

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).

Q1. Choose the correct alternative: (7 × 2 = 14 Marks)**(i) Which type of fire extinguisher is recommended for electrical fires (computer hardware)?**

- (a) Class A (Water)
- (b) Class C (CO₂ / 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 × 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.

