

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 component serves as the main circuit board in a computer?**

- (a) SMPS
- (b) Motherboard
- (c) HDD
- (d) Processor

(ii) 1024 Gigabytes (GB) is equal to:

- (a) 1 MB
- (b) 1 PB
- (c) 1 TB
- (d) 1 ZB

(iii) The process of dividing a hard disk into logical storage units is called:

- (a) Formatting
- (b) Partitioning
- (c) Defragmentation
- (d) Booting

(iv) Which tool is used to test the continuity of a wire or fuse?

- (a) Multimeter
- (b) Crimping Tool
- (c) POST Card
- (d) Screw Driver

(v) Which PowerShell cmdlet is commonly used to list running processes?

- (a) Get-Process

(b) Show-Task

(c) List-Proc

(d) Dir-Process

(vi) A "Blue Screen of Death" (BSOD) usually indicates:

(a) An application error

(b) A system or hardware critical error

(c) The internet is disconnected

(d) The monitor is broken

(vii) Which interface is currently the fastest for consumer SSDs?

(a) SATA III

(b) PATA

(c) NVMe (M.2)

(d) SCSI

Q2. (a) What is the key difference between SRAM and DRAM? (7)

(b) Explain the differences between SATA, PATA, and NVMe interfaces used for storage devices. (7)

Q3. (a) Differentiate between Command Prompt and PowerShell. Explain the role of the Task Manager in performance monitoring. (7)

(b) What are the main differences between a BJT (Bipolar Junction Transistor) and a MOSFET? (7)

Q4. (a) Explain the troubleshooting steps for common LCD Display issues in laptops (e.g., dim video, flickering screen, or no display). (7)

(b) What are the key differences between a Laptop Motherboard and a Desktop Motherboard? (7)

Q5. (a) What is E-waste (EEE and WEEE)? Explain the concept of EPR (Extended Producer Responsibility) in E-waste management. (7)

(b) Discuss the various causes of hard drives failure (as per general maintenance). *Note: This is derived from the HDD vs SSD topic in Imp Qs.* (7)

Q6. (a) Compare the main differences between HDMI, VGA, and DVI cables. (7)

(b) What are Input/Output (I/O) Devices? Explain the difference between Input and Output Devices. (7)

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

(a) Motherboard Form Factors (ATX vs ITX)

(b) Northbridge vs. Southbridge

(c) SMPS Connectors

(d) E-Waste (WEEE)

(e) HDD vs. SSD

SOLUTIONS FOR PAPER 3

MCQ Answer Key:

- (i) b (Motherboard)
- (ii) c (1 TB)
- (iii) b (Partitioning)
- (iv) a (Multimeter)
- (v) a (Get-Process)
- (vi) b (System or hardware critical error)
- (vii) c (NVMe)

Model Answers (Hints):

- **Q2(a):** SRAM (Static, fast, cache, expensive). DRAM (Dynamic, slower, needs refresh, main RAM).
- **Q2(b):** PATA (Old, wide cable). SATA (Serial, thinner cable, 600MB/s). NVMe (PCIe based, very fast, M.2 slot).
- **Q3(a):** CMD (Legacy, basic text commands). PowerShell (Modern, object-oriented, scripting). Task Manager (Monitor CPU/RAM usage, kill tasks).