

II B. Tech II Semester Supplementary Examinations, Nov/Dec-2016
PULSE AND DIGITAL CIRCUITS

(Com. to EEE and ECC)

Time: 3 hours

Max. Marks: 70

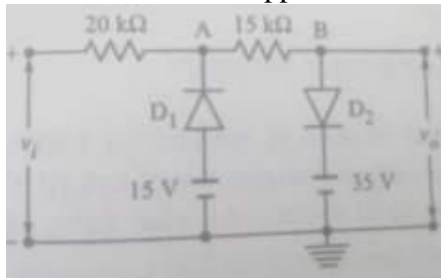
- Note: 1. Questions on Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the questions in **Part-A**
 3. Answer any **THREE** Questions from **Part-B**

PART -A

1. a) Define rise time. (3M)
- b) Design a clamping circuit using diode to restore the positive peaks of 2 kHz signal to 3V. Assume $R_f = 100 \Omega$, $R_r = 200k \Omega$, drop across diode is 0.6V. (5M)
- c) Discuss stable and quasi-stable states of a binary. Mention how many stable and quasi-stable states are there in bistable, astable and monostable multivibrators. (4M)
- d) Write the advantages of MOS families over bipolar families. (4M)
- e) What is the difference between a voltage time base generator and a current time base generator? Mention an application of time base generators. (3M)
- f) What is a relaxation device? Give few examples of them. (3M)

PART -B

2. a) Using relevant diagrams and wave forms explain the response of a low pass RC circuit to sinusoidal input. Obtain the expression for its output voltage. (10M)
- b) Discuss in detail about diode reverse recovery time. (6M)
3. a) Obtain the transfer characteristic for the clipper circuit shown in figure below. (10M)



- b) Explain the operation of an emitter coupled clipper using relevant circuit diagram. (6M)
4. Explain the operation of a Schmitt trigger circuit using relevant diagram and derive the expression for UTP and LTP. (16M)
5. a) Explain the operation of a 2 input NMOS NOR gate. (8M)
- b) Explain the operation of a CMOS inverter. (8M)
6. a) Explain the working of a UJT relaxation oscillator. (8M)
- b) Define and derive the relation between e_s , e_t and e_d ? (8M)
7. a) Explain the operating principle of a basic sampling gate. (8M)
- b) Explain frequency division in the sweep circuit. (8M)

