**Birdwatching exam** Name:

1. (2 points) Which of these traits of *Archaeopteryx* was most important in leading paleontologists to conclude that the fossil find represented an ancestral bird?
   1. Tail
   2. Saurian pelvis
   3. Three-fingered hand
   4. Teeth
   5. Feathers
2. (2 points) Which of these traits is NOT characteristic of modern birds?
   1. Long bony tail
   2. Wings
   3. Feathers
   4. Pneumatized skeleton
   5. Beak
3. (2 points) How many chambers are in a bird’s heart?
   1. 1
   2. 2
   3. 3
   4. 4
   5. 5
4. (2 points) The avian respiratory system is:
   1. One-cycle and unidirectional
   2. One-cycle and bidirectional
   3. Two-cycle and unidirectional
   4. Two-cycle and bidirectional
   5. Double-circuit
5. (4 points) Explain two aspects of avian physiology or lifestyle that cause birds to have higher energy requirements than other vertebrates.
6. (2 points) What parameter is often used by physiologists to reflect the level of metabolism in an endothermic animal?
   1. Oxygen consumption
   2. Energy intake divided by handling time
   3. Body temperature
   4. Change in weight
   5. Surface area-to-volume ratio
7. (2 points) Which of these metabolic rates is lowest for a bird?
   1. Active metabolic rate
   2. Basal metabolic rate
   3. Flight metabolic rate
   4. Metabolic rate during torpor
   5. They’re all about the same.
8. (2 points) Which of these animals would you expect to maintain the highest body temperature on a warm day?
   1. Fish
   2. Frog
   3. Lizard
   4. Blue Jay
   5. Gray squirrel
9. (2 points) What color is a Blue Jay?
10. (4 points) Name two kinds of birds we saw in Christy Woods.
11. (2 points) A bird maintains a body temperature:
    1. Far below the denaturation point of proteins.
    2. Just below the denaturation point of proteins.
    3. At the denaturation point of proteins.
    4. Just above the denaturation point of proteins.
    5. Far above the denaturation point of proteins.
12. (4 points) Describe how bird bones differ from the bones of other vertebrates.
13. (2 points) Seeds and insects are broken up by a bird’s:
    1. Teeth
    2. Crop
    3. Gizzard
    4. Proventriculus
    5. Intestine
14. (2 points) Which of these bird species has a long tongue for extracting insects from under bark?
    1. White-breasted Nuthatch
    2. Black-and-white Warbler
    3. Brown Creeper
    4. Carolina Chickadee
    5. Downy Woodpecker
15. (2 points) Which of these bird species feeds its young crop milk?
    1. Chimney Swift
    2. Ruby-throated Hummingbird
    3. Common Nighthawk
    4. Red-bellied Woodpecker
    5. Mourning Dove
16. (2 points) A digestive tract that bypasses the gizzard would be found in a bird species that eats primarily:
    1. Fruit
    2. Insects
    3. Vegetation
    4. Small animals
    5. Fish
17. (4 points) Describe what a bird must do to prepare for migration.
18. (2 points) Severe cold stress in a bird leads to:
    1. Hyperthermia
    2. Torpor
    3. Weight gain
    4. Singing behavior
    5. Nest-building behavior
19. (4 points) Explain how climate change is affecting the geographic distribution ranges of birds.
20. (4 points) Why are flightless birds particularly vulnerable to the effects of climate change?
21. (2 points) Which of the following bird species would you expect to have the smallest surface area-to volume ratio?
    1. Chipping Sparrow
    2. Northern Cardinal
    3. Canada Goose
    4. Mallard
    5. American Crow
22. (2 points) Which of these bird species was introduced by humans from Europe to North America?
    1. House Sparrow
    2. Chipping Sparrow
    3. Song Sparrow
    4. Field Sparrow
    5. White-throated Sparrow
23. (4 points) Describe how countercurrent exchange in a gull’s leg helps to conserve body heat.
24. (2 points) The white stuff the Barn Swallow left on our van yesterday was mostly:
    1. Urea
    2. Uric acid
    3. Calcium
    4. Albumin
    5. Lipids
25. (2 points) Which of these birds species has precocial young?
    1. American Robin
    2. House Wren
    3. American Goldfinch
    4. Canada Goose
    5. Northern Cardinal
26. (2 points) In many songbird species, incubation usually starts:
    1. During nest-building.
    2. As soon as the first egg is laid.
    3. After the penultimate (second-to-last) egg is laid.
    4. Several days after all eggs have been laid.
    5. After the last egg has hatched.
27. (2 points) Systematics is an approach to classification of organisms that is based on:
    1. Similarity of characteristics.
    2. Biogeographic distribution.
    3. Foraging ecology.
    4. Arbitrary convention.
    5. Evolutionary phylogeny.
28. (2 points) Does the early bird get the worm?
29. (2 points) Does the early birder get the Worm-eating Warbler?
30. (2 points) The Ostrich would be classified in which of the following clades?
    1. Paleognathae
    2. Neognathae
    3. Neoaves
    4. Galloanseres
    5. Anseriformes
31. (4 points) Name two species in the Family Anatidae.
32. (4 points) Give one example of a diving duck and one example of a dabbling duck.
33. (2 points) The American White Pelican belongs to which taxonomic Order?
    1. Podicipediformes
    2. Charadriiformes
    3. Gaviiformes
    4. Suliformes
    5. Pelecaniformes
34. (2 points) The Spotted Sandpiper is a member of which taxonomic Family?
    1. Charadriidae
    2. Scolopacidae
    3. Laridae
    4. Cuculidae
    5. Columbidae
35. (2 points) The Common Loon eats primarily:
    1. Seeds
    2. Insects
    3. Fruit
    4. Fish
    5. Small mammals
36. (2 points) Which of the following bird species is a member of the Order Piciformes?
    1. Ring-billed Gull
    2. Killdeer
    3. Belted Kingfisher
    4. Northern Flicker
    5. Yellow Warbler
37. (2 points) The Northern Cardinal is a member of which taxonomic Family?
    1. Tyrannidae
    2. Corvidae
    3. Icteridae
    4. Fringillidae
    5. Cardinalidae
38. (2 points) Muncie is within which of these geographic distributions of the Swainson’s Thrush?
    1. Breeding
    2. Winter
    3. Migration
    4. Year-round
    5. The Swainson’s Thrush is not known to occur in Muncie.
39. (2 points) The study of how organisms interact with their environment is:
    1. Biogeography
    2. Ecology
    3. Taxonomy
    4. Systematics
    5. Physiology
40. (2 points) The Red-eyed Vireo is a common breeding bird in Indiana’s:
    1. Forests
    2. Grasslands
    3. Lakes
    4. Cornfields
    5. Downtown urban areas
41. (2 points) If two populations of birds hybridize extensively, they are considered to belong to the same:
    1. Order
    2. Family
    3. Genus
    4. Species
    5. Subspecies

EXTRA CREDIT:

1. (2 points) When two birds mate exclusively with each other, the mating system is said to be:
   1. Monogamous
   2. Polygamous
   3. Polygynous
   4. Polyandrous
   5. Polygynandrous

EXTRA CREDIT:

1. (2 points) The Brown-headed Cowbird (*Molothrus ater*) is:
   1. A facultative intraspecific brood parasite
   2. An obligate intraspecific brood parasite
   3. A facultative interspecific brood parasite
   4. An obligate interspecific brood parasite
   5. A cooperative breeder
2. (2 points) During **expiration** in an avian respiratory system, the most recently **inspired** air flows:
   1. Through the lungs to fill up the posterior air sacs
   2. From the posterior air sacs through the lungs
   3. From the anterior air sacs to fill up the lungs
   4. From the lungs to fill up the anterior air sacs
   5. From the trachea to enter the primary bronchi
3. (6 points) Imagine that a bird spends half of its time singing during the early morning. If the bird expends 2 kilocalories of energy per minute when it’s singing and 1 kilocalorie of energy per minute when it’s NOT singing, how much energy will it need over a 10-minute period?
4. (2 points) Which of the following is NOT a habitat in which Brown-headed Cowbirds feed?
   1. Pastures
   2. Agricultural fields
   3. Lawns
   4. Horse camps
   5. Forest
5. (4 points) Name two types of animals that like to eat eggs from songbird nests.