SANT GADGE BABA AMRVATI UNIVERSITY, AMRAVATI
Summer Examination 2020 Credit Point
HVPM's College of Engineering and Technology, Amravati
Department of Electronics & Tele communication Engineering
Bachelor of Engineering Sem. :- V

Subject :- Electronic Devices and Circuits –II   **Code :- 5XT1**

Instructions:-

1) **Solve any two questions**
2) **All question carry equal marks**

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Q1.
  a) What is clamping circuit ? State and prove clamping circuit theorem.

                                                                    (02 Credit Point)
  b) Explain the working of BJT as switch. Also draw its input- output waveform.
      (02 Credit Point)
  C) Perform the following using 2's compliment method   **(02 Credit Point)**

          (1) $(48)_{10} - (23)_{10}$
          (2) $(48)_{10} - (-23)_{10}$
          (3) $(-48)_{10} - (23)_{10}$
  d) Explain TTL with active pull up. Give its significance.   **(02 Credit Point)**

  e) Explain the working of 3-bit asynchronous up counter using T-Flip-flop.   **(01Credit Point)**

  f) Draw and explain two-phase ratio less shift register   **(01 Credit Point)**

Q2.
  a) Explain response of a high pass circuit to the Ramp input.   **(02 Credit Point)**
  b) Implement AND, OR, NOT and NOR gate using NAND gates only   **(02 Credit point)**

  C) 1)Perform the following: **(02 Credit point)**

      (i) $(BC5)_{16} - (A2B)_{16} = (?)_2$,   (ii) $(287)_{10} = (?)_{gray}$

      (iii)$(0.65625)_{10} = (?)_2$ (iv) $(327.89)_{10} = (?)_{BCD}$

  d) Explain the working of 2-input CMOS NOR gate   **(02 Credit Point)**
  e) Design full subtractor using suitable logic gates. Explain it with Truth Table
                                                                    (01Credit Point)
  f) Explain in detail the types of semiconductor memory. Also explain PROM
                                                                    (01 Credit Point)

Q3.
  a) Discuss how RC circuit acts as a differentiator   **(02 Credit Point)**
  b) What is Schottky transistor. Explain how switching speed is improved in Schottky transistor.
          (02 Credit Point)
  c) (i)$(32.7)_8 = (?)_{BCD}$ (ii) $(AEB.1E)_{16} = (?)_{Excess-3}$ **(02 Credit Point)**

d)   Explain DTL NAND gate in detail   **(02 Credit Point)**

e)   What is shift register ? What are its different types ? Explain any one in detail.

(01 Credit Point)

f) Draw and explain Static MOS RAM Cell.   **(01 Credit Point)**

Q4.

a) Draw and explain transistor clipper with waveform   **(02Credit Point)**

b) Draw and explain switching characteristics of P-N junction diode   **(02Credit Point)**

C)   Each of the following no. Is assigned binary no. .Determine the decimal value in each case

(i) sign magnitude (ii) 1's complement form (iii) 2's compliment form

(a) 010111 (b) 1101010   **(02 Credit Point)**

d) Explain the working of NMOS Inverter   **(02 Credit Point)**

e)   What arc the drawbacks of SR. JK Flip-Flops? How it is over come in MS JK Flip-Flop?

Explain.   **(01 Credit Point)**

f) Explain charge transfer mechanism in CCD memory   **(01 Credit Point)**