

## SAMPLE PAPERS

**DIPLOMA THIRD SEMESTER EXAMINATION 2025 ( JUT)**  
**COMPUTER HARDWARE MAINTENANCE AND ADMINISTRATION**

*DIPLOMA WALLAH*

**Full Marks:** 70 | **Time:** 3 Hours

**Instructions:** \* Answer **five** questions in total.

- **Question No. 1** is compulsory.
- Answer any **four** questions from the remaining (Q2 to Q7).

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**Q1. Choose the correct alternative:** ( $7 \times 2 = 14$  Marks)

**(i) Which type of fire extinguisher is recommended for electrical fires (computer hardware)?**

- (a) Class A (Water)
- (b) Class C (CO<sub>2</sub> / Dry Powder)
- (c) Class B (Foam)
- (d) Wet Chemical

**(ii) The "POST" process occurs:**

- (a) After Windows loads
- (b) Immediately when the computer is turned on
- (c) When the computer goes to sleep
- (d) Only when installing a new OS

**(iii) What is the function of the CMOS battery?**

- (a) To power the CPU fan
- (b) To store BIOS settings and system time when power is off
- (c) To backup the Hard Drive
- (d) To light up the LED indicators

**(iv) Which file system is optimized for flash drives and SD cards?**

- (a) NTFS
- (b) exFAT
- (c) HFS+
- (d) ext4

**(v) A 24-pin connector on the motherboard is primarily used for:**

- (a) Audio

(b) Main Power (ATX)

(c) USB 3.0

(d) Ethernet

**(vi) In a laptop, the inverter board is responsible for:**

(a) Charging the battery

(b) Powering the backlight of the LCD screen

(c) Connecting the keyboard

(d) Managing WiFi signals

**(vii) What does "ESD" stand for in hardware maintenance?**

(a) Electronic System Design

(b) Electrostatic Discharge

(c) Emergency System Diode

(d) External Storage Device

**Q2.** (a) Explain the concept of the System Bus (Data Bus, Address Bus, Control Bus). What is the function of the CMOS Battery? (7)

(b) Differentiate between BIOS (Basic Input/Output System) and UEFI (Unified Extensible Firmware Interface). (7)

**Q3.** (a) What is the difference between a Serial Port and a Parallel Port? Explain the function of a Serial Port. (7)

(b) Explain the role and importance of USB ports in modern computer systems. (7)

**Q4.** (a) List the common symptoms of a faulty SMPS and suggest precautions to be taken when handling power supplies. (7)

(b) Define Voltage, Current, and Resistance. Explain their relationship using Ohm's Law. (7)

**Q5.** (a) What are the essential Prerequisites for installing Windows 10/11? (7)

(b) Explain the differences among NTFS, FAT32, and exFAT File Systems. (7)

**Q6.** (a) What are the key differences between a Laptop Motherboard and a Desktop Motherboard? (7)

(b) Discuss malware mitigation techniques and how they protect laptops. (7)

**Q7. Write short notes on any four of the following:** ( $4 \times 3.5 = 14$  Marks)

(a) SMPS Function

(b) HDMI vs. VGA

(c) SRAM vs. DRAM

(d) EPR (Extended Producer Responsibility)

(e) USB

**SOLUTIONS FOR PAPER 2**

MCQ Answer Key:

- (i) b (Class C)
- (ii) b (Immediately when turned on)
- (iii) b (Store BIOS settings/Time)
- (iv) b (exFAT)
- (v) b (Main Power ATX)
- (vi) b (Powering backlight)
- (vii) b (Electrostatic Discharge)

**Model Answers (Hints):**

- **Q2(a):** Data Bus carries data, Address bus carries location, Control bus carries commands. CMOS keeps time/date.
- **Q5(b):** NTFS (Secure, large files), FAT32 (Compatible, 4GB limit), exFAT (Flash drives, no 4GB limit).
- **Q6(a):** Laptop MB is proprietary shape, integrated components, smaller. Desktop MB is standard (ATX), modular.

