

**Note : Answer on all the questions**

**Q1/ answer these question. (9 marks).**

- 1 -define these items. (Choose 3). (3 marks). Digestibility – hemoglobin – goiter – vitamin – WMD.
- 2- Under normal condition (young animal and it's not on stress) and in some specific species , vit C niacin, and vit D would not always fit the classic definition of a vitamin. (3 marks).
- 3 - There are two assumptions are made in calculating protein content from nitrogen. (3 marks).

**Q2/ answer these question. (9 marks).**

- 1- Fat contains about two and a half times as much energy as CHO. (3 marks).
- 2-enumerate the function of a vit A in animals. (3 marks).
- 3-explain the bomb-calorie meter and how it work. (3 marks).

**Q3/ answer these questions. (6 marks). (Choose 2).**

- 1- Explain the iron cycle in animal body and support your answer with diagram. (3 marks).
- 2-enumerate the factors that effect on digestibility. (3marks).
- 3- The gross energy value of a food is an inaccurate estimate of energy. (3 marks).

**Q4/ fill out these blanks. (6 marks). (Choose 6).**

- 1- The major function of niacin is in the -----.
- 2- the potential value of a food for supplying a particular nutrition can be determined by chemical analysis , but actual value of the food to the animal can be arrived only -----.
- 3- Zinc tend to accumulate in ----- rather than ----- & it excreted via -----.
- 4- Fattening animal stores energy as a -----.
- 5- Vitamins classification depends not on ----- but on -----.
- 6- The heat increments may be expressed in absolute terms ----- or relatively as a -----.

**Good Luck**

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