

Bachelor of Science (B.Sc.) Semester—II (C.B.S.) Examination

ELECTRONICS (Advanced Digital Electronics)

Compulsory Paper—2

Time : Three Hours]

[Maximum Marks : 50

N.B. :— (1) All questions are compulsory and carry equal marks.

(2) Draw neat and well labelled diagrams wherever necessary.

EITHER

1. (A) Explain different characteristics of digital IC's in brief. 10

OR

- (B) Explain the working of CMOS NAND gate with the help of suitable circuit diagram. Explain its merits. 10

EITHER

2. (A) Explain the working of Clocked RS Flipflop. Explain circuit status on each clock pulse. How can a DF be obtained using RSFF ? 10

OR

- (B) Explain the working of JKFF. What is meant by 'Race around' condition ? Explain how it is avoided in JKMS flipflop. 7+3

EITHER

3. (A) Explain the working of 4-bit asynchronous counter with help of timing diagram. State its merits and limitations. 10

OR

- (B) Explain construction and working of 4-bit ring counter with the help of timing diagram. State its use. 9+1

EITHER

4. (A) Explain construction and working of 4-bit SIPO register. Draw the circuit for PIPO. 10

OR

- (B) Construct $4K \times 8$ and $8K \times 8$ memory using $4K \times 4$ modules. 10

5. Answer any **TEN** questions from the following :

(A) Define 'propagation delay'.

(B) In TTL NAND gate, both the inputs are left open, state the o/p condition.

(C) Define 'fan in'.

(D) What is set up time ?

(E) What is edge triggering ?

(F) Write any two limitations of RSFF.

(G) How many FF are required to construct a mod-20 Johnson's counter ?

(H) Define modulus of a counter.

(I) What is a synchronous counter ?

(J) What is PISO ?

(K) How many IC of $2K \times 4$ are required to construct $8K \times 8$ memory ?

(L) What is Buffer Register ?

1×10=10