

READING: From Chapter 16 (*Animal Physiology text*, Eckert, *et al*)

A. METABOLISM – GENERAL DISCUSSION:

1. What specific roles of energy metabolism can you identify from Fig. 16-1 and accompanying text?

2. Is it totally unfortunate that respiration is not 100% efficient? Explain.

B. TEMPERATURE CLASSIFICATIONS OF ANIMALS:

1. Use Figure 16-2 to explain the two broad classifications. How is hypothermia and hyperthermia represented on the figure?

2. Define heterothermy –

3. Distinguish temporal and regional heterothermy:

HETEROTHERMY:

TYPE	Definition	Examples
Temporal		
Regional		

C. EXPRESSING ANIMAL METABOLIC RATES

1. Distinguish the following ways of expressing metabolic rates in animals:
 - a. Basal Metabolic Rate (BMR) –

- b. Standard Metabolic Rate (SMR) –

- c. Sustained (Active) Metabolic Rate –

- d. Metabolic Factorial Scope --

2. What is *oxygen debt* (or oxygen deficit)?

- a. How would it affect determination of *metabolic rates* if time is not allowed between periods of different exertion by the animal?

- b. How would failing to recognize oxygen debt cause error in estimating *metabolic factorial scope*?

D. MEASURING METABOLIC RATES – Explain how each of the following approaches are used:

- 1. Food intake and waste removal

- 2. Direct Calorimetry

- 3. Indirect Calorimetry