

Electronic Circuits – Assignment

01

Introduction to Electronics

#	Student ID	Student Name	Grade (10)
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Delivery Date	
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١. يتم تسليم التمرين محلولا في خلال أسبوع من تاريخ التمرين، و يتم حذف درجتين من التمرين عن كل أسبوع تأخير
٢. يتم التسليم لمعيد المقرر مباشرة
٣. تتم أجابه التمرين في نفس ورق الأسئلة

#	Question	Answer
1	Every known element has (a) the same type of atoms (b) the same number of atoms (c) a unique type of atom (d) several different types of atoms	
2	An atom consists of (a) one nucleus and only one electron (b) one nucleus and one or more electrons (c) protons, electrons, and neutrons (d) answers (b) and (c)	
3	The nucleus of an atom is made up of (a) protons and neutrons (b) electrons (c) electrons and protons (d) electrons and neutrons	
4	The most widely used semiconductive material in electronic devices is (a) germanium (b) carbon (c) copper (d) silicon	
5	The difference between an insulator and a semiconductor is (a) a wider energy gap between the valence band and the conduction band (b) the number of free electrons (c) the atomic structure (d) answers (a), (b), and (c)	
6	The energy band in which free electrons exist is the (a) first band (b) second band (c) conduction band (d) valence band	
7	The atomic number of germanium is (a) 8 (b) 2 (c) 4 (d) 32	
8	The valence shell in a silicon atom has the number designation of (a) 0 (b) 1 (c) 2 (d) 3	
9	Each atom in a silicon crystal has (a) four valence electrons (b) four conduction electrons (c) eight valence electrons, four of its own and four shared (d) no valence electrons because all are shared with other atoms	
10	The current in a semiconductor is produced by (a) electrons only (b) holes only (c) negative ions (d) both electrons and holes	
11	17. In an intrinsic semiconductor, (a) there are no free electrons (b) the free electrons are thermally produced (c) there are only holes (d) there are as many electrons as there are holes (e) answers (b) and (d)	
12	The process of adding an impurity to an intrinsic semiconductor is called (a) doping (b) recombination (c) atomic modification (d) ionization	

13	The majority carriers in an <i>n</i> -type semiconductor are (a) holes (b) valence electrons (c) conduction electrons (d) protons	
14	The majority carriers in an <i>n</i> -type semiconductor are (a) holes (b) valence electrons (c) conduction electrons (d) protons	
15	A <i>pn</i> junction is formed by (a) the recombination of electrons and holes (b) ionization (c) the boundary of a <i>p</i> -type and an <i>n</i> -type material (d) the collision of a proton and a neutron	

Q1	A certain atom has four valence electrons. What type of atom is it?	
Sol 1	

Q2	In a silicon crystal, how many covalent bonds does a single atom form?	
Sol 2	

Q3	Name the two energy bands at which current is produced in silicon.	
Sol 3	

Q4	How is the electric field across the <i>pn</i> junction created?	
Sol 4	