

► Now that you have read the text, choose the correct option in the following sentences:

1. How many semiconducting materials are mentioned in the text?

a. dozens b. three c. one

2. Thermionic devices consist of _____.

a. vacuum tubes b. solid state materials

c. semiconductor materials

3. Semiconductors have _____ band gaps _____ insulators.

a. the same – as b. larger – than c. smaller – than

4. The electrical properties of semiconductors are controlled _____.

a. only by temperature b. by applied fields c. by various factors

5. Doping refers to the process of intentionally introducing impurities into semiconductors for the purpose of _____.

a. turning them into metals b. changing their electrical properties c. applying electric fields

6. Impurity atoms add _____ to semiconductors.

a. electrons or holes b. dopants c. junctions

7. Both doping and applying electric fields are _____ methods of modifying the electrical properties of semiconductors.

a. dynamic b. static c. no word is needed

8. In microprocessors, conductivity is controlled _____.

a. statically b. passively c. dynamically

9. LEDs are illuminated by the _____ in a semiconductor material.

a. band gap b. movement of electrons c. absorption of light



Glossary

exploit: to make use of sth for one's benefit

thermionic: relating to electrons emitted from

materials at high temperatures

thermionic emission: discharge of electrons

caused by a sufficiently high level of thermal

energy

discrete: separate or independent; distinct

(Note: Do not confuse **discrete** with **discreet** =

careful in one's speech or actions, so as not

to cause embarrassment or attract too much

attention)

band gap: (also **bandgap** or **energy gap**) the

distance between the valence band of

electrons and the conduction band of a solid

material

dopant: (also *doping agent*) an impurity

introduced into a material to alter its original

electrical properties

approximate: (here) to estimate

conversely: in a contrasting or opposite way

leap: to make a

large jump or a

quick sudden

movement

with great

force from one place to another

underlie: to be the cause or basis of sth

intrinsic property: a property that a thing has

of itself; an **extrinsic property** depends on a

thing's relationship with other things

junction: a place where two (or more) things

join; in a semiconductor: a region of

transition between a part where conduction

is by electrons and a part where it is by holes

excite: (physics) to cause an electron to move to

a higher state; promote an electron to an

outer level

facilitate: to make sth easier or likely to happen

elemental: relating to an element; existing as

an uncombined chemical element

