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

Total No. of Questions : 09

B.Tech.(ECE / ETE) (2011 Onwards)   (Sem.–4)
PULSE WAVE SHAPING AND SWITCHING
Subject Code : BTEC-405
M.Code : 57597

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS 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.
4. Any missing data can be assumed appropriately.

SECTION-A

1.   **Answer briefly :**

   a) Differentiate between RC low pass and RC high pass filter.

   b) Write the output voltage expression and draw input and output waveform for the input voltage ($V_m \sin \omega t$) applied to a pure inductor.

   c) What is the role of feedback in electronics circuits.

   d) What do you mean by self bias bistable multivibrator?

   e) What is the difference between average and RMS values.

   f) Define resolution time in multivibrator.

   g) Define switching time in PN diode.

   h) Define UTP and LTP.

   i) Differentiate between linear and non-linear wave-shaping circuits.

   j) List the applications of attenuator.

SECTION-B

Q2. The fig shows double Clipper circuit. Determine its output waveform. Assume diode drop of 0.7 V with sinusoidal input with ± 20 V. Also V_{B1} and V_{B2} are 4V and 9V respectively.
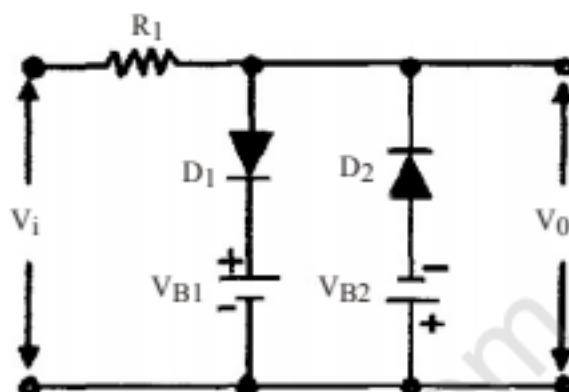
Q3. Explain the working of bistable multivibrator as "T" flip flop?

Q4. State and prove Clamping Circuit Theorem.

Q5. Explain the working of Schmitt trigger.

Q6. How the BJT work as switch?

SECTION-C

Q7. With waveforms, derive the expression for the frequency of oscillation of an astable multivibrator.

Q8. Derive the response of low pass RC circuit for pulse input voltage and draw the waveform.

Q9. Explain any two with necessary diagrams :

   a) Passive and active elements

   b) Positive and negative clamper

   c) Diode comparator

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.