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).

SECTION A (Compulsory)

Q1. Choose the correct alternative: (7 × 2 = 14 Marks)

(i) Which color wire in a standard SMPS connector typically represents +12V?
(a) Red

(b) Yellow

(c) Orange

(d) Black

(ii) The "Northbridge" on a motherboard is primarily responsible for communicating with: (a) Slow I/O devices

(b) High-speed components like CPU and RAM

(c) BIOS and CMOS

(d) USB ports

(iii) In the context of RAM, what does "DDR" stand for? (a) Double Data Rate

(b) Dual Disk Raid

(c) Dynamic Data Reading

(d) Direct Drive Ram

(iv) Which command is used to check the IP address in Windows Command Prompt? (a) ifconfig

(b) ipconfig

(c) netstat

(d) ping

(v) Which of the following is considered a "Passive" electronic component? (a) Transistor

(b) Integrated Circuit (IC)

(c) Capacitor

(d) Diode

(vi) The standard aspect ratio for a widescreen monitor is typically: (a) 4:3

(b) 16:9

(c) 5:4

(d) 1:1

(vii) Which legislation in India governs the management and handling of E-waste? (a) E-Waste (Management) Rules, 2016

(b) IT Act, 2000

(c) Environmental Protection Act, 1986

(d) Digital India Act

SECTION B (Theory)

(Answer any 4 Questions. Each question carries 14 Marks)

Q2. (a) What are Input/Output (I/O) Devices? Explain the difference between Input and Output Devices. Give two examples of each. (7)

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

Q3. (a) What is a Switch Mode Power Supply (SMPS)? Explain its function and importance in a computer system. (7)

(b) Explain the different types of SMPS connectors (ATX, Molex, SATA, PCIe) used in a standard PC. (7)

Q4. (a) Define Motherboard Form Factor. Explain the different types like ATX, Micro-ATX, and Mini-ITX. (7)

(b) What is a Chipset? Explain the roles of the Northbridge and Southbridge architecture. (7)

Q5. (a) Explain the Memory Hierarchy in a computer system. Differentiate between RAM and ROM. (7)

(b) Compare and contrast HDD (Hard Disk Drive) and SSD (Solid State Drive) based on speed, reliability, and technology. (7)

Q6. (a) Explain the troubleshooting steps for common LCD Display issues in laptops (e.g., dim video, flickering screen, or no display). (7)

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

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

(a) Serial vs. Parallel Ports

(b) BIOS vs. UEFI

(c) BJT vs. MOSFET

(d) NTFS vs. FAT32

(e) SATA vs. NVMe

SOLUTIONS FOR PAPER 1

MCQ Answer Key:

(i) b (Yellow)

(ii) b (High-speed components like CPU and RAM)

(iii) a (Double Data Rate)

(iv) b (ipconfig)

(v) c (Capacitor)

(vi) b (16:9)

(vii) a (E-Waste (Management) Rules, 2016)

Model Answers (Hints):

- **Q2(a):** Define I/O. Input sends data to CPU (Keyboard), Output receives data from CPU (Monitor).

- **Q3(a):** SMPS converts AC to DC. Switched mode efficiency.

- **Q4(b):** Chipset manages data flow. Northbridge (High speed: CPU/RAM/GPU), Southbridge (Low speed: USB/BIOS/Audio).

- **Q7:** Refer to "Highly Important Short Notes" table in your provided document.