

SAMPLE PAPERS
DIPLOMA FIRST SEMESTER EXAMINATION 2025 (JUT)
FUNDAMENTAL OF COMPUTER (FOC)
DIPLOMA WALLAH

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

Instructions:

1. Question No. 1 is **compulsory**.
 2. Answer any **FOUR** questions from the remaining (Q. 2 to Q. 7).
 3. All questions carry equal marks (14 marks each)
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Q.1 [Compulsory] MCQ: [2 × 7 = 14]

- (i) Which code is used for 7-segment displays?
(A) Gray (B) BCD (C) Excess-3 (D) ASCII
- (ii) Full form of EBCDIC?
(A) Extended Binary Coded Data (B) Extended Binary Coded Decimal Interchange Code
(C) Both (D) None
- (iii) 1 Kilobyte (KB) is:
(A) 1000 bytes (B) 1024 bytes (C) 512 bytes (D) 1024 bits
- (iv) Flowchart symbol for **Input/Output**?
(A) Rectangle (B) Diamond (C) Parallelogram (D) Circle
- (v) Web page protocol?
(A) FTP (B) SMTP (C) HTTP (D) SNMP
- (vi) Non-volatile memory?
(A) RAM (B) ROM (C) Cache (D) L1 Cache
- (vii) Logic gate known as an **Inverter**?
(A) AND (B) OR (C) NOT (D) NAND

Q.2 (A) Explain the working of a **Master-Slave JK Flip-Flop**. [7 MARKS]

(B) Differentiate between **Synchronous** and **Asynchronous Counters**. [7 MARKS]

Q.3 (A) What is a **Shift Register**? Explain 4-bit **SISO** operation. [7 MARKS]

(B) Differentiate between **Combinational** and **Sequential Circuits**. [7 MARKS]

Q.4 (A) Explain the concept of **Memory Hierarchy**. [7 MARKS]

(B) Compare **Main Memory** and **Secondary (Auxiliary) Memory**. [7 MARKS]

Q.5 (A) Explain the **Generations of Computers** (1st to 5th). [7 MARKS]

(B) Classify computers based on size (Micro, Mini, Mainframe, Super). [7 MARKS]

Q.6 (A) Explain **Flynn's Classification** (SISD, SIMD, MISD, MIMD). [7 MARKS]

(B) Describe the working principle of a **Laser Printer**. [7 MARKS]

Q.7 Short Notes (Any FOUR): [14]

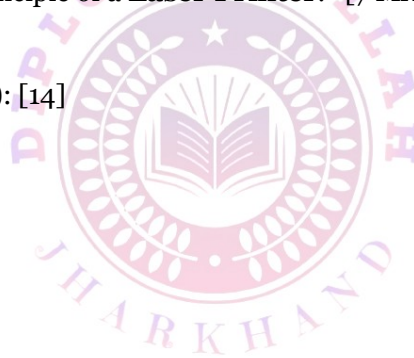
(a) Gray Code

(b) Stored Program Concept

(c) OS Services

(d) Real-time Processing

(e) SR Flip-Flop



SOLUTIONS – PAPER 2

- **MCQ Key:** (i) B, (ii) B, (iii) B, (iv) C, (v) C, (vi) B, (vii) C.
 - **Q.2A Hint:** Master-Slave configuration prevents the "Race-Around Condition."
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