

Biology 483 - Exam I Fall 2020

Name: _____

1. In the space provided, **briefly** define or give the significance of the following terms (2 pts. each):

Heterodont:

Sarcophilus:

Cynodonts:

Calcaneum:

Ausktribosphenos:

Tympanic Bone:

Dorsal Pallium:

Anterior coracoid:

Multituberculates:

Myrmecophagous:

2. List three **skeletal anatomy** characters **unique** to mammals (6 pts.)

3. Vertebrate paleontologists used to use a key-character approach for defining Mammalia. Explain the approach (6 pts.) and why it was abandoned (6 pts.).

4. The triconodont mammals *Jeholodens* and *Repenomamus* were recently discovered to have had a particularly interesting anatomy with regard to both their pectoral and pelvic girdles. Describe these and indicate why this arrangement is so interesting (10 pts.).

5. Diagram the condition of the temporal regions of (A) a stem amniote (4 pts.) and (B) an early synapsid (4 pts.). Include the location of attachment of jaw-closing musculature (4 pts.).

6. To what **family** do the following genera belong (8 pts.).

Myrmecobius:

Marmosa:

Antechinus:

Macropus:

Lasiorninus:

Didelphis:

Dromiciops:

Ornithorhynchus:

7. *Notoryctes* exhibits what type of specialization (2 pts.)? List four adaptations typically associated with this (1 pt. each).

8. What is the classic biogeographic hypothesis regarding dispersal and radiation of Metatheria (6 pts.)? How has modern phylogenetic evidence corroborated it (4 pts.)?

9. Gigantothermy is central to the Size Refugium Hypothesis for the evolution of mammals. Please explain this concept (6 pts.) **and** its relevance to the hypothesis (10 pts.).