Part I. Answer these questions by marking the best answer among the choices given: [10 points each]

1. Device monitoring sensors in anesthesia machines do NOT include …
    a. Oxygen saturation (SpO2) (*)
    b. Oxygen concentration
    c. Carbon dioxide (CO_2) concentration
    d. Anesthetic agent concentration
2. Hot-Wire Anemometer method is used to measure …
    a. Oxygen concentration
    b. CO_2 concetration
    c. Volume and flow rate (*)
    d. Pressure
3. The ventilator component of anesthesia machines has a major difference from separate ICU ventilators in that …
    a. It is smaller in size
    b. Its breathing circuit allow rebreathing of exhaled air (*)
    c. It accommodates spontaneous breathing
    d. It always uses mandatory mode
4. Anesthetic agent concentration can be measured using …
    a. Piezoresistive Sensor
    b. Fuel Cell sensor
    c. Paramagnetic type sensor
    d. Infrared absorption spectroscopy (*)
5. To prevent hypoxic mixture from reaching the patient, … must be used in anesthesia machines.
    a. Drug dosing unit
    b. Oxygen Failure Protection Device (OFPD) (*)
    c. Anesthesia effect monitoring
    d. Patient monitoring
6. Anesthetic agent vaporizer do NOT …
    a. Convert anesthetic agent from liquid to vapor
    b. Mix anesthetic agent with fresh gas at preset concentration
    c. Use mechanical and electronic designs
    d. Perform drug dosing (*)
7. Anesthesia machine is different from mechanical ventilator in its use to …
    a. Control patient ventilation
    b. Oxygen delivery
    c. Administer inhalation anesthetics (*)
    d. Sustain the life of a patient

Part II. Mark the following statement as either True (T) or False (F): [5 points each]

8. Vaporizers must lower saturated anesthetic agent vapor concentration to much lower value. (T)
9. Some spirometer designs utilize Hall Effect sensors. (T)
10. Flowmeters in the interface of anesthesia machines are used to measure exhaled tidal volume. (F)
11. Drug dosing unit can be designed using mechanical metering valves. (T)
12. Anesthetic agents are called volatile because they are exhalable and evaporate quickly. (T)
13. Airway pressure can be measured using piezoresistive sensor technology. (T)
14. Infrared absorption spectroscopy assumes that all gases absorb light at one wavelength. (F)