

Answer the following questions (50 marks):

A- Fill in the blank spaces (5 marks):

1. The internal mechanism that regulates the process of reproduction is known as -----.
2. As regards biogeography, the Suez canal connects two areas that are separated by a -----.
3. Fishes spawn once during lifetime are known as -----.
4. The osmoregulation in diadromous fishes is controlled by hormones such as -----.
5. Cypriniformes and Perciformes may grind shells and called -----.
6. Colonization of tropical shore species around the Cape is entirely in a westerly direction from the ----- into the Atlantic.
7. Salmonids are ----- fishes whereas the eel *Anguilla anguilla* are ----- fishes.
8. Fishes breed at regular intervals during a season within a year are known as ----- fishes.
9. Maintaining steady state equilibrium in the internal environment of an organisms is known as -----.
10. Reduction in growth rate is recorded when dissolved oxygen concentrations fell below approximately ----- at -----°C.

B- Label the correct statement with True (T) and the incorrect one with False (F) (5 marks):

1. Growth rate of immature fish are much faster than those of mature fish. (-----)
2. a number of shore species have migrated into the Atlantic by going around the southern tip of south America. (-----)
3. In positive allometric growth, the shape of fish does not change over time (-----)
4. The Indo-West Pacific does not serve as the center of origin of fishes. (-----)
5. Amazon River fish switch from invertebrates to detritus in the rainy season. (-----)
6. Stenohaline tolerate a narrow range of salinities in external environment - either marine or freshwater ranges (-----)
7. The clithrum and opercular bones are not suitable for age determination. (-----)
8. Freshwater bony fish are hyperosmotic facing challenge to homeostasis: constant loss of water from body to environment by osmosis (-----)
9. Herbivores are represented by > 5% of all bony fishes and no cartilaginous (-----)

- fishes.
10. In Euryhaline bony fish, hormone-mediated changes are associated with metamorphosis - convert from freshwater adaptations to saltwater or vice versa, depending on direction of migration (-----)
 11. Scavengers are represented by 5-10% of all fish species. (-----)
 12. In freshwater Chondrichthyes, rectal gland is reduced, but present and urine flow is low. (-----)
 13. In the most highly evolved Elasmobranches, the anterior end of the premaxilla develops what's called an ascending process. (-----)
 14. Hagfishes and lampreys have been assigned to separate Craniate classes, which means that the name "Agnatha" is a paraphyletic assemblage of jawless fishes. (-----)
 15. The primitive gape and suck feeding mechanism as in *Elops* provide the raw material for the evolution of protrusible jaws. (-----)
 16. Chondrichthyes have internal fertilization, but sharks may be oviparous, ovoviviparous, or viviparous. (-----)
 17. Instead of a toothed mouth, the jaws of chimaeras bear large flat plates in their jaws, the upper one of which is completely fused to the cranium. (-----)
 18. *Micropterus salmoides* consumes food at 10C three times than that in 20C. (-----)
 19. Continental drift is the theory that the Earth's continents have moved over geologic time relative to each other, thus appearing to have "drifted" across the ocean bed (-----)
 20. Fishes with high RGL = species consuming detritus and algae with high proportion of indigestible matter. (-----)

C- Choice the correct answer of each list in the following (15 marks):

1- Pituitary growth hormone in fishes leads to:

- a) increases appetite and increases food conversion efficiency
- b) decreases production of somatomedin
- c) both of a & b
- d) nothing of the above

2- Anabolic steroids stimulate growth including:

- a) testosterone and estrogen
- b) progesterone
- c) corticosteroids
- d) both of a& c

3- Wintering migration includes:

- a) Cata- and ana-dromous migrations
- b) Potamo- and oceano-dromous migrations
- c) All the above
- d) Nothing of the above

4- Gametic migration includes:

- a) Cata- and ana-dromous migrations
- b) Potamo- and oceano-dromous migrations
- c) All the above
- d) Nothing of the above

5- Protection mass movements of fishes includes:

- a) Spawning and wintering migrations
- b) Feeding migration
- c) All the above
- d) Nothing of the above

6- Maturity stage 1 is concerned with

- a) Oocyte development
- b) Vitellogenesis
- c) Oocyte maturation
- d) Spawning

7- Maturity stage 3 is concerned with

- a) Oocyte development
- b) Vitellogenesis
- c) Oocyte maturation
- d) Spawning

8- The food supply is a determining factor of:

- a) Distribution and abundance
- b) Condition and rate of growth
- c) Migration and fertility
- d) All the above
- e) Nothing of the above

9- The length-weight relationship is negative allometric when the allometric coefficient is:

- a) Less than 3
- b) Larger than 3
- c) Equal to 3
- d) Nothing of the above

10- The length-weight relationship is positive allometric when the allometric coefficient is:

- a) Less than 3
- b) Larger than 3
- c) Equal to 3
- d) Nothing of the above

11- Europhagous plankton feeders have:

- a) Mixed diet.
- b) A limited sort of food.
- c) One sort of food.
- d) Nothing of the above

12- Maturity stage 4 is concerned with

- a) Oocyte development
- b) Vitellogenesis
- c) Oocyte maturation
- d) Spawning

13- Oocyte maturation in fishes includes:

- a) Germinal vesicle (nucleus) migration
- b) Resumption of meiosis (cell division)
- c) Water uptake
- d) All the above

14- Advantages of indeterminate growth in fishes includes:

- a) Greater efficiency and more food options
- b) Faster swimming and larger gape size
- c) Better sensory range
- d) All the above
- e) Only a&c

15- Maturity stage 2 is concerned with

- a) Oocyte development
- b) Vitellogenesis
- c) Oocyte maturation
- d) Spawning

16- The length-weight relationship is isometric when the allometric coefficient is:

- a) Less than 3
- b) Larger than 3
- c) Equal to 3
- d) All the above
- e) Nothing of the above

17- Length-scale relationship can be expressed in the following formula:

- a) $W = a * L^b$
- b) $\log_{10} W = \log_{10} a + b * \log_{10} L$
- c) Both of a& b
- d) Nothing of the above

18- Stenophagous plankton feeders have:

- a) Mixed diet.
- b) A limited sort of food.
- c) One sort of food.
- d) Nothing of the above

19- Energy used to maintain fish healthy is affected by:

- a) Temperature
- b) Dissolved oxygen
- c) Toxins
- d) All the above
- e) Both of a&c

20- Monophagous plankton feeders have:

- a) Mixed diet.
- b) A limited sort of food.
- c) One sort of food.
- d) Nothing of the above

21- Teeth in piscivorous fishes are

- a) Strong and a cutely pointed.
- b) Single plate
- c) Nibbling mouth with incisiform teeth.
- d) Small teeth feeble.
- e) Toothless mouth but with pharyngeal teeth and horny pad.

22- Teeth in molluscivorous fishes are:

- a) Strong and a cutely pointed.
- b) Single plate
- c) Nibbling mouth with incisiform teeth.
- d) Small teeth feeble.
- e) Toothless mouth but with pharyngeal teeth and horny pad.

23- Teeth in plankton feeder fishes are:

- a) Strong and a cutely pointed.
- b) Single plate
- c) Nibbling mouth with incisiform teeth.
- d) Small teeth feeble.

- e) Toothless mouth but with pharyngeal teeth and horny pad.

24- Teeth in herbivorous fishes are:

- a) Strong and a cutely pointed.
- b) Single plate
- c) Nibbling mouth with incisiform teeth.
- d) Small teeth feeble.
- e) Toothless mouth but with pharyngeal teeth and horny pad.

25- Teeth in scavenger fishes are:

- a) Strong and a cutely pointed.
- b) Single plate
- c) Nibbling mouth with incisiform teeth.
- d) Small teeth feeble.
- e) Toothless mouth but with pharyngeal teeth and horny pad.

26- A bipartite life cycle can best be described by

- a) hermaphroditic fishes that spend part of their life as a male and the other as a female
- b) fishes that spend part of their life in fresh water and part of their in salt water
- c) fishes reside part of their life in the pelagic environment as larvae and

part of their life in the benthic environment

- d) fishes that maintain cartilaginous skeletons initially and then calcify their skeletons later

27- Dispersal and vicariance are

- a) two modes of dispersal of marine organisms
- b) two equivalent terms that describe the formation of zoogeographic boundaries.
- c) two opposing terms that describe the formation of zoogeographic boundaries
- d) two mechanisms that result in the formation of genetically divergent populations

28- Limit of fish sizes are important because

- a. egg production is linearly correlated with female fish size
- b. egg production is exponentially correlated with female fish size
- c. fish mortality is linearly correlated with fish size

29- Overfished stocks have:

- a) Fast growth and good condition
- b) Small average size of fish caught
- c) Both a&b
- d) Nothing of the above

30- *Gambusia affinis* has:

- a) Dorsal fin as modified sucker
- b) Pectoral fins modified as serrate
- c) Anal fin as gonopodium
- d) Pelvic fins modified as claspers

31- Continental drift has mostly influenced the distribution of:

- a) Freshwater fishes
- b) Marine fishes
- c) brackish water fishes
- d) all of the above
- e) none of the above

32- Limit of fish sizes are important because

- a) egg production is linearly correlated with female fish size
- b) egg production is exponentially correlated with female fish size
- c) fish mortality is linearly correlated with fish size
- d) fish mortality if exponentially correlated with fish size

33- Flying fishes have modified fins that help them glide. These are:

- a) pelvic fins
- b) caudal fin
- c) pectoral fin

d) all of the above

34- Swimbladders are filled

- a) passively with oxygen
- b) passively with nitrogen
- c) actively with oxygen
- d) actively with nitrogen

35- Hybridogenetic species are

- a) Female lineages that mate with males from a different species
- b) Male lineages that mate with females from a different species
- c) Two unisexual species that mate with each other
- d) Two asexual species that mate with each other

36- Sexual selection deals with one component of fitness

- a) Mating success
- b) male fitness
- c) female fitness
- d) offspring fitness

37- Courtship displays, female choice, and aggressive male behaviors are all driven by

- a) Sexual selection
- b) Asexual selection
- c) Natural selection
- d) Genetic drift

38- Which is the proper order of the evolution of parental care in fishes

- a) No care; biparental care; male care; female care
- b) No care; male care; biparental care; female care
- c) No care; female care; biparental care; male care
- d) Female care; male care; biparental care; no care

39- Schreckstoff is

- a) The fear hormone
- b) A high latitude freshwater fish
- c) Used in sexual selection
- d) An adaptation to cold water

40- What type of reproduction for a unisexual species does the following example represent: A female of species A uses sperm

from species B to produce a daughter with genotype AB. The eggs that the daughter produces via meiosis only contain alleles from species A.

- a) Parthenogenetic
- b) Hybridogenetic
- c) Gynogenetic
- d) None of the above

41- Fish drinks water, urinates little and expels extra salts via the chloride cells.

This scenario describes the osmoregulation strategy of a

- a) Shark
- b) Freshwater bony fish
- c) Marine bony fish
- d) Lamprey

42- In cartilaginous fishes, body fluids are isosmotic with environment due to:

- a) Mineral concentration = 500 mOsm/l
- b) Urea 440 mOsmol/l
- c) Trimethyl Amine Oxide = 70 mOsmol/l
- d) All the above

43- The Mississippi River fish fauna are more diverse than anyplace else in North America because of:

- a) Age allowed lots of time for evolution
- b) Persistence provided a stable habitat over geologic time
- c) North-South orientation provided a refuge during glaciation
- d) Input from different drainage basins that are isolated
- e) Wide diversity of habitats
- f) All the above

44- Which of the following statements is true?

- a) Lampreys comprise hundreds of extant species, most of which are parasitic
- b) Lampreys have incipient paired appendages, unlike other members of the Class Cephalospidomorphi
- c) Lampreys have a single gonad, external fertilization, and a long larval stage known as the bipinnaria larva
- d) No lampreys ascend freshwater streams to breed—they are only marine
- e) The larva of lampreys bear a remarkable resemblance to amphioxus.

45- Glaciations played a role in shaping the genetics of some:

- a) freshwater fishes
b) marine fishes
c) brackish water fishes
d) all of the above
e) none of the above

**D- Write the term or the identification of term in the blank cell of the following table?
(5 marks):**

Term	Identification
1.	A structure designed to allow fish the opportunity to migrate upstream over a barrier to fish movement.
2. Dispersal in biogeography	
3. Bioenergetic law	
4.	The upper jaw not fused to the braincase, and the hyomandibular arch is involved in jaw suspension
5. Vicariance	
6.	Addition of sperms to eggs then addition of water
7. Gonadosomatic index	
8.	Migratory, confined to sea only eg. Tunnas, Mackerels
9. Osmoconformers	
10. Fecundity-size equation	

E- Answer six of the following questions including the first two questions and the 7th one (20 marks):

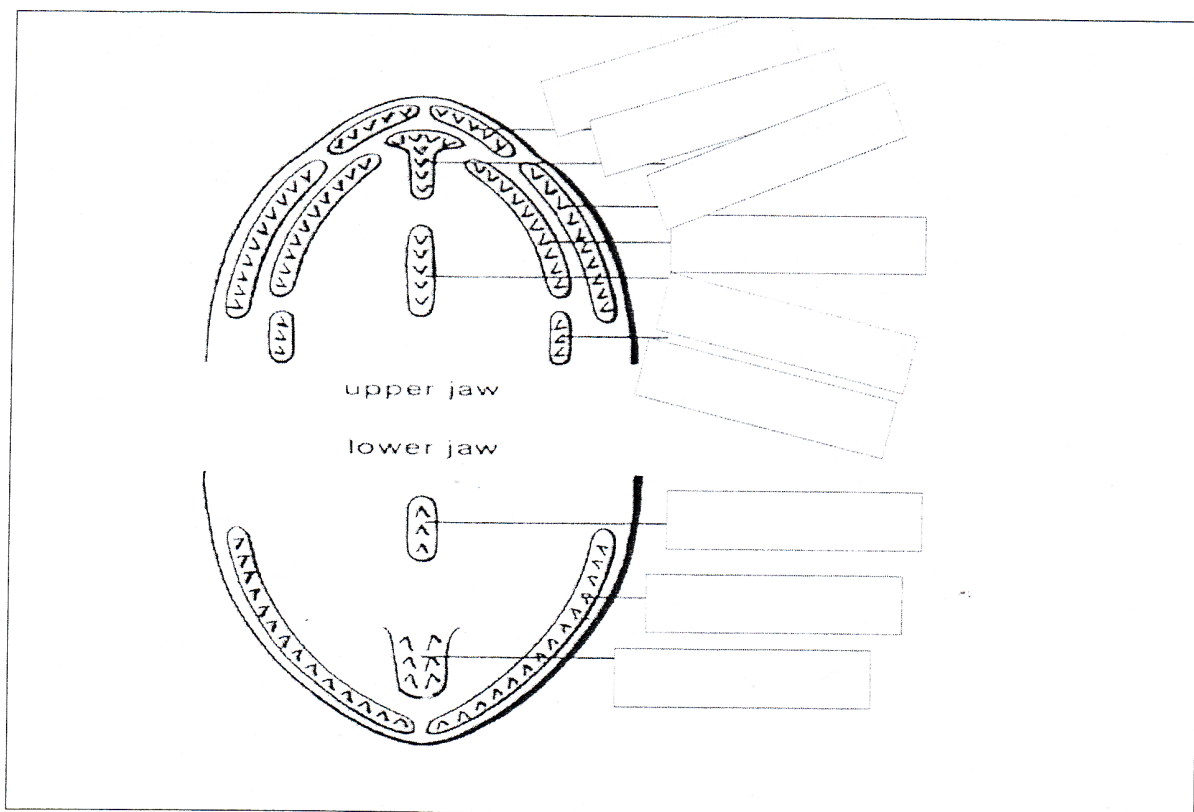
Egypt, Assiut University Student Name -----
Faculty of Science, Level: -----
Zoology Dept.

Student Name _____
Level: _____

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1. What are the anatomical requirements and feeding strategies for a fish to be called herbivores? Mention examples? (4 marks)
2. Discuss the types of migration in relation to osmoregulation mechanisms in Anguilla Anguilla, Salmon and lamprey? What are the types of spawning migration? (4 marks)

3. Write a title to the following figure with labels? (3 marks)



4. Enumerate the methods of growth rate measurements with criteria of back-calculations? (3 marks)

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5. Compare between the Pleurotremata and Hypotremata in the following table? (3 marks)

Characters	Pleurotremata	Hypotermata

6. Mention different factors influencing mass movements of fishes and the role of hormones? (3 marks)

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7. Define fish biogeography and its types and mention types of barriers for freshwater and marinewaters fishes? (3 marks)

8. Mention the equations used in back-calculation of fish length and mention the assumption on which back-calculations from rings of fish scales are based? (3 marks)

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9. Write short note on the alimentary tract adaptations in fishes according to their food and feeding habits? (3 marks)

-----BEST WISHES- IMAM MEKKAWY-----



Faculty of Science

Assiut University

Dept. of Zoology

Exam of Animal Ecology Code No.

Credit hour system 2nd level. January 2019

Answer the following questions:

A- Write the scientific term of the following:

- 1-An assemblage of populations in a given area.
- 2- The absolute quantity of water vapor present in the air.
- 3-The factor which determines the types of organisms which may exist in that environment
- 4-The range of the environmental conditions within which the organism can tolerate.
- 5-The maintenance of conditions within the range that the organism can tolerate.
- 6-The formation of a pair bond between one male and one female.
- 7-The individual female gains two or more males.
- 8-The number of births in a given time period.
- 9-Species that sometimes regulate their body temperature and sometimes do not.
- 10-A relationship in which both organisms benefit from each other.

B- Write the missing word or words in the following:

- 1- The three basic classes of organisms in a food web includes,,
- 2-..... are the producers in the ecosystems which live in very deep water.
- 3-is a type of reproduction in which the ova do not need to be fertilized to develop.
- 4-is the eating of one living organism (prey) by another (predator).
- 5-.....is killing and eating an individual of the same species.
- 6-.....in the ecosystem include plants and animals.
- 7- Individuals are distributed..... if the position of each is independent of the other's.
- 8- is the number of individuals per unit of space.

- 9-..... is the number of individuals dying in a given time.
10-is the replacement of one kind of community with another.

B-Choose the correct answer from the following:

- 1-The visible light includes (Ultra violet light-Infra red-the well known 7 colors).
- 2-The animals which are active during day time are known as (diurnal-nocturnal- both).
- 3-Light affects (the color of animals- morphology-both).
- 4-Eutherns are (widely distributed-restricted in their distribution-both).
- 5- The temperature affects (the physiology of animals- morphology- both).
- 6- The maximum rate at which a population can increase under ideal conditions is known as (biotic potential- biotic potential- biotic potntial).
- 7-A few number of young is characteristic of (short lived animals – long lived animals – both).
- 8- The organisms that break down wastes and dead organisms are known as (decomposers- producers- consumers).
- 9- The (carrying capacity-biotic potential–biotic factor) represents the highest population that can be maintained for an indefinite period of time by a particular environment.
- 10- The population includes similar (individuals- community- ecosystem)

C- Answer the following:

- 1- Apply your knowledge to analyze some of the abiotic factors which you may find in the river Nile.
- 2-Analyze the causes of death at high temperature.
- 3-Apply your knowledge on how light affect the behavior of animals.
- 4- On the light of your study of ecology: write three recommendations (توصيات) for people.
- 5- Apply your knowledge on how animals modify toward moisture.

Good Luck

	امتحان الفصل الدراسي الأول لطلاب كلية العلوم للعام الجامعي 2019-2018	
القسم الذي يقدم المقرر: الوراثة اسم المادة: (215 ز) أساسيات الوراثة لجنة الممتحنين: د/ بهاء الدين السيد عبد الفتاح	الفرقة: المستوى الثاني (ساعات معتمدة) الزمن: ساعتان د/ محمود أبو السعود الراوي	تعليمات الامتحان
1- يتكون الامتحان من أربعة أسئلة 3- فكر جيدا قبل ان تجيب عن الاسئلة، ولا تجعل قلمك يسبق فكرك	2- يتكون الامتحان من صفحتين 4- الدرجة الكلية للامتحان (50 درجة)	أجب عن جميع الأسئلة الآتية

السؤال الأول:- (10 درجات)

هجت إناث دروسوفيا خليطة في ثلاث مواقع اختباريا مع ذكور دروسوفيا و كانت المسافة بين الموقعين a , b تساوي 20 وحدة على الخريطة والمسافة بين b , c تساوي 10 وحدة على الخريطة وكان معامل التعارض 0.5 والمجموع الكلي للأفراد 1000

$$\frac{A \quad B \quad C}{a \quad b \quad c} \times \frac{a \quad b \quad c}{a \quad b \quad c}$$

المطلوب :- احسب أعداد الطرز الوراثية الناتجة من هذا التلقيح؟ ثم ارسم الخريطة الكروموسومية؟

السؤال الثاني: (15 درجة)

ضع علامة (✓) امام العبارة الصحيحة وعلامة (X) امام العبارة الخاطئة (قم بعمل جدول في كراسة الإجابة به رقم الجملة فقط والعلامة المناسبة)

1	تتحور النسبة المتندلية من 9:3:3:1 في حالة الجينات متماثلة التأثير إلى النسبة 9:7	()
2	الصفات التي تنتقل من الذكور لأبنائها الذكور مباشرة تعرف باسم الوراثة التصالبية	()
3	فرد أصيل لأربعة أزواج من العوامل الوراثية وخليط لثلاثة أزواج يعطى ثمانية أنواع من الجاميطات	()
4	يعتمد تحديد الجنس في نبات الأسبرجس على النظام البيني	()
5	التهجين بين نباتات ♂ S ₂ S ₁ مع نباتات ♀ S ₁ S ₄ يعطي نسل بنسبة 75% في حالة سلسلة اليلات عدم التوافق الذاتي	()
6	الصفات المحددة بالجنس تعني ظهور هذه الصفات في الجنسين بنفس الدرجة.	()
7	النسبة 9:3:4 تمثل الجينات المكملة والتي يلزم لإظهار صفاتها أليل سائد من كل موقع وراثي على الأقل	()
8	شكل العرف في الدجاج حاله من حالات التحور في النسب المتندلية برغم ظهور نفس النسبة 9:3:3:1	()
9	تكون نسبة الاتحادات الجينية الجديدة في حالة الارتباط التام هي 100%	()
10	التلقيح العادي والتلقيح العكسي يعطى نتائج متماثلة في حالة الصفات المرتبطة بالجنس.	()
11	التهجين بين أفراد أرتاب ذات فراء ألبينو ينتج عنه أفراد ذات فراء هيمالايا و ملون و شنشلا	()
12	إذا كانت نسبة X/A في الدروسوفيا تساوي 3/5 فإن الجنس يكون ذكور فائقة	()
13	في حالة وراثة شكل العرف في الدجاج فإن التهجين PpRr X PPrr يعطي جميع أشكال العرف الممكنة	()
14	في حالة الجينات المميطة تزواج أفراد صفراء خليطة وراثياً مع أفراد صفراء أصيلة يعطي نسل بنسبة 2:1	()
15	الصفات السائدة والمتنحية المرتبطة بكروموسوم X تظهر في الذكور بنسبة أكبر من الإناث	()

انظر خلفه
د/ محمد الراوي

السؤال الثالث: (10 درجات)

اختر من العمود (أ) ما يناسبه من العمود (ب) مع كتابة الجملة كاملة في كراسة الإجابة:

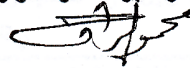
(أ)	(ب)
Gyrase -1	يخلق بادئات RNA قصيرة
SSB proteins -2	يعمل على فك سلاسل الـ DNA عن بعضها في الخيط المزدوج
β - galactosidase -3	إنزيم التضاعف الرئيسي في بكتريا الـ E. coli
DNA polymerase III-4	يزيل الحلزنة الفائقة الموجبة
Helicase -5	تعمل على تثبيت سلاسل الـ DNA المفردة أثناء التضاعف
Poly A polymerase -6	يلعب دور في إصلاح الأخطاء التي تحدث أثناء التضاعف
DNA ligase -7	يحلل سكر اللاكتوز الي جلوكوز وجلاكتوز
Primase -8	يوجد في النواة ويقوم بنسخ الجينات المشفرة لبروتين
RNA polymerase II -9	يصل شظايا الـ DNA المتجاورة (شظايا أوكازاكي)
DNA polymerase II -10	إضافة ذيل عديد الادنين للـ mRNA

السؤال الرابع: (15 درجة)

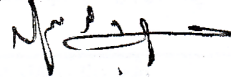
- أ- أذكر فقط متطلبات تفاعل البلمرة المتسلسل (PCR). (5 درجات)
- ب- وضح باختصار مراحل عملية تجهيز الـ mRNA في الكائنات حقيقية النواة. (5 درجات)
- ج- وضح بالرسم فقط تركيب المرفق Promoter في كل من الكائنات غير حقيقية النواة وحقيقية النواة (5 درجات)

إنتهت الأسئلة مع أطيب التمنيات بالتوفيق،،

د/ محمود أبو السعود الراوي



لجنة الممتحنين:- د/ بهاء الدين السيد عبد الفتاح





University: Asyut

Invertebrate II

Total degree = 50

Faculty: Science

Code: 222 Z

Final exam.

Department: Zoology

Jan. 2019

Time: 2 hrs.

The questions are in 2 pages

Q1. Choose between brackets:

(14 marks)

- 1- *Limulus* belongs to (Tantulocarida-Euphausiacea-Merostomata).
- 2- (*Sacculina-Pagurus-Cyclops*) hides in an empty shell.
- 3- The oral surface of (*Gammarus*-sea lily-*Dentalium*) is directed upward.
- 4- (Ommatidia-Pearls-Tagmata) are functional regions formed by fusion of segments.
- 5- Limestone in the earth is formed by (Annelida-Echinodermata-Nematoda).
- 6- (Book lungs-Malpighian tubules-green glands) are blind tubes extend into hemocoel & empty uric acid into gut.
- 7- Presence of a siphon on the stomach of (*Lycosa-Unio-Tripneustes*).
- 8- (Tardigrads-Onychophorans-Pentastomids) can return to life from zero metabolism.
- 9- The secondary gills which have functional nematocysts at the tips are (pinnules-cerata-ommatidia).
- 10- (Crystalline style-Siphuncle-Copula) is cord of tissue connected to visceral mass.
- 11- Poisonous appendage in spider is (pedipalp-chelicera-captacula).
- 12- (*Ophiocoma -Astropectin-Scolopendra*) can't use tube feet in locomotion.
- 13-(Pseudoscorpions-Sea cucumbers-Crabs) eviscerate to avoid predation.
- 14- (Echinoderms-Molluscs-Arthropods) possess system of hydraulic canals performs several functions.

Look behind please!

Q2. Answer six only of the following:

(24 marks)

- 1- Compare only by drawing with labeling blood circulation in both *Buthus* & *Sepia*.
- 2- Differentiate between sea stars & brittle stars.
- 3- Illustrate structure & functions` of silk in spiders.
- 4- Classify Class Maxillopoda and name four genera from different orders.
- 5- Only draw with labeling the nervous systems in both *Penaeus* & *Anodonta*.
- 6- Distinguish digestion in *Lycosa* & *Eremina*. 7- List the characteristics of Arthropoda.
- 8- Demonstrate the formation of pearls only draw with labeling.

Q3: Give the reason (s):

(12 marks)

- 1- Molluscs are protostomes.
- 2- *Octopus* puts its arm in the mantle cavity of the female.
- 3- Arthropods move efficiently and quickly.
- 4- Sea urchins can scrape off algae, seaweeds & sea grasses.
- 5- *Sepia* is an intelligent animal.
- 6- Tadigrades are similar to arthropodes.
- 7- *Holothuria* protects itself from predation.
- 8- *Conch* has asymmetrical visceral mass.
- 9- Gymnosomes can feed easily upon thecosomes.
- 10- Flattening & folding of the gill filaments in *Anodonta*.
- 11- Arthropods are successful.
- 12- Cerata in aeolids play important role in feeding.

----- End -----

هناء عاطف جودة

بالتوفيق و السداد



University: Assiut

Evolution / Code: 213

Faculty: Science

Time: 2 hr / Total degree: 50

Department: Zoology

Final exam. Jan. 2019

Answer the following questions: Note: Questions in 2 pages

Q1: Choose the correct answer:

(18 marks)

- 1- Finches of Galapagos are examples of (variation – microevolution-speciation).
- 2- Mutations give rise to (macroevolution-new species-abnormalities).
- 3-"The inheritance of acquired traits" was established by (Darwin - Wallace -Lamarck).
- 4- Progeria Syndrome is an evidence of (evolution – mutation- natural selection).
- 5- Mutation is the mechanism of evolution in (New Darwinism - Lamarckism - Darwinism).
- 6- BURGESS SHALE fossils include (intermediate – complex - simple) creatures.
- 7- Darwin and Wallace were based on (cloning technology – mutation - natural selection).
- 8- If gene flow occurred, the population must be (same – different - both).
- 9- Dolly sheep is an evidence of (cloning - mutation- natural selection).
- 10- "Nebraska Man" is (an orangutan jaw– a human skull – a pig's tooth).
- 11- *Archaeopteryx* is similar to (*Touraco* – *Houatzin-Longisquama* - all).
- 12-The "tree of life" was drawn by (Haeckel– Linnaeus– Pasteur).
- 13- Coccyx and appendix are (important – vestigial - useless) organs for human.
- 14- (Metamorphosis – Cloning –Antibiotic mechanism- All) deny evolution concept.
- 15- Ediacaran fossils include (arthropods – echinoderms–soft macroscopics - all).

Follow the rest of questions behind

16- *Coelacanth* fish is not the ancestor of land-dwelling creatures because its (anatomy- physiology - fossil record – all).

17- Evolutionist claimed that living organisms would emerge from nonliving by (preplanning - spontaneous generation - homology).

18- Fossil record showed that living beings were found (gradually –suddenly – extinct).

Q2: Answer THREE only of the following:

(24 marks)

1- Demonstrate the physical obstacles to transition from water to land.

2- Explain the mechanism of New Darwinism as evidence of evolution.

3- Compare between origin of species according to evolution theories and fossil record.

4- Evolution theories considered vestigial organs as evidence of evolution. Discuss 3 organs.

5- "Homology and evolution lost all significance in the light of new scientific". Explain with two examples.

Q3: Give the evolutionary term for the following:

(8 marks)

1-The mechanism of Darwinism.

2- It is dealt with: " The inheritance of acquired traits."

3- Organs similar in function but different in structure.

4- Intermediate state between birds and reptiles.

5- Formation of new species by natural selection.

6- A missing link between aquatic and land animals.

7- A transition state between man and ape from a reconstructed skull.

8- Organs were inherited from ancestors without any function.

-----END-----

Dr. Hanaa A. Gouda

(16 Marks)

- 1- Sex chromatin (Barr body) is one of:
a-Active chromatin b- Female sex chromosome
c-Male sex chromosome
- 2- Ribosomes help in :
a-Cellular digestion b- Lipogenesis c- Protein synthesis
- 3- The chromosome number of house fly is:
a-26 b- 80 c- 12
- 4- Which of the following bases is present only in RNA:
a-Thymin b-Adenine c-Uracil d- Cytosin e- Guanine
- 5- Keratin filaments are present in:
a-Skin b-Neurons c-Muscles
- 6- Number of chromatids present in a metaphase chromosome is:
a-Four b- one c-Two
- 7- Secondary constriction is related to:
a-Nucleolar organizer b- Nuclear envelop c- Chromatin islands
- 8- DNA is found in:
a-Mitochondria only b- Nucleus only c- Nucleus and Mitochondria
- 9- The cell coat (glycocalyx) is formed of:
a-Pure lipids and proteins b-Pure carbohydrates
c-Glycoprotein and glycolipids
- 10-Mitochondria are not found in
a- Mature RBCs b-Kidney cells c- Panceatic cells
- 11-What is the term for the general process that expunges material from the cell?
a- Endocytosis b- Exocytosis c- Pinocytosis
- 12-The phase of Golgi apparatus which receives the transfer vesicles from the rER is called
a-Immature phase b-Mature phase c-Granular phase
- 13- Rough endoplasmic reticulum is formed of cisternae covered by ribosomes and.
a- DNA b- Ribophorin I and II c- calcium
- 14-Which organelle contains detoxifying enzymes?
a-Ribosomes b-Peroxisomes c- Microfilaments

15-Golgi apparatus is associated with

a-Sulphation

b- Heat production

c- Fat synthesis

16-Cells that produce large numbers of steroid hormones are expected to have

a- Fatty deposits

b- Many ribosomes

c-Smooth endoplasmic reticulum

(2) Mention whether each of the following statements is true (T) or false (F) and

correct the false one:

(14 Marks)

- 1- Microtubules consist of protein actin.
- 2- Dust pigments are endogenous pigments.
- 3- Bacteria have a cell wall outside the plasma membrane
- 4- Nuclear envelop disappears at the end of metaphase.
- 5- Microfilaments are responsible for the movement of cilia.
- 6- Glycogen is stored in muscles and liver cells.
- 7- Nuclear pores transport of molecules into and out of the nucleus.
- 8- The sodium pump is an example of passive transport.
- 9- Golgi apparatus is called suicide bags.
- 10-Plasma membrane thickness ranges from 8 to 10 angstroms.
- 11-Cytochrome oxidases are found on cristae of mitochondria.
- 12-Rough endoplasmic reticulum plays a role in detoxification
- 13-Secretory granules of Golgi apparatus usually bud from cis face.
- 14-Gap junction serves as sites for exchange of metabolites.

(3)Answer the following questions:

(10 Marks)

A- Define the following:

(5 Marks)

1- Cytoplasmic inclusions

2- Nucleoplasm

3-Cell cycle

4- Diploid and haploid number of chromosomes

5-Centriole

B- Describe the structure and function of the nucleolus.

(5 Marks)

(4)Answer two of the following: Provide your answer with drawing whenever possible:(10 Marks)

a- The molecular structure of the cell membrane.

b-Ultrastructure of Mitochondria.

c-Functions of lysosomes.

d-Functions of smooth endoplasmic reticulum.

----- Best Wishes -----

Prof. Abdallah B.Mahmoud

Prof. Bothaina M. khidr

Course title: Physiology1 (217Z)

Q1- Answer by $\sqrt$ or X for these sentences:- (15 Marks: $\frac{3}{4}$ mark each)

- 1- Pellagra disease is resulted from vitamin B2 deficiency. ()
- 2- Secretin hormone secreted from duodenum, stimulates gastric juice secretion. ()
- 3- Some vitamins are synthesized by intestinal bacteria such as vitamin B and K, while exposure to ultraviolet rays of sun participates in the formation of vitamin D calciferol in subcutaneous fat. ()
- 4- In oxygen dissociation curve, at less than 10 mm Hg. curve becomes vertical. This leads to marked decrease in percentage of oxygen saturation of haemoglobin and that leads to the resort tissues for getting oxygen from myoglobin..... ()
- 5- Vitamin K is essential for synthesis and activation of blood clotting factors, and its deficiency leads to shortening clotting time. ()
- 6- Vitamin B2 deficiency leads to inflammation of angles of mouth, scaled nose and vascularization of cornea and Photophobia. ()
- 7- More the 90 % of Carbohn dioxide is transported from tissues by the help of RBCs. ()
- 8- The renin enzyme has ability to coagulate milk in stomach of children and all animals to give a time to complete digestion of milk protein (casein) by gastric pepsin enzyme ()
- 9- Vitamin A participates in epithelial glycoprotein synthesis and this maintains the mucosa of urogenital tract, respiratory tract, gastrointestinal tract, the cornea and the skin. ()
- 10- Partial pressure of oxygen PO_2 in alveoli is 100 mm mm Hg will give arterial bl with Hb 97.5 % saturated with oxygen at high altitude. ()
- 11- The excess of cholesterol found in the bile transformed into cholate salts add to faeces. ()
- 12- The rate of enzyme reaction is increased with the increase of substrate concentration till a certain point at which any increase in the substrate concentration will cause no further increase in the rate of enzyme reaction. ()

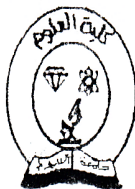
- 13-Deamination means that amino group is transferred from one amino acid to keto acid forming a new type of non-essential amino acids.()
- 14-Function of Vitamin B1 is to increase the activity of acetylcholine at nerve endings by stimulating acetylcholine esterase enzyme. ... ()
- 15-Osmosis is only the diffusion of water through a semipermeable membrane from high concentration of water to lower concentration of water.()
- 16-The cortex of kidney contains all the renal corpuscles, proximal , distal convoluted tubules and parts of collecting tubules.()
- 17- Liver cirrhosis lead to prevent conversion of direct bilirubin into indirect bilirubin and this will change faeces colour. ()
- 18- Vermiform Appendix is found at the right side of the body and it did not play any role in food digestion in human but store foods only.()
- 19- The obstruction of the bile duct leads to back of the direct bilirubin to the blood again without reaching the intestine... .. ()
- 20- In spite of the Bile juice secreted $\frac{3}{4}$ Litre per day from the gall bladder which has no digestive enzymes, it participate in rising fat digestion 3 times. ()

Q2- Answer 5 questions only: (35 marks: 7 marks each)

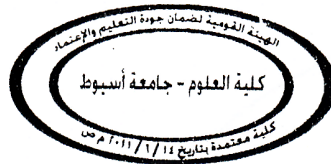
- 1- Write on the steps of urine formation with drawing nephron unit and its illustrations.
- 2-Explain the steps of Cardiac beat with drawing ?
- 3- Discuss the gastric juice enzymes and its role in digestion?
- 4- Discuss the biological function of nutritional lipids. (6 items)
- 5-In table, Compare between the following according to functions and deficiencies: calcium, Copper, Vitamin C and Vitamin D.
- 6- Mention the methods of molecules by which move across the plasma membrane?
- 7-Discuss the blood and lymph pathways of intestinal absorption?

With great success

Prof. Dr. Mohamed Bassam Al-Salahy



Zoology Department



قسم علم الحيوان

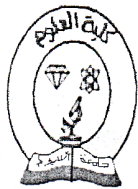
Final Exam: Physiology 1 (217Z)
Credit Hour System 2018/2019
Zoology/Chemistry Program

Time: Two Hours
First Semester
Total marks 50

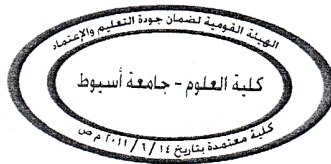
I- Choose the correct answer (20 marks)

- 1- The receptor for steroid hormones lies
 - a) in the cytoplasm b) outside the plasma membrane c) in the blood plasma d) in all
- 2- regulates the kidney's retention of water.
 - a) Prolactin b) Thyroxine c) Anti-diuretic hormone d) rennin
- 3- What is the function of insulin?
 - a) agonistic to glucagon b) decreases glycogen storage in liver c) reduces hyperglycemia d) all of the above
- 4- How many pairs of cranial nerves do humans have?
 - a) 21 b) 31 c) 12 d) 10
- 5- The brain and spinal cord are protected by membranes known as
 - a) ventricles b) meninges c) myelin sheath d) axomembranes
- 6- An axon conducts nerve impulses the cell body.
 - a) away from b) toward c) both toward and away from d) around
- 7- A dendrite conducts nerve impulses the cell body.
 - a) away from b) toward c) both toward and away from d) only inside
- 8- The surfactant in lung is composed of that secreted by type II alveolar cells.
 - a) phospholipids b) lipoproteins c) nucleoproteins d) carbohydrates
- 9- Erosion of the stomach wall due to bacterial infection is known as.....
 - a- peptic ulcer b-immune deficiency c-constipation d-diarrhea
- 10- The functions of the kidney include
 - a-excretion of metabolic waste products b-regulation of the body fluid and blood pressure
 - c- regulation of erythrocyte production d-all (a, b & c)
- 11- GluT transporters bring into the cell via facilitate diffusion.
 - a- glucose b- amino acids c- fatty acids d-glycogen
- 12- If the blood pressure increase above the normal rang, urine production is.....
 - a- increases b-decreases c-remains the same d-non of the above

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Zoology Department



قسم علم الحيوان

First Term -Academic Year 2018/2019

Animals Toxins (219Z)

Time allowed 2 Hours

Date of Exam: 25-12-2018

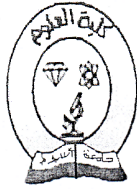
2-Choose the correct answer (10 marks):

- 1-The toxicant that interfere with cellular energy mechanisms include (cyanide- nicotine-aflatoxin).
- 2-Several species of marine flagellates caused mass mortalities of marine animals because (produce powerful toxins- hemolytic substances- both) which accumulate in the hepatopancreas.
- 3-Equinatoxin that extracted from *Actinia equina* showed (antitumor -anti-inflammatory- anti-bacterial) activity.
- 4-Aurelin which was purified from the mesoglea of *Aurelia aurita* showed (antitumor -anti-inflammatory- anti-bacterial) activity.
- 5-Antivenin only blocks further damage, but can't undo what's already been done (true- false).
- 6-Banded Sea Krait has lethal venom ten times more toxic than a rattlesnake's (true- false).
- 7-The blue-ringed octopus venom contains (tetrodotoxin- 5-hydroxytryptamine- hyaluronidase- all of the previous).
- 8-The (muscle tissue- dorsal fin- pectoral fin) of Cuttlefish is highly toxic.
- 9-The poison of golden poison frog "batrachotoxin" kills by blocking the body's nerve impulses, and ultimately causing heart failure (true- false)
- 10- Toxicant that storage in bone is analogous to (calcium, phosphorus- potassium).

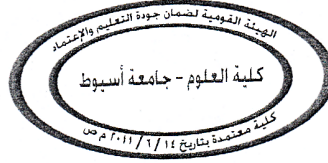
3- Answer on FIVE only of the following (20 marks):

- 1-Explain why not all organs are affected equally?.
- 2-Mention the four ways by which mites affect animals health.
- 3-Components of the bee venoms
- 4-Treatment of envenomation by scorpions
- 5-Component of snake venoms
- 6-Mechanism of action of epibatidine

See Next Page

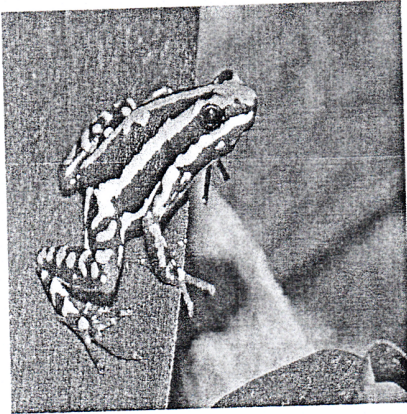


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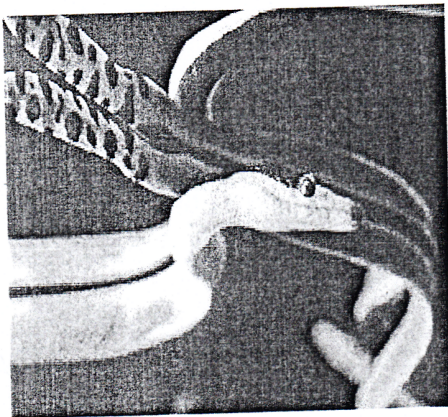
4- Write a scientific comment on the following animals (20 marks)



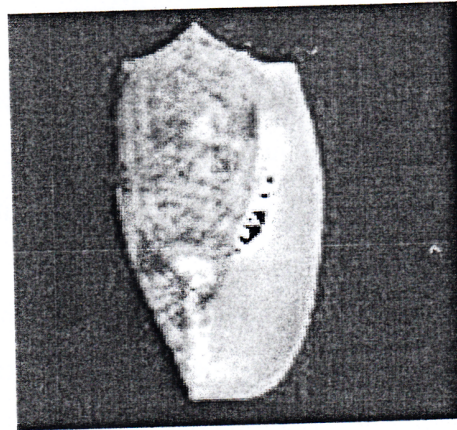
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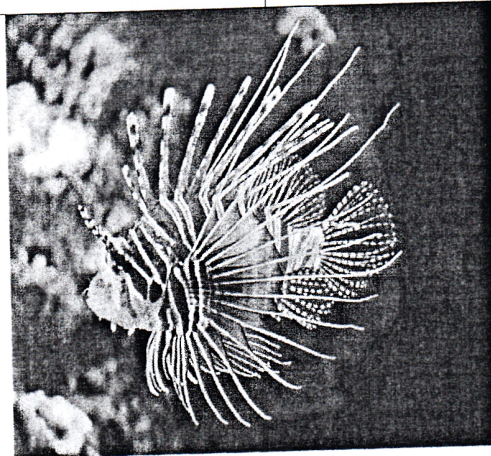
B



C



D



E

Good Luck

Prpf. Hossam El-Din M. Omar, Zoology Department, Faculty of Science, Assiut University