



Final Exam of Selected topics in zoology (1)

2023-2024



Assiut University

Time: 2 Hours

Faculty of Science

Corse Code: 401 Z

Department of Zoology

Total degree: 10

Answer the following questions: Note: Questions are in 4 pages

I: Choose the correct answer :(35 marks one for each point).

1. Which of the following statements is true about Entomology?

- (a) the study of Birds (b) the study of Insects
(c) the study of Microbes (d) the study of Parasitic worms

2. Which of the following are the characteristic features of an Insect?

- (a) Pair of antennae (b) three pairs of legs (c) Pair of wings (d) All of the above

3. Hide Beetles belong to family.....

- (a) Histeridae (b) Silphidae (c) Cleridae (d) Dermestidae

4. Insects are classified into the phylum.....

- (a) Nematoda (b) Mollusca (c) Arthropoda (d) Platyhelminthes

5. Remains are usually intact and free of insects in stage.

- (a) Fresh (b) Advanced decay (c) autolysis (d) both (a & c)

6. Mainly bones and hair remain. Odor is primarily that of normal soil and litter.

- (a) Days 10-25 (b) Days 5-11 (c) Days 1-2 (d) Days 25+

7. Decomposition of the gastrointestinal tract results in a dark, foul-smelling called.....

- (a) Purge fluid (b) livor mortis (c) autolysis (d) none of them

8. Rigor mortis appears in..... stage.

- (a) bloat (b) fresh (c) dry (d) Advanced decay

9. Phylum : Arthropoda is characterized by....

- (a) includes insects, spiders, & crustacean
(b) respiration by spiracles and trachea
(c) have compound eyes
(d) All of the above



10. Blowfly maggots are.....

- (a) smooth maggots (b) hairy maggots (c) adult (d) both (a & b)

11. The blow fly life cycle has.....parts.

- (a) six (b) ten (c) eight (d) four

12. Which of the following statements is true about spiders?

- (a) Spiders are venomous (b) Spiders have eight legs
(c) Spiders have 2 division in their bodies (d) All of the above

13.cannot expand so arthropods must molt in order to grow.

- (a) exoskeletons (b) eyes (c) antennae (d) intestine

14.are small to minute terrestrial beetles.

- (a) Nitidulids (b) sap beetles (c) Silphids (d) both (a & b)

15. Carcass actively decaying atstage.

- (a) dry (b) fresh (c) Advanced decay (d) bloat

16. The remains are often dried out and begin to skeletonize inStage.

- (a) dry (b) remains (c) skeletonized (d) All of the them

17. Scarab beetles arrive when the body is.....

- (a) completely dry (b) moist (c) flesh (d) none of them

18. Factors effect on the rate of decomposition.

- (a) Body size (b) Clothing (c) Cause of death (d) All of them

19. Breakdown of protein and carbohydrates into simpler compounds.

- (a) Days 10-25 (b) Days 25+ (c) Days 1-2 (d) none of them

20. Remains are skin, cartilage, and bones in Stage.

- (a) Post-decay (b) remains (c) fresh (d) bloat

21. Putrefaction begins. Gasses produced by anaerobic bacteria inflate the abdomen

- (a) Bloated (b) remains (c) Day 2-6 (d) both (a&c)

22. Rove Beetles belong to family.....

- (a) Dermistidae (b) Staphylinidae (c) Cleridae (d) none of them

23. Excretory system of arthropods is characterized by:

- (a) Pinocytes (b) Flame cells (c) Malpighian tubules (d) none of them



24. Clerids are

- (a) Commonly known as checkered beetles (b) The larvae feed on dried fat
(c) Both the larvae and the adults are predatory (d) All of them

25. Forensic science is the application of science to

- (a) Criminal law (b) civil law (c) Consumer law (d) both (a&b)

26. Which of the following are the main characteristic features of arthropods?

- (a) antennae (b) three pairs of legs (c) Pair of wings (d) jointed foot

27. Fused head and thorax called.....

- (a) Abdomen (b) stomach (c) cephalothorax (d) None of them

28. Forensic science, also known as.....

- (a) criminalistics (b) Paleontology (c) Meteorology (d) Astronomy

29. Forensic scientists collect evidence such as

- (a) DNA (b) fingerprints (c) fire debris (d) All of them

30. Carcass beetles are.....

- (a) large beetles (b) with very thick exoskeletons
(c) feed on dried remains (d) All of them

31.is the process in which the organs and complex molecules of animal break down into simple organic matter over time.

- (a) ballistics (b) Decomposition (c) fire debris (d) fingerprints

32. Arthropods are thought to be so very successful because of

- (a) Their small size and Reproductive potential
(b) Ecological diversity
(c) Ability to utilize many food sources
(d) All of the above

33.will speed up the rate of corpse decomposition.

- (a) Higher temperatures (b) Cooler temperatures
(c) Sunlight availability (d) both (a&c)

34.have chewing mouthparts.

- (a) flies (b) beetles (c) nemtods (d) both (a&b)



35. The rate of decomposition of human remains can vary due to environmental factors...

- (a) temperature (b) oxygen (c) humidity (d) All of them

II: Put (✓) and (X): (15 marks, 1.5 mark for each).

- 1) Pooling of the blood on the side of the body that is closest to the ground appears in bloat stage ().
- 2) The temporary stiffening of the limbs due to chemical changes in the muscles means rigor mortis ().
- 3) In bloat stage producing foul-smelling chemicals including putrescine and cadaverine ().
- 4) The cheese fly is a species of fly from the family Sarcophagidae ().
- 5) The beetles that eat dead flesh are those that belong to the subfamily Necrophorinae ().
- 6) Blowflies can pick up faint traces of the odor of decay from up to 20 km away and lay their eggs in a suitable corpse ().
- 7) Blow flies are one of the last insects to arrive at a cadaver; they prefer fresh, moist flesh ().
- 8) Adipocere, or corpse wax, may be formed, inhibiting further decomposition in bloat stage ().
- 9) At fresh stage, the microorganisms residing in the digestive system begin to digest the tissues of the body ().
- 10) Most flesh flies breed in dead animals, dung, or decaying material, but a few species lay their eggs in the open wounds of mammals; hence their common name ().

With best wishes

End

Dr. Fatma El-Zahraa A. Abd El-Aziz



Question I: choose the correct answer

1- If two organisms are in the same phylum, they must also be in the same.....

- a) Class b) Species c) Kingdom

2- The current classification system was devised by

- a) Aristotle b) Linnaeus c) Darwin

3- The superorder Lepidosauria is considered..... group

- a) monophyletic b) Paraphyletic c) Polyphyletic

4- Which of the following is NOT a Strepsirrhines primate?

- a) Lemurs b) Pottos c) Tarsiers

5- Which level of organization in taxonomy is the most specific?

- a) Domain b) Species c) Family

6- What was Linnaeus's classification system based on?

- a) their geographic origin
b) their similarities and differences
c) their phylogenetic relationships

7- Which of the following statements about taxonomic levels is correct?

- a) Family is more specific than order
b) Class is less specific than phylum
c) Species is the most general

8- Which of the following is a definition of flight-less bird group?

- a) Ratite b) elephant birds c) Seabirds

9- Which of the following statements is not true?

- a) Monotremes are the only group of living mammals that lay eggs
b) Monotremes are reptiles-like mammals
c) Monotremes have a clavicle

10- Which level of classification could contain all eukaryotic organisms?

- a) Domain b) Kingdom c) Species

11- is aquatic placental marine mammals with size from the 2.6 metres and have skulls with small eye orbits, long snouts

- a) Bats b) Rodents c) Whales

12- The sarcopterygians were known once as.....

- a) Choanichthyes b) Chondrichthyans c) None of them

13- Which of the following group do not use claspers, though some species use their anal fins as gonopodium for the same purpose?

- a) Bony fish b) Shark c) All fish

14- Which one of the following is not a rule while writing the name of an organism, according to the principles of biological nomenclature?

- a) The name of the genus should begin with a capital letter
b) The name of the class should be italicized.
c) The name of the species should begin with a small letter

15- Which of the following features apply to birds?

- a) Lack temporal fenestrae and breathing by help air sacs
b) Endothermic and have pair temporal fenestrae
c) Endothermic, have developed sternum, and pair of ovary

16- What do we call the group of animals with a gastrilia?

- a) Mammals b) Birds c) Reptiles

17- The only of animals that lives in the water breathing with gills and lacking jaws but possessing a muscular pump to produce food-bearing water current.

- a) Hagfishes and lampreys b) Amphioxus c) Only Hagfish

18- Which of the following is not a characteristic of an organism belonging to the Phylum chordates?

- a) Bilateral symmetrical
b) Body Dorsoventrally Flattened

- c) True Coelom
- 19- Which of the following is a unique characteristic that distinguishes a Columbiformes from other predator's birds?**
- a) The crop secretes a nutritional fluid called "milk,
 - b) Sharp claws
 - c) Shiny feathers
- 20- Which of the following is a unique characteristic that distinguishes caecilians from other amphibian?**
- a) Scales are present, and skull is solid and compact.
 - b) Most bones of skull are lost
 - c) Smooth body and no trace of limbs or girdles
- 21- Pisces and Reptilian are considered a taxa**
- a) Polyphyletic
 - b) Monophyletic
 - c) Paraphyletic
- 22- Theory of the origin of Chordates from Annelids and Arthropods based on**
- a) Homoplasy
 - b) Homology
 - c) Analogy
- 23-is being only major group of jawed vertebrates to ever become entirely extinct without descendents.**
- a) Ostracoderms
 - b) Placoderms
 - c) Cyclostomes
- 24- Monophyletic taxa include**
- a) Mammalia and Aves
 - b) Reptiles and aves
 - c) Fish and Aves
- 25- Some fish biologists divide actinopterygians into**
- a) Chondrosteans and holosteans
 - b) Only teleosts
 - c) Both a& b

Question II: Choose whether the statement is true or false:

- 26-The acanthodians sister group of the bony fishes.
- 27-The gill openings of chimaeras are exposed to the surface, but covered exteriorly by skin folds.
- 28-Palaeognathae contains extant branches of flightless birds
- 29-Theory the origin of chordates from echinodermata on the embryonic similarities.
- 30-The lower jaw of birds is composed only of the dentary bone.
- 31-Evolution of early vertebrates was characterized by increasingly active life style hypothesized to proceed in four major steps.
- 32-Osteichthyans are only fishes to contain bone in their skeletons.
- 33-Absent true centra helps distinguish placoderms as a clade.
- 34-Monophyletic taxon is defined as one that does not include the common ancestor of all members of the taxon.
- 35-The vestibular apparatus includes two semicircular canals in petromyzon.
- 36-The Lissamphibia arose within the Lepospondyls radiation, specifically from temnospondyls.
- 37-Agnathan and Insectivora mammals are considered as Paraphyletic taxa.
- 38-Snakes skull have both upper and lower temporal bars.
- 39-The segmentation and jointed appendages of arthropods are like the chordate myotomal segmentation.
- 40- In mammals, the nutritional and respiratory needs of the young are provided through a placenta.
- 41- birds is sister group of the dinosaurs.

42-In most rays, the pointed teeth are backed by rows of replacement teeth, each ready to rotate into position to take the place of a broken or lost functional tooth.

43-Bony fishes consist of two groups; actinopterygians and sarcopterygians.

44-Frog and toad have no "eardrum," or tympanum.

45-lizards lack movable eyelids and an external auditory meatus.

46-a clade also known as a monophyletic group.

47- Eagles laying the largest eggs of any living land animal.

48-Platypus lack nipples, have external ears, and embryos develop in shelled eggs.

49-Ruminants include Giraffes, deer, cattle, bison, sheep, and goats.

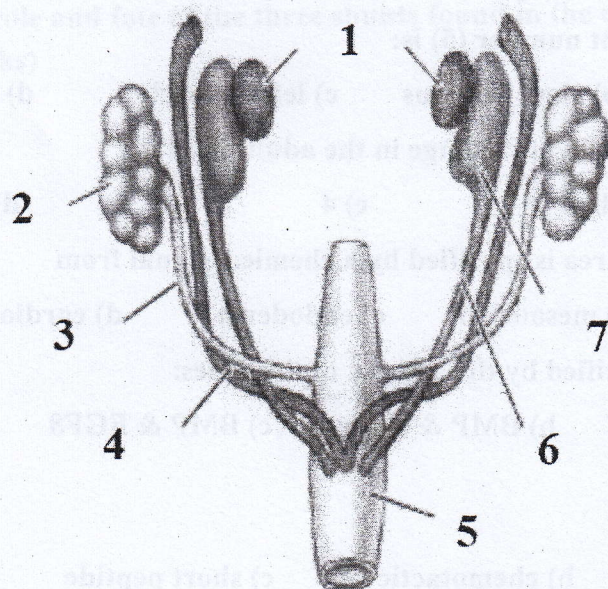
50-Hagfishes have trace of vertebrae on or around their notochord.



Assiut University	Final exam of Developmental	Jan., 2 nd 2024
Faculty of Science	Biology (Z 437) for Zoology	Time: 2 hours
Department of Zoology	students	Total marks: 50

Exam Is In 8 Pages. Use Labeled Drawings When Possible

A- Choose the right answer: (one mark each)



1- In the embryonic urogenital system above, the bipotential element is:

- a) 1 b) 2 c) 3 d) all

2- In embryos the elements that will never change fate is:

- a) 1 & 2 b) 2 & 3 c) 1 & 3 d) 1 & 5

3- Uterus is developed as a result of union of the two bilateral elements:

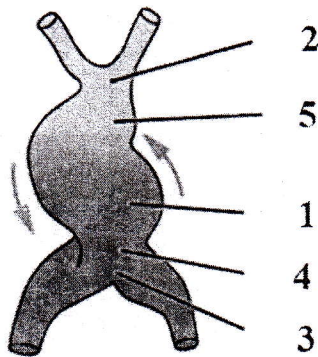
- a) 3 & 3 b) 4 & 4 c) 6 & 6 d) 7 & 7

4- Epididymis will be derived as a part of the element:

- a) 4 b) 5 c) 6 d) 7

5- Without the activity of SRY gene the element that will not disappear is:

- a) 4 b) 5 c) 6 d) 7



- 6- Element number (1) in the embryonic heart above is:
 a) primitive ventricle b) primitive auricle c) septum primum d) myocardium
- 7- The fate of element number (5) is:
 a) Left atrium b) sinus venosus c) left ventricle d) right ventricle
- 8- The element that will not change in the adult heart is:
 a) 1 b) 2 c) 4 d) none
- 9- The cardiogenic area is specified by a chemical signal from
 a) ectoderm b) mesoderm c) endoderm d) cardiogenic cords
- 10- Heart field is specified by the activity of the genes:
 a) BMP & Chordin b) BMP & Noggin c) BMP & FGF8 d) BMP
- 11- Speract molecule is a
 a) sperm activator b) chemotactic c) short peptide d) all of them
- 12- Cell induction involves
 a) inducer b) responder c) mediator d) all of them
- 13- The chemotactic factor in mammals is
 a) estrogen b) progesterone c) estradiol d) none
- B- State true (✓) or false (x): (one mark each)
- 14- Mesonephros is not functional in the mice embryo. ()
- 15- Dorsoventral limb axis is determined by the activity of Shh gene. ()
- 16- Thermotaxis is a controlling factor in mammalian sperm orientation. ()
- 17- Gastrulation process provides cells new positions and new neighbors. ()
- 18- Shh receptor is a cell surface protein called Patched which interacts with another cell surface protein Frizzled. ()
- 19- FGF expression in embryo gut is up regulated from posterior to anterior ()
- 20- N- cadherin is found in the chick leg to ensure nervous communication ()

Complete the following sentences (one mark each):

21- The embryonic origin of the iris is

22- The main player gene in eye development is

23- In some animals eyes skeletal elements might be found in

24- The process by which an embryo acquires the first cavity is called

25- Technology used to avoid genetic diseases is called

26- Explain the role and fate of the three shunts found in the circulatory system of the fetus. (5 marks)

27- Why oocytes can remain for years with incomplete meiosis and how can they complete it? (5 marks)

28- Compare the role of cell death and controlling genes in role in sculpting the limb in chick and duck embryos. (5 marks)

29- Write in details the significance and mechanism of cell migration (5 marks)

Arden University	Final exam of Developmental Biology (2022/2023)	Page 1 of 1
Faculty of Science	Biology (2022/2023)	Examiner
Department of Zoology	Student	Mark

Exam is in 8 Pages. Use Pencil Drawing. Write clearly.

A. Choose the right answer. (5 marks each)

30- How can the fertilized ovum prevent polyspermy? Explain in details (5 marks)

End of questionsBest of Luck

Dr. Reda A. Ali
Prof. Experimental Embryology



Answer all the following questions:

Q1: Choose the correct answer (one answer only): (10 marks)

1. B 12 deficiency leads to:
a)- microcytic anemia
b)- macrocytic anemia
c)- normocytic anemia
d)- thalassemias
2. Hereditary spherocytosis and elliptocytosis or RBCs are:
a)- membrane defects
b)- hemoglobin defects
c)- enzyme defects
d)- iron deficiency
3. Increase in the total RBC mass and Hct > 65% are indicators for:
a)- A plastic anemia
b)- jaundice
c)- polycythemia
d)- Sickle cell anemia
4. The cells that are important for clearing bacterial infections are:
a)- eosinophils
b)- NK cells
c)- basophils
d)- neutrophils
5. The cells which produce antibodies are:
a)- B cells
b)- memory cells
c)- monocytes
d)- T cells
6. Band cells are:
a)- immature neutrophils
b)- mature neutrophils
c)- immature RBCs
d)- immature basophils
7. O blood group person is universal donor because he has:
a)- neither A nor B antigens
b)- O antigen
c)- both anti-A and anti-B Abs
d)- both A and B antigens
8. AB blood group person has:
a)- both A and B antigens
b)- neither A nor B antigens
c)- no antibodies in the plasma
d)- both a and c
9. The transplantation of organs that require no immunosuppressive agents is:
a)- Allotransplants
b)- Xenotransplants
c)- Autotransplants
d)- all the above
10. The cells that complete their maturation in the thymus gland are:
a)- DC cells
b)- macrophages
c)- T cells
d)- lymphocytes

Q2: Fill in the following sentences:

(20 marks)

1. The primary lymphoid organs include..... and
2. The immature RBCs are known as
3. Leukemia is characterized by an abnormal increase of
4. Rh refers to the presence or absence of the.....on the surface of.....
5. The lymphocytes of adaptive immune system are,and.....
6. Hematopoiesis occurs before birth inand, but after birth it occurs in.....
7. The granulocyte that plays an important role in allergic reactions is defined as....., while plays important roles in parasitic infections.
8. The dietary factors and are needed for DNA synthesis, while dietary is needed for hemoglobin synthesis.
9. Thrombocytopenia is a decrease in the number of
10. DC are originated from both and

Q3: Write briefly on two only of the following items:

(20 marks)

- A. The specific inhibitors of clotting factors. (10 marks)
- B. Describe the three types of anemia according to the MCV values and write in detail about hemolytic anemia. (10 marks)
- C. Write in detail about the types of organ transplantation and the associated complications. (10 marks)

انتهت الأسئلة

تمنيتي بالنجاح والتوفيق

أ.د/ جمال جمال بدر

أستاذ المناعة بقسم علم الحيوان والحشرات