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B.E/B.Tech (Full Time) DEGREE EXAMINATION, APR/MAY 2013**Second Semester****(Geoinformatics)****EC 9168 – BASIC ELECTRONICS ENGINEERING****(Regulation 2008)**Time: **Three hours**Answer **ALL** questionsMaximum: **100 marks****PART- A****(10 * 2 = 20 marks)**

1. Draw the circuit diagram of a zener voltage regulator.
2. What is meant by depletion region?
3. What is the necessity for biasing a transistor?
4. Differentiate between positive feedback circuit and negative feedback circuit.
5. Mention the disadvantage of JFET compared to BJT.
6. List some practical applications of UJT.
7. Mention the Barkhausen criterion.
8. List out the ideal characteristics of an OPAMP.
9. Bring out the difference between decoder and demultiplexer.
10. What is the necessity to have an ADC circuit in the design of a digital system?

PART- B**(5 * 16 = 80 marks)**

- 11.(i) Explain the principle of operation of a full wave rectifier with a neat sketch. (10)
- (ii) Compare the conductor, semiconductor and insulator with the help of energyband diagram. (6)
- 12.a)(i) Sketch neatly the circuit diagram of a CE configuration transistor, discuss its operation, characteristics and compare it with the other modes of operation. (10)
- (ii) Compare CB, CE and CC amplifiers and their uses. (6)
- (OR)
- 12.b) Explain the operation of voltage series feedback amplifier and current series feedback amplifier in detail. (16)
- 13.a) Draw the circuit and explain the operation and characteristics of Enhancement and Depletion mode MOSFETS. (16)
- (OR)
- 13.b) Draw the circuit, and the equivalent circuit of SCR. Explain its construction, working, characteristics, advantages and applications. (16)
- 14.a) Explain the working and operation of a Monostable Multivibrator with a neat circuit diagram. (16)
- (OR)
- 14.b)(i) Draw the circuit diagram of RC phase shift oscillator and explain its operation. (8)
- (ii) Draw and explain working of integrator and differentiator circuits using OPAMP. (8)
- 15.a)(i) Design a 3 to 8 line decoder using NOR gates only. (8)
- (ii) Implement the function $f = \sum(1,3,5,7,8,9,12,14,15)$ using 8x1MUX. (8)
- (OR)
- 15.b) With the help of logic diagram, characteristic table and characteristic equation explain the different types of flip flops in detail. (16)