

Electronic Devices and Circuits - Partial Exam

An exam ticket consists on one problem and one normal subject or three short subjects.
The exam will take place in room N-II-1, at 18:00 on Thursday, April 25, 2019.

1.1 PROBLEMS:

1. Voltage and current divider;
2. RC transient response;
3. Diode limiters;
4. C filter diode rectifier;
5. Zener shunt voltage regulator;
6. BJT inverter;
7. BJT Bias circuits analysis and design;
8. DC analysis of BJT circuits, relay command circuit;
9. Common emitter (CE) amplifier.

1.2 NORMAL SUBJECTS:

1. The Diode: main characteristic, symbol; models: ideal, VD model, the exponential diode;
2. Diode Rectifiers without Filters and Capacitive Input Filters for Diode Rectifiers;
3. The Transistor Physical Basis of Operation and Equivalent Circuit Models.
4. BJTs *ac* Equivalent Circuits and the Simplified *ac* Models;

1.3 SHORT SUBJECTS:

1. Ideal independent sources and their suppression;
2. Resistors in series and voltage divider;
3. Thévenin and Norton equivalent circuits;
4. Step response in RC networks;
5. Diode limiters;
6. Zener diode: symbol, equivalent circuits;
7. Zener (shunt) voltage regulator;
8. BJT – definition, symbols and modes of operation;
9. The transistor inverter;
10. The superposition theorem for *ac-dc* circuits;
11. Base bias for BJTs;
12. Emitter bias for BJTs.
13. Voltage divider bias for BJTs;
14. The voltage amplifier model;
15. The common emitter amplifier parameters;

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