



K19U 0302

Reg. No. : .....

Name : .....

**II Semester B.C.A. Degree (CBCSS-Reg./Sup./Imp.)**  
**Examination, April 2019**  
**(2014 Admission Onwards)**  
**Core Course**  
**2B02 BCA : DIGITAL SYSTEMS**

Time : 3 Hours

Max. Marks : 40

**SECTION – A**

Answer **all** questions. **Half** mark **each**.

1. a) The time required for the pulse to go from its high level to its low level is called \_\_\_\_\_
- b) Expand PRR.
- c) \_\_\_\_\_ IC contains 4 line-to-16 line decodes.
- d) \_\_\_\_\_ operation requires one or more low inputs to produce a high output.
- e) The number of flip-flops required to create a decade counter is \_\_\_\_\_
- f) Give an example for unweighted code.
- g) \_\_\_\_\_ symbol is used as polarity indicator.
- h) In \_\_\_\_\_ gate, similar input produces a low.

**SECTION – B**

Answer **any 7** questions. **2** marks **each**.

2. What are the different types of digital ICs ?
3. Give any two applications of a counter.

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4. What is the speciality of decimal-to-BCD priority encoder ?
5. Distinguish between binary addition and Boolean addition.
6. Draw the logic diagram and truth table of a half-subtractor.
7. What are the different sections in an edge-triggered flip-flop ?
8. Distinguish between synchronous counter and asynchronous counter.
9. Explain gray-to-binary code converter.
10. Draw the timing diagram of a 3-bit asynchronous binary counter.
11. Write a short note on ripple counter.

#### SECTION – C

Answer **any 4** questions. **3** marks **each**.

12. Give one application each for AND and OR gates.
13. Develop a logic circuit with four input variables that will produce 1 as output when any three and only three input variables are 1s.
14. Perform the following conversions :
  - a)  $726_8$  to hexadecimal
  - b) AB to octal
  - c) FE to binary.
15. Draw the logic diagram and sequence of a ring counter.



16. Perform the following binary operations :

a)  $11100 - 1011$

b)  $10110 \times 1101$

c)  $11101 \div 1010$ .

17. What are flip-flops ? Explain its applications.

### SECTION – D

Answer **any 2** questions. **5** marks **each**.

18. State and prove the laws and theorems of Boolean algebra.

19. Discuss about different digital codes.

20. Draw the logic symbol, logic diagram and truth table of master-slave JK flip-flop.

21. What is decoder ? Explain seven-segment display decoder.

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