KNT/KW/16/5097

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 the working of TTL NAND gate with suitable diagram.

Define the terms :

(i) Propagation delay

(ii) Power consumption

(iii) Noise immunity

(iv) Fan-in

(v) Fan-out. 5+5

OR

(B) What is tristate logic ? Explain with the help of a neat diagram, the construction and working of a TTL tristate switch.

Explain the working of CMOS NOR gate with diagram. 5+5

EITHER

2. (A) Draw the logic diagram of clocked SRFF using NAND gates and explain its working.

State the limitation of SRFF. How is it eliminated in D-Flip-Flop. 6+4

OR

(B) What is Race-Around condition in JKFF ?

How is it eliminated ?

Draw and explain the construction and working of JKMSFF. 2+1+7

EITHER

3. (A) Explain the construction and working of 4-bit ripple counter. State the limitations of ripple counter. 8+2

OR

(B) What is modified counter ? Explain the construction and working of Decade counter using JKMSFF. 2+8

EITHER

4. (A) What is shift register ? What are the different types of shift registers ? Explain the working of any one of them with logic diagram. 2+2+6

OR

(B) Draw and explain the block diagram of memory.

Construct 16 × 8 memory using 16 × 4 memory chips. 5+5

5. Attempt any **ten** :

(A) What is operating temperature of IC ?

(B) State any two advantages of CMOS over TTL logic.

(C) Give the full form of CMOS.

(D) What is edge triggering in FF ?

(E) Why is it necessary to have PRESET and CLEAR inputs in FFS ?

(F) What is CLOCK ?

(G) Draw MOD-4 counter using JKMSFF.

(H) What is ring counter ?

(I) How many flip-flops are required for the construction of MOD-5 counter ?

(J) What is meant by Buffer register ?

(K) Write any two differences between RAM and ROM.

(L) How many memories of size 512 × 8 are required to construct a memory size of 2k × 8 ?

1×10=10