☞ Jobs (processes) are assigned and processor time in a circular **method**. **Example** take three jobs A, B, C.
- ☞ First the job A is assigned to CPU then job B and job C and then again A, B and C

4. Based On Priority
- ☞ The given job (process) is assigned based on a Priority.
- ☞ The job which has higher priority is processed first Take two jobs A and B.
- ☞ Let the priority of A be 5 and priority B be 7.
- ☞ Job B is assigned to the processor before job A.

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