

GUJARAT TECHNOLOGICAL UNIVERSITY
BE –SEMESTER 1&2(NEW SYLLABUS)EXAMINATION- WINTER 2018

Subject Code: 3110016**Date: 08-01-2019****Subject Name: basic electronics****Time: 10:30 am to 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

| | | Marks |
|------------|---|-------|
| Q.1 | (a) Explain V-I characteristic of tunnel diode. | 03 |
| | (b) What is zener breakdown? What is avalanche breakdown? Compare both the type of breakdown. | 04 |
| | (c) Write a short note: V-I characteristic of P-N junction diode. | 07 |
| Q.2 | (a) Design and explain basic NAND gate using DTL logic. | 03 |
| | (b) Explain following gate using their truth table, logic symbol and equation. Ex-NOR, NAND, NO | 04 |
| | (c) Draw and Explain bridge rectifier. Explain advantage and disadvantage of bridge rectifier over full wave rectifier. | 07 |
| OR | | |
| Q.3 | (c) Write a short note: Biased clipper circuit. | 07 |
| | (a) Derive the relation between current gain α and β | 03 |
| | (b) What is DC load line? Explain with necessary diagram. | 04 |
| | (c) Draw and explain input and output characteristic of transistor in common emitter configuration. | 07 |
| OR | | |
| Q.3 | (a) What is stability factor? Explain. | 03 |
| | (b) Give comparison between CE, CB and CC configuration of transistor. | 04 |
| | (c) What are the different method for biasing the transistor. Explain any two method with necessary circuit diagram. | 07 |
| Q.4 | (a) Why biasing circuits are required? | 03 |
| | (b) Explain why NAND and NOR gate are called universal gate? | 04 |
| | (c) Explain application of transistor as a switch. | 07 |
| OR | | |
| Q.4 | (a) List out the salient feature of emitter follower. | 03 |
| | (b) Explain various properties of CB amplifier. | 04 |
| | (c) Draw and explain the transistor a.c. equivalent circuit. | 07 |
| Q.5 | (a) Give comparison of BJT and JFET. | 03 |
| | (b) Draw and explain the self bias circuit of FET. | 04 |
| | (c) Draw and explain various characteristic of JFET | 07 |
| OR | | |
| Q.5 | (a) What are the advantage of N-Channel MOSFET over P-Channel MOSFET. | 03 |
| | (b) Explain the application of FET as a buffer amplifier. | 04 |
| | (c) Write a short note: E-Type MOSFET | 07 |