

**Jaypee University of Engineering & Technology, Guna****T-3 (Odd Semester 2021)****18B11EC311 – DIGITAL SYSTEMS AND MICROPROCESSORS****14B11EC317- DIGITAL ELECTRONICS**

Maximum Duration: 2 Hours

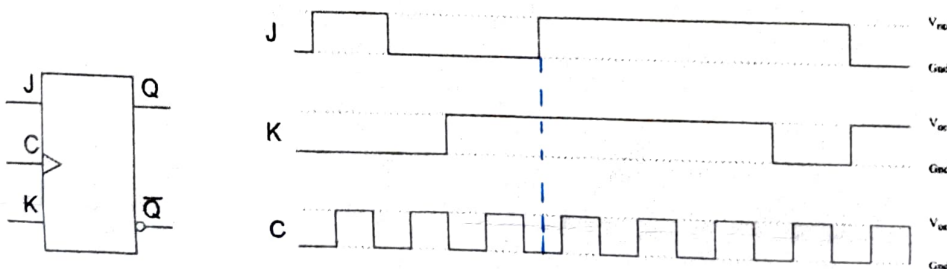
Maximum Marks: 35

**Notes:**

1. This question paper has seven questions.
2. Write relevant answers only in proper order.
3. Do not write anything on question paper (Except your Er. No.).

**Marks**

- Q1. (a) Construct a 7-bit hamming code of data 1101 using even parity. [02]  
 (b) Decode and correct 7-bit received hamming code 1011011 using even parity. [03]
- Q2. Implement the given function using 8:1 and 4:1 multiplexer both. Use B, C, D as select lines in 8:1 multiplexer and use A, B as select lines in 4:1 multiplexer. [05]
- $$f = \sum m(2, 3, 5, 7, 8, 9, 12)$$
- Q3. Define flip-flops. Explain the working of S-R flip flops with its characteristic and excitation table. [05]
- Q4. Design a synchronous up counter which counts from 1 to 6 and resets at 7 using JK flip flop. [05]
- Q5. (a) Describe different types of memories used in digital systems. [03]  
 (b) Determine the output states using positive edge triggered JK flip-flop for the given pulse inputs as shown: [02]



- Q6. (a) Explain the function of TRAP,  $AD_0 - AD_7$ , HOLD, RESET OUT, SID, WR' pin of 8085 microprocessor. [03]  
 (b) Describe the functioning of flag registers from 8085 architecture. [02]
- Q7. (a) Explain the difference between analog and digital signals. [03]  
 (b) Differentiate between even and odd signals. [02]