Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Automation & Robotics) (2011 & Onwards)

ELECTRONICS DEVICES AND DIGITAL CIRCUITS

(Sem.–3)

Subject Code : BTAR-302

Paper ID : [A0131]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly :

a) Draw circuit of SR flip flop using NAND gates only.

b) What is buffer register?

c) Define codifier.

d) Mention the significance of h-parameters.

e) What is '*early effect*' in transistor?

f) Define peak inverse voltage.

g) What is unity gain bandwidth of op-amp?

h) Why open loop op amp configurations are not used in linear applications?

i) Explain the working of 741 as summing amplifier with 3 inputs.

j) What is switching regulator? List its components.

SECTION-B

2. Explain in detail the operation of positive edge triggered JK flip flop.

3. Design 3 bit synchronous up/down counter using JK flip flop.

4. Write a note on thermal runaway.

5. List various electrical characteristics of an ideal op amp. Draw and explain equivalent circuit of an op amp.

6. Describe the operation of PLL with the help of neat and clean diagram.

SECTION-C

7. Enlist different applications of multiplexer. Implement logic function

   $Y(A,B,C,D) = \sum m(0,1,3,5,7)$ using

   a) Single 8:1 mux

   b) Single 4:1 mux

   c) Single 2:1 mux

8. Explain IC 555 as monostable multivibrator.

9. a) Describe the working of weighted resistor D/A converter.

   b) Write a note on Johnson counter.