

[06 – 3110]

III/IV B.E. DEGREE EXAMINATION.

First Semester

Electrical and Electronics Engineering

PULSE AND DIGITAL CIRCUITS

(Common with ECE and Dual Degree Programme in
ECE & ECE)

(Effective from the admitted batch of 2004–2005)

Time : Three hours

Maximum : 70 marks

First question is compulsory.

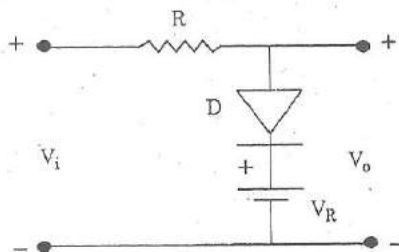
Answer any FOUR from the remaining.

All questions carry equal marks.

(7 × 2 = 14)

1. (a) Write about ringing circuit in brief.
- (b) List out any four applications of diode and give the characteristic of ideal diode.
- (c) Define what is Regenerative circuit.
- (d) Explain the operation of basic gates, with its truth table.
- (e) Discuss the need for synchronization in multivibrators.

- (f) Write about the errors that define deviation from linearity.
- (g) What is Attenuator? Give some applications of attenuator?
2. (a) An oscilloscope displays a 5 Hz square wave form with a 6% tilt. The signal input has no tilt and is coupled to the oscilloscope via a $4.7 \mu\text{F}$ capacitor. Calculate the oscilloscope input resistance?
- (b) Explain in detail the output response of low-pass RC-circuit for a given input pulse waveform.
- (c) Show that a high pass RC circuit is a differentiator.
3. (a) For the diode clipping circuit shown in the figure below, assume $V_R = 10 \text{ V}$, $V_i = 20 \sin \omega t$, $R_f = 100 \Omega$ and $R_r = \infty$ and $V_f = 0$. Neglect all capacitances. Draw to scale the input and output wave form and label the maximum and minimum values if
 (i) $R = 100 \Omega$ (ii) $R = 1 \text{ k}\Omega$.



- (b) Explain with an example positive peak clamping circuit with diode.

4. (a) Discuss in detail asymmetrical triggering methods of multivibrator.
(b) Explain the principle of operation of monostable multivibrator.
 5. (a) With a neat diagram, explain the working principle of UJT relaxation oscillator.
(b) What is bootstrap sweep circuit? Discuss.
 6. (a) Write about synchronisation of sweep circuit with symmetrical signals.
(b) Explain the principles behind synchronisation with frequency division.
 7. (a) Give the practical application of blocking oscillators.
(b) Write about modified version of triggered transistor blocking oscillator.
 8. (a) Discuss in detail various TTL gates output configurations.
(b) With neat diagram and truth table explain the operation of J-K flip flop.
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