Bank of comparative anatomy questions/ 4th year Biology

Q1. Make a circle around the correct answer?

1. The correct scientific name for the house lizard is:

A. Gecko gecko B. Gecko viridis C. *Gecko viridis* D. Bufo viridis E. none of these

2. When we examine the vertical section through the skin of fatty vertebrate, the correct arrangement of its layers from outside to inner side as follow:

A. dermis, epidermis, subcutaneous, muscles. B. epidermis, dermis, subcutaneous, muscles

C. epidermis, dermis, muscles, subcutaneous D. epidermis, subcutaneous, dermis, muscles.

3. The main skin layer from which most skin derivatives are derived is:

A. ectoderm B. mesoderm C. hypodermis D. dermis E. none of these

4. Femoral glands is attributed to skin of only:

A. female lizards B. male crocodiles C. female turtle D. snakes E. one of these

5. One of the following glands is not attributed to mammalian skin:

A. mucous gland B. lacrimal gland C. scent gland D. sebaceous gland E. none of these

6. Which of the following groups do **not** bear true horns?

A. Giraffe and deer B. bovines C. American antelopes D. rhinoceros E. A and C

7. Which of the following horns is not permanent horn?

A. true hollow B. keratin fiber (hair) C. pronghorns D. B and C E. none of these

8. Feather lack rachis and have a short calamus with a crown of long and flexible barbs and with short barbules that lack hooklets is:

A. contour B. down (plumule) C. hair (filoplume) D. bristle E. none of these

9. Feather like hair and with few barbs at its base grow on the face of birds is :

A. contour B. down (plumule) C. hair (filoplume) D. bristle E. none of these

10. Vertebrates are greater in size than invertebrates because vertebrates have:

A. limbs B. head C. thorax D. endoskeleton E. none of these

11. Most parts of the alimentary canal are derived from:

A. foregut B. midgut C. hingut D. neurocole E. none of these

12. Internal nares of one of the following animals, like human, located in the posterior region of the buccopharyngeal cavity:

A. frog B. fish C. lamprey D. crocodile E. lizard

13. Glottis of the fish is located in:

A. upper jaw B. lower jaw C. between upper and lower jaw D. none of these

14. Glottis of the frog is located in:

A. upper jaw B. lower jaw C. between upper and lower jaw D. none of these

15. Only one of the following pairs is analogous organs:

A. your hand and frog forelimb C. horny teeth and true teeth

B. claw, nail and hoof D. beak of turtle and pigeon

16. Which of the following pairs is (are) analogous organs:

A. your hand and frog forelimb C. horny teeth and true teeth E. B and D

B. antlers and pronghorns D. beak of turtle and pigeon F. A and D

17. Animal which has mammary glands with teat is:

A. kangaroo B. platypus C. dog D. horse E. human

18. Animal which has mammary glands with nipple is:

A. kangaroo B. platypus C. dog D. horse E. A and C

19. One of the following vertebrates has monophyodont dentition:
A. lizard B. crocodile C. cat D. platypus E. fish
20. One of the following vertebrates has diphyodont dentition:
A. lizard B. crocodile C. cat D. platypus E. fish
21. One of the following reptiles has thecodont type of dentition?
A. lizard B. turtle C. snake D. crocodile E. none of these
22. One of the following vertebrates has pleurodont dentition:
A. lizard B. crocodiles C. salamanders D. platypus E. fish
23. They type of teeth attachment in most fishes (cartilaginous and bony fishes) is:
A. acrodont B. pleurodont C. thecodont D. diphyodont E. none of these
24. When a mammal has 2 long unusual canines of upper jaw in both sexes, it is
A. walrus B. elephant C. warthog D. babirusa E. musk deer F. rabbit
25. When a mammal has 2 long unusual canines of upper jaw in male only, it is:
A. walrus B. elephant C. warthog D. babirusa E. musk deer F. rabbit
26. When a mammal has 1 or 2 long unusual canines of upper jaw in male only, it is:
A. walrus B. elephant C. warthog D. babirusa E. musk deer F. narwhale
27. When a mammal has 4 long unusual canines in male and female, it is:
A. walrus B. elephant C. babirusa D. musk deer E. narwhale
28. When **any** mammal has complete number of canines in both jaws they are always:
A. 2 B. 4 C. 6 D. 8 E. none of these
29. Which of the following mammals has homodont dentition:
A. whale B. walrus C. dog D. rabbit E. none of these
30. The number of pouches in amphioxus's stomach is:
A. 1 B. 2 C. 3 D. 4 E. none of these
31. The number of pouches in lamprey's stomach is:
A. 1 B. 2 C. 3 D. 4 E. none of these
32. The number of pouches in frog's stomach is:
A. 1 B. 2 C. 3 D. 4 E. none of these
33. Stomach of the sheep has:
A. 1 chamber B. 2 chambers C. 3 chambers D. 4 chambers E. lack stomach
34. Stomach of the camel has:
A. 1 chamber B. 2 chambers C. 3 chambers D. 4 chambers E. lack stomach
35. All the following mammals are ruminants except:
A. cow B. goat C. deer D. horse E. antelope F. sheep
36. Which of the following mammals are **not** ruminants:
A. cow B. goat C. deer D. pig E. antelope F. sheep
37. The method of increasing surface of absorption in dogfish intestine is:
A. villi B. cecum C. spiral valves D. A and B E. A and C
38. The method of increasing surface of absorption in lizard small intestine is:
A. villi B. cecum C. spiral valves D. A and B E. A and C
39. The method of increasing surface of absorption in frog **small** intestine is:
A. villi B. cecum C. spiral valves D. A and B E. A and C
40. The method of increasing surface of absorption in frog **all** intestine is:
A. villi B. cecum C. spiral valves D. A and B E. A and C

41. The number of complete gills (holobranchs) in lamprey is:
A. 2 B. 4 C. 6 D. 8 E. none of these
42. The number of gill pouches in bony fishes is:
A. 1 B.2 C. 3 D. 4 E. 5
43. The number of complete gills (holobranchs) in dog fish is:
A. 1 B.2 C. 3 D. 4 E. 5
44. The number of half gills (hemibranchs) in dog fish is:
A. 1 B.2 C. 3 D. 4 E. 5
45. The type of adult reptiles' kidneys are:
A. mesonephros B. metanephros C. archinephros D. pronephros E. none of these
46. The type of adult birds' kidneys are:
A. mesonephros B. metanephros C. archinephros D. pronephros E. none of these
47. The type of adult amphibians' kidney is:
A. mesonephros B. metanephros C. archinephros D. pronephros E. none of these
48. The type of kidney of larval stage of amphibians and most fishes is:
A. mesonephros B. metanephros C. archinephros D. pronephros E. none of these
49. Type of urinary bladder of most fishes is:
A. evagination of the dorsal wall of cloaca called tubular bladder
B. evagination of the ventral wall of cloaca called cloacal bladder
C. Terminal enlargement of the mesonephric duct called tubular bladder
D. Terminal enlargement of the metanephric duct called tubular bladder
E. none of these.
50. Testes of which of the following mammals located permanently inside its body (no scrotum):
A. camel B. elephant C. whale D. A and B E. B and C
51. Testes of which of the following mammals located permanently inside its body (no scrotum):
A. camel B. elephant C. cat D. bat E. rabbit
52. Testes of which of the following mammals located permanently inside its body (no scrotum):
A. camel B. elephant C. cat D. bat E. rabbit
Testes of which of the following mammals take transitional state between body cavity and scrotum:
A. cat B. rabbit C. platypus D. whale E. none of these
53. Mammal (s) which its (their) testes located permanently inside scrotum is (are):
A. cat B. donkey C. pig D. sheep E. monkey F. all of these
54. Which of the following organs developed from Mullerian duct?
A. Uterus B. vas deferens C. ureter D. A and C E. none of these
55. Which of the following organs developed from Wolffian duct?
A. Uterus B. vas deferens C. ureter D. A and C E. none of these

Q2. Count only?
1. Three types of anatomy.
2. Common and scientific names for chordates studied in theory and lab of comparative anatomy.
3. Four variations among the skin structure of different groups of chordates.
4. Three groups of the chordates' skin derivatives.
5. Nine groups of the chordates' skin derivatives.

6. All glands derived from the skin.
7. Three pairs of analogous organs.
8. Two types of exoskeleton.
9. 4 Types of feathers with their location.
10. Two main parts for the endoskeleton and all subdivisions for each part.
11. Three main regions of the digestive system in lung breathing vertebrates.
12. Three main regions of the digestive system in gills breathing vertebrates.
13. The future parts of the alimentary canal, which are derived from the fore gut.
14. General four methods for increasing the surface of absorption in a small intestine and parts of large intestine in all chordates in general without mentioning the name of any chordates.
15. Four types of specialized heterodont teeth in mammals, and the two types of cheek teeth
16. Three methods of dentition with their subdivisions and then applied them on your teeth.
17. Two significances for the study of teeth.
18. Two main regions or parts of respiratory system in lung breathing vertebrates.
19. Five types of respiratory surfaces.
20. All organs of the respiratory system of rabbit in sequence, starting from external nares till alveoli.
21. Four types of kidneys and which class or classes of animals have each type.
22. Types of urinary bladders in different vertebrates with examples.
23. Three groups of male mammals with respect to location of their testes, with examples.
24. 3Fates of cloaca with one animal as examples for each fate.

Q3. Give the reasons for the following?

1. Aquatic chordates need mucous glands in their skins.
2. Skin of terrestrial animals, like lizards, lack mucous glands and covered by thick corneal layer.
3. Adult amphibians able to use skin as a respiratory surface.
4. We can prove that endoskeleton has a role in respiration.
5. We can prove that endoskeleton has a role in hearing.
6. The intestine of dogfish is efficient for nutrient absorption.
7. Most carnivores, like dogs, lions pant, by stick out its wide, long and vascular tongues.
8. Teeth of frog larva and adult larva are analogous organs.
9. Embryo of birds and most reptiles has egg tooth but of frogs lack it.
10. Pharynx of adult lamprey separated from esophagus to be blind sac, while in larval stage continue with esophagus.
11. Intestine of dogfish is considered as undifferentiated intestine.
12. Pharynx is considered as alimentary and respiratory organ in same time but its respiratory role is greater.
13. In vertebrates, digestion is completed in the anterior part of intestine.
14. The design of the alimentary canal of birds differ from other vertebrates, where they have crop and muscular stomach (gizzard).
15. Parts of the ruminant stomach: rumen, reticulum, and omasum are modified esophagus and not parts of true stomach.
16. Although amphioxus is primitive chordate it has anus and not cloaca.
17. Cartilaginous fishes don't need swim bladders.
18. Bony fishes need swim bladders.

19. Lungfishes can live underground without water medium.
20. Study of urinary and reproductive systems under one system, urogenital system.
21. Some vertebrates must need extrarenal methods to discharge excess salt from their blood.

Q4. Give short notes (define) for the following?
1. Two major concepts of comparative anatomy.
2. Luminescent glands or Photophores.
3. Scent glands.
4. Femoral glands.
5. Bristle feathers.
6. Dental formula.
7. Egg tooth.
8. Crop.
9. Gizzard.
10. Abomasum.
11. Physostomous gas bladder.
12. Physoclistous swim bladder.
13. Malpighian or renal corpuscle.
14. Wolffian and Mullerian ducts.

Q5. Give the differences between the following?
1. Structure of skin of frog and reptiles.
2. Structure of skin of amphioxus and lamprey.
3. Skin of dogfish and lamprey.
4. Antlers and true hollow horns, with drawing.
5. Antlers of giraffe and deer, with drawing.
6. Endoskeleton bone and dermal bony exoskeleton.
7. Epidermal exoskeleton and dermal bony exoskeleton.
8. Section of udder (mammary glands) of artiodactyles and dug (mammary glands) of other mammals except monotremes.
9. Teeth of lizard and cat.
10. Down feather and hair feather, with drawing.
11. Tusks of walrus and narwhale.
12. Intestine of pigeon and rabbit.
13. Differences between respiratory system of dogfish and bony fish (3 differences).
14. Gas bladder and swim bladder, with drawings.
15. Pronephros and mesonephros.

Q6. Draw and label only?
1. Contour feather.
2. Photophore.
3. Mammary gland section in 3 groups of mammals.

4. Longitudinal section in heterodont tooth.
5. Alimentary canal of adult lamprey.
6. Amphioxus whole mount.
7. Stomach of deer.
8. Respiratory system of dogfish.
9. Development of the 3 main types of kidneys, of modern vertebrate, from the ribbon of intermediate mesoderm, in succession and antero-posteriorly.
10. Fate of both Wolffian and Mullerian ducts when the sex of the embryo is female.
11. Fate of both Wolffian and Mullerian ducts when the sex of the embryo is male.
12. Structure of mammalian nephron.