Marking Scheme

HND :**IT**

Year : **1st**

Course Code : HNDIT1102

Name of the Subject :**Computer Hardware**

Q1)

Hardware

Software

Firmware

Hardware Any two (2 mark)

ii. File extensions can be used to identify the type of file

Two or three or four characters followed by period (.) (2 mark)

.AVI	Multimedia Audio/Video		
.BAT	PC batch file		
.BMP	Windows BitMap		
.DOC	Microsoft Word for Windows/Word97		
.EXE	PC Application		
.GIF	Graphics Interchange Format		
.JAVA	Java file… etc.	**(any 02)**	(0.5 x 2 = 1 mark)

iii. **Volatile memory**

Computer storage that only maintains its data while the device is powered

Requires constant power

Fast and Expensive

Eg. Cache, Main memory (/ RAM) (2 mark)

Non-volatile memory

Retain stored information even without electric power

Long-term storage of information

Relatively cheaper than volatile memories

Eg. ROM, HD, CD, DVD, Tape drive (2 mark)

iv. **Analog computers** (1 mark)

Uses analog signals to read Data and Process

Early computers (1 mark)

Digital computers (1 mark)

Uses digital signals read, store data and process (1 mark)

Hybrid computers (1 mark)

Uses both analog and digital signals

Data read – analog/ digital

Process - digital

Store – analog/ digital (1 mark)

v. Designed to use for special task

Instructions are embedded into hardware (2 mark)

Space center

Warfare

Traffic lights control system

Navigational system in an aircraft

Weather forecasting

Satellite launch / tracking

Oil exploration

Automotive industries **(any 02)** (1 x 2 = 2 mark)

vi.

a) Temporary storage to store the deleting files from the file manager (Windows explorer)

When user deleting files they are automatically moving to Recycle Bin, and do not delete permanently from the storage.

Items in the Recycle bin remain there until permanently deleted by user

Windows allocates one Recycle Bin for each partition or hard disk

By default Windows allocates 10% for each Recycle Bin in each partition

User can bypass Recycle Bin by using Shift + Del (delete permanently)

(3 mark)

b) A shortcut is a link to an item (such as a file, folder, or app) on your PC.

User can easily access the item that the shortcut links to.

Shortcuts can be distinguished from the original file by the arrow that appears overlaid on the icon

Adding short cuts to desktop

Right-click the item -> click Send to -> then click Desktop (create shortcut)

(3 mark)

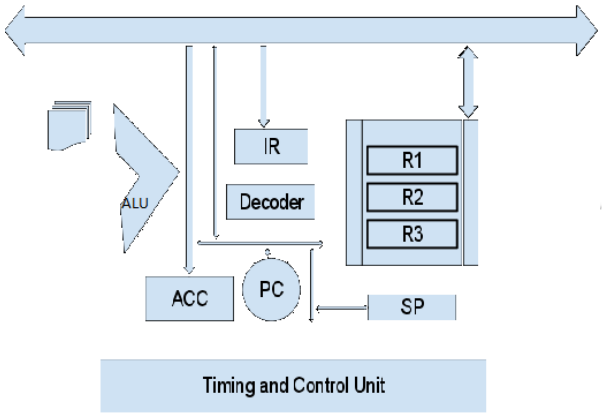
Q2)

1. Briefly describe, what is a CPU? and it's operations(3 marks)

   CPU stands for central Processing Unit. It's a small chip consists number of circuits. It is programmable. It accepts digital data as input processes according to given instructions and provides output.

2. Draw the block diagram of a CPU (6 marks)

Consider other possible diagram



3. Explain the operation performed by following components (6 marks)
   a. Instruction Register – Stores the instruction currently being executed
   b. Program counter - contains the address of the instruction being executed at the current time
   c. ALU - Perform instruction execution, calculations, decision making
   d. *The control unit manages all activities inside the processor itself.*
4. What is the purpose of registers and the cache memory in the CPU?

Marks 4

Registers - transfer the processed data with high speed, store data or information temporarily and pass it on as directed by the control unit.
Cache Memory – access time is very close to the processing speed of CPU, Cache memories are accessed much faster than conventional RAM.

5. What is the difference between SATA/IDE technologies (03 marks)

Sata: low space required compare with IDE, high data transfer speed and low power consumption

IDE: 40 pin ribbon cable, low data transfer rate, high power consumption

Q3)

1. What is meant by File? {3 Marks]
   A file is an item that contains information
   Text, images, video or music

2. Discuss features of a Folder [3 Marks}

   Folders can also store other folders
   folder within a folder is called a subfolder
   Folders are arranged in hierarchal structure

3. Folder creation – consider any possible method (window explorer, command line) [3 marks]
4. Explain functions of BIOS for managing computer. Explain how enter into BIOS [6 Marks]

   Power On Self Test
   Self testing process by computer itself
   Configure hardware
   Set the system clock
   Enable or disable system components
   Select which devices are eligible to be boot device
   Provide password prompts
   Entering into BIOS depend on computer system.
   Review your computer's manual or check the initial splash screen that displays when your computer powers on. The key is typically F2, Del, Esc or similar.
   Restart your computer, and press the BIOS setup key when prompted.

5. Describe important roles of Operation System [5 Marks]

   Control hardware
   Manage computer resources
   Support other software (application software) to run
   Provide environment or platform
   Provide interface to hardware
   Handling "interrupts" generated by the I/O controllers
   Consider other roles also

6. Specify minimum hardware requirement for MS Window 7?
   [5 Marks]

	32-bit	64-bit
Processor	1 GHz -32 processor	1 GHz x86-64 processor
Memory (RAM)	1 GB	2 GB
Graphics card	DirectX 9 graphics processor with WDDM driver model 1.0	
Free hard drive space	16 GB	20 GB

CRT	*LCD*

Q4)

1. What are the three (3) main characteristics of Random Access memory? (3 marks)
    i. Volatile
        - Data loss without electricity
    ii. Mutable
        - Read & write
    iii. Random access
        - Any location in storage can be accessed in same speed
2. Differentiate SRAM and DRAM. (04 marks)

Static Random Access Memory

- *Faster*
- *Typically used for CPU cache, hard disk buffers, router buffers*
- *Cost is high*

Dynamic Memory

- *Memory refresh timely*
- *Slower than statistic RAM*
- *Used for main memory*

3. What is a touch screen?(2 marks)

    Display unit which work as both input and output device. It take pointing inputs from users finger.

4. What are the four(4) touch screen technologies available?(4 marks)

    Resistive, Capacitive, Infrared, Surface acoustic wave

5. Compare and contrast CRT and LCD monitors. (08 marks)

CRT is weighted, bulky and large in size.	*LCD is light, compact and thin in size.*
It consumes High power.	*It consumes Low power.*
Image Flickering is there in CRT.	*No Image Flickering is there in LCD.*
Electron Gun is used to form images.	*Liquid crystals are used to form images.*
It is less expensive.	*It is more expensive.*

6. Differentiate North Bridge and South Bridge. (05 marks)

Both are ship on mother word. The south bridge allow to communicate low speed devices (key board, PCI, etc) with CPU while north bridge for high speed devices such as RAM, AGP

Q5)

1. Name two types of printers and give a example for each (04 Marks)

Impact -
- Dot matrix Printer
- Character Printer
- Line Printer

Non-impact -
- Inkjet
- Laser

2. Fill the following table. (06 Marks)

Disk Name	Expanded Name	Available one storage
CD	Compact Disc	700 MB (737 MB)
DVD	digital versatile disc /digital video disc	4.7 GB/ consider other possible capacity
BD	Blue ray disk	17 GB/ consider other possible capacity

3. Write short notes on any three of following (15 Marks)
   a. Potter

For printing vector graphics.
For computer-aided design

   b. Optical Disc

An optical disc is an electronic data storage medium that can be written to and read using a low-powered laser beam.

- Advantages
  - Non volatile
- Disadvantage
  - Mostly slow
  - Data can be altered by magnetic fields, dust, mechanical problems
  - Gradually lose their charge over time - data lost

c. Magnetic Tape

- is a long and narrow strip of plastic that thin magnetic material is coated on.
- Used for recording audio or video or computer data storage.
- Removable magnetic storage medium
- Gradually lose their charge over time

Advantages

- Large amounts of data
- Cheaper
- Useful in larger backups
- Mutable

Disadvantages

- Sequential access
- Slow
- Need a special piece of equipment to record and read the data on the tape

IV) Identify and explain the components of the structure of a hard disk given below