



Answer the following questions (50 marks)

(Note: The exam in Eight pages)

First Question: Choose the best correct answer (20 marks)

1. In which segment the elytron is attached?
a) Prothorax b) Head capsule c) Mesothorax d) Metathorax
2. The short unsegmented cerci are found in.....
a) Locusts b) Silver fish c) Cockroaches d) Crickets
3. The following are characteristics of insects except:
a) Have brain b) Open circulatory system
c) Respiration by lung d) Ventral nerve cord
4. Which of the following is Not a characteristic of silver fish?
a) Order Zygentoma b) Wingless c) Has larval stage d) Long cerci
5. The insect abdomen never bears legs in the adult stage.....
a) True b) False
6. Pterothorax bears:
a) Wings only b) Legs only c) Wings and legs d) Spiracles only
7. A chemical substances that benefits the sender is called.....
a) Synomone b) Alleomone c) Kairomone d) Antimone
8. The insects can communicate mainly by.....
a) Simple eyes b) Antennae c) Compound eyes d) Wings
9.enzymes are used in the digestion of short chain fatty acids in insects.
a- Cellulase b- Estrase c- Lipase d- Phosphatase
10. How many cephalic neuromeres are fused together to form the insect brain?
a) Two b) Three c) Four d) Six
11. Which of the following is not a characteristic of cockroaches?
a) Short segmented cerci b) Chewing mouthparts
c) Leathery wings d) Digging legs

12. The valve between mid and hind gut in insects is called.....
- a- Rectum b- Peritrophic c- Pylorus d- Ileum
13. The proventriculus (Gizzard) is well developed in.....insects.
- a) Sucking b) Chewing c) Piercing and sucking d) Both a and c
14. The insect hemolymph transport wastes, nutrients, hormones and oxygen to all insect cells.
- a) True b) False
15. The deutocerebrum innervates the.....
- a) Antennae b) Compound eyes c) Mouthparts d) Labrum
16. Ingluvial ganglia innervate.....
- a) Foregut and heart b) Wings and legs c) Heart d) Mid and hind gut
17. Mosquito larvae get oxygen by.....
- a) Cuticular respiration b) Siphon c) Diffusion d) All are false
18. In insects the excretion occurs by
- a) Kidney b) Fat body c) Malpighian tubules d) Midgut
19. The suboesophageal ganglion in insects innervates
- a) Mouth parts b) Wings c) Legs d) Both b and c
20. The hemolymph enters to the heart through openings called...
- a) Spiracles b) Ostia c) Accessory organs d) Lungs
21. The major component of the insect hemolymph is.....
- a) Water b) Oxygen c) Hemocytes d) Hemoglobin
22. The prolegs are found in
- a) Larvae b) Pupae c) Adults d) Both larvae and adults
23. If two insects are in the same class they must be have the same.....
- a) Order b) Genera c) Phylum d) Family
24. The aedeagus is known as.....
- a) Male genitalia b) Female genitalia c) Sting apparatus d) Modified Ovipositor
25. Bees, wasps and white ants (termites) are belonging to order Hymenoptera.
- a) True b) False
26. The caterpillars are found in order.....
- a) Coleoptera b) Lepidoptera c) Hymenoptera d) Zygentoma
27. The propodium is found in.....
- a) Wasps b) Beetles c) Flies d) White ants

28. The shape and colour of insect antennae differ from species to species and among sexes of the same species.
a) True b) False
29. Which structure would never be found on an insect's prothorax?
a) Leg b) Wing c) Spiracle d) Pronotum
30. The free proximal part of the insect leg is known as.....
a) Coxa b) Trochanter c) Femur d) Tarsus
31. Which structure could be found in both males and females?
a) Ovipositor b) Clasper c) Aedeagus d) Epiproct
32. Generally the last abdominal segment bears.....
a) Two pairs of cerci b) A pair of antenna c) A pair of cerci d) A pair of spiracle
33. Which of the following have mandibles and maxillae that have been modified to sharp stylets?
a) Locusts b) Butterflies c) Mosquitoes d) Houseflies
34. Which of the following is not a characteristic of true bugs?
a) Triangle scutellum b) Paurometabolous c) Hemi-elytron wing d) Elytron wings
35. Naiads are a characteristic of dragonfly lifecycle.
a) True b) False
36. How many times can a male honeybee sting?
a) Once b) It depends on the age of the male
c) It depends on how much venom is remaining d) Zero
37. The insect head is specialized for:
a) Feeding and sensation b) Locomotion and reproduction
c) Reproduction and digestion d) Digestion and ingestion
38. Where do bees store pollen on their return flight to the hive?
a) Honey bee crop b) Honey bee tongue c) Hind leg d) Stomach
39. Which of the following is not a reason of insect spread?
a) Flight b) Mimicry c) Large size d) Metamorphosis
40. Which of the following is not a characteristic of an insect?
a) One pair of antennae b) Two pairs of wings
c) Six legs d) Two pairs of compound eyes

Second Question: Complete the following sentences (6 marks)

1. Exopeptidases in insects are
2. The dorsal blood vessel is divided into an anterior part called.....and a posterior part known as.....
3. The function of mesenteron in insects is
4. Cellulase is present in insects for.....
5. The dorsal sclerite of the mesothorax is known as.....
6. The science of studying insects is known as.....
7. The class insecta is divided into two subclasses known asand
....., and the largest insect order is known as.....
8. The immature feeding stage in holometabolous insects is called.....
9. The ants belong to order.....while white ants belong to order.....
10. The functions of insect cerci are.....
11. The tritocerebrum innervates
12. The thorax is divided into.....,....., and.....

Third Question: Answer FOUR only of the following: (8 marks)

A: Upon what bases are insects classified?

- 1).....
- 2)
- 3)
- 4).....
.....

B: Functions of the peritrophic membrane:

- 1).....
- 2)
- 3)
- 4).....

C: Write four functions of insect hemolymph:

- 1)
- 2)
- 3)
- 4).....

D: Explain the roles of amylases in insect digestion:

- 1)
- 2)
- 3)
- 4).....

E: Explain the benefits of insects: 1)

- 2)
- 3)
- 4).....

F: Mention four reasons for insect spread:

- 1)
- 2)
- 3)
- 4).....

Fourth Question: Answer the following: (8 marks)

(A) Define Five only of the following terms: (5 marks)

1) Tracheal system:.....

.....
.....

2) The suboesophageal ganglion:.....

.....
.....

3) Antimone:.....

.....
.....

4) Pheromone:.....

.....
.....

5) Sting apparatus:.....

.....
.....

6) Insect communication:.....

.....
.....

B): Write Two functions for three only of the following: (3 marks)

1) Fat body:

.....
.....

2) Frontal ganglia:

.....

.....

.....

3) Antennae:

.....

.....

.....

4) Air sacs:

.....

.....

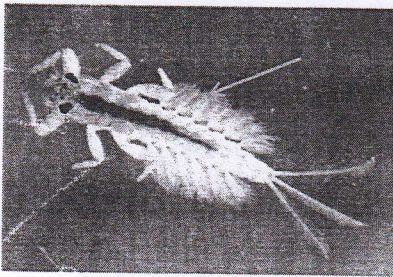
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Fifth Question: Answer the following:

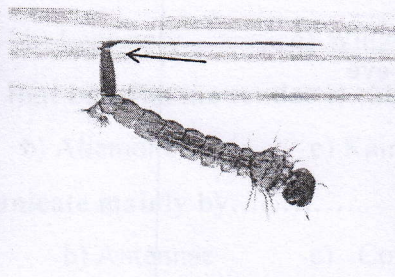
(8 marks)

(A) Identify the following structure

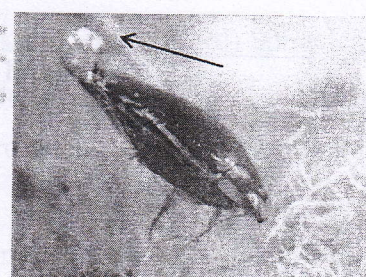
(3 marks)



A



B



C

The arrow in figure A refers to, in figure B refers

to..... and in figure C refers to

(B) Compare between each pair of the following: (5 marks)

(A) Paurometabolous	(A) Holometabolous
(B) Beetles	(B) Flies
(C) Compound eye	(C) Simple eye

End of the Questions

Best wishes

By Dr. Ali Mohamed Ali

Dr. Ahmed Mostafa





Answer the following question and record answer in the "Bubble Sheet" given to you (50 scores for 100 points; each point equal 0.5 score).

Choice the correct answer of each list in the following:

- 1- In freshwater (FW) conditions, lamprey perform as FW bony fishes by
 - a) High volume of urine flow
 - b) β -type chloride cells
 - c) Drinking, feeding and α -chloride cells
 - d) No urine flow
 - e) Both a&b
- 2- Female gonadosomatic index of 0.1 to 0.45 referred to:
 - a) Oocyte development
 - b) Vitellogenesis
 - c) Oocyte maturation
 - d) Spawning
 - e) None of the above
- 3- Fishes that perform as osmoconformers instead of osmoregulator are
 - a) Sharks and tuna
 - b) Perciformes
 - c) Cladistia
 - d) Holocephali
 - e) Hyperotreti
- 4- Maturity stage 3 is concerned with
 - a) Oocyte development
 - b) Vitellogenesis
 - c) Oocyte maturation
 - d) Spawning
 - e) Oocyte resorption
- 5- 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) None of the above
- 6- The effect of pH on affinity/capacity of Hb for O₂ could be studied in concern with:
 - a) Bohr effect
 - b) Root effect
 - c) Both a&b
 - d) Nothing of the above
- 7- Juvenile migrations are recorded in
 - a) Salmons and eels
 - b) Tilapia
 - c) Sharks and rays
 - d) All the above
 - e) Nothing of the above
- 8- Carps, trouts and catfishes are examples of migratory fishes of the type
 - a) Potamodromous
 - b) Oceanodromous
 - c) Catadromous
 - d) All the above
 - e) Nothing of the above
- 9- Pituitary growth hormone in fishes leads to:
 - a) increases appetite and increases food conversion efficiency
 - b) increases production of somatomedin
 - c) both of a &b
 - d) none of the above
- 10- In saltwater (SW) conditions, lamprey perform as SW adapted bony fishes by
 - a) High volume of urine flow
 - b) B-type chloride cells
 - c) Drinking, feeding and α -chloride cells
 - d) No urine flow
 - e) Both c&d



- 11- Anabolic steroids that stimulate growth include:
 - a) testosterone and estrogen
 - b) prolactine
 - c) corticosteroids
 - d) all the above
 - e) both a& c
- 12- With no pumping energy, sharks and tuna use
 - a) Branchial ventilation
 - b) Ram ventilation
 - c) Pulmonary ventilation
 - d) all the above
- 13- Malacopterygii are characterized by:
 - a) Maxillary enter gape plus physostomous swimbladder
 - b) 17 principle caudal rays with no mesocoracoid
 - c) Pelvic fins typically thoracic or jugular
 - d) Maxillary excluded from gap with no orbito shenoid
 - e) All the above
- 14- Fish advantages of being small include:
 - a) Large generation time
 - b) Lack of more habitat
 - c) Availability of few types of food
 - d) All the above
 - e) None of the above
- 15- Chloride cell (CC) function in marine fishes involve
 - a) Active transport and creation of Na^+ gradients IN CC
 - b) High concentration of Cl^- inside the CC cytoplasm
 - c) High concentration of Na^+ in the fluids outside
 - d) All the above
 - e) Nothing of the above
- 16- Protection mass movements of fishes includes:
 - a) Spawning migration
 - b) Feeding migration
 - c) Wintering migration
 - d) All the above
 - e) None of the above
- 17- Oreochromis species use ----- with pumping energy
 - a) Branchial ventilation
 - b) Ram ventilation
 - c) Pulmonary ventilation
 - d) all the above
 - e) nothing of the above
- 18- On spawning, the female gonadosomatic index range is:
 - a) 0.5-0.96
 - b) 1.0-1.7
 - c) 0.1-0.45
 - d) 2.0-2.7
 - e) 1.8-2.2
- 19- Using the following Bertalanffy growth equation parameters: $L_{\infty} = 747 \text{ mm}$, $K = 0.12$ and $T_0 = -0.82$, the length of age 4 is:
 - a) 215 mm
 - b) 328 mm
 - c) 450 mm
 - d) 263 mm
 - e) None of the above
- 20- The prolactin influences water and ion regulation acting on
 - a) Gill and kidney
 - b) Skin and intestine
 - c) Urinary bladder
 - d) All the above
 - e) Nothing of the above
- 21- Bowfins and gars are characterized by:
 - a) Typically heterocerical tail with spiracle and broad-based paired fins.



- b) No spiracle with abbreviated heterocerical caudal fin.
c) Variously homocerical caudal fin with no spiracle.
d) All the above
e) None of the above
- 22- Fish remove more than 80% of O₂ from water due to the following except
a) Short diffusion distance
b) Large surface area
c) Counter-current exchange
d) Limited water passing over gills
e) Good vascular supply
- 23- Maturity stage 4 is concerned with
a) Oocyte development
b) Oocyte resorption
c) Vitellogenesis
d) Oocyte maturation
e) Spawning
- 24- Maturity stage 2 is concerned with
a) Oocyte development
b) Vitellogenesis
c) Oocyte maturation
d) Spawning
- 25- One can study migration by
a) Back calculation and captivity
b) Direct observation
c) Tagging and marking
d) Length frequency distribution
e) Both b&c
- 26- Aral sea bream start overwintering migration with condition factor of:
a) 4
b) 3 with high fat content
c) 3 with high fat content and sharp fall in temperature
d) 4 with sharp fall in temperature
e) All the above are correct
- 27- Before entering Volga during migration, white salmon have fat content of :
a) 21% and 2% at spawning
b) 2% and 21% at spawning
c) 5% and 2% at spawning
d) None of the above
- 28- Gill area equal ----- times of fish body surface
a) 5-10
b) 10-60
c) 70-90
d) All the above
e) Nothing of the above
- 29- Stenophagous plankton feeders have:
a) Mixed diet.
b) A limited sort of food.
c) One sort of food.
d) Both of a&c
e) None of the above
- 30- Buoyancy strategies in fishes include all the following except
a) Gas bladder
b) Lift generated by fins
c) Increase of heavy tissues
d) Low density compounds
- 31- 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
- 32- Ceratodontiformes differ from Lepidosireniformes using the following taxonomic characters :
a) Body form and paired fin shape.



- b) Scale size and gass bladder state.
c) Larval gill and estivation of adult
d) All the above.
e) None of the above
- 33- Disadvantages of generated lift include
a) High energy expenditure
b) Restricted swimming ability
c) Buoyancy regulation linked to metabolism
d) Both a&b
e) Nothing of the above
- 34- 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.
- 35- Fish having no Hb are associated with
a) High metabolic requirements
b) Low environmental O₂
c) Special cardiovascular adaptations
d) High environmental O₂
e) Both c&d
- 36- 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.
- 37- 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.
- 38- 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.
- 39- 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.
- 40- On any drop in temperature, Anchovy start overwintering migration with fat content of :
a) 14%
b) 14-17%
c) 22%
d) All the above
e) None of the above
- 41- 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
- 42- Schreckstoff is
a) The fear hormone
b) A high latitude freshwater fish
c) Used in sexual selection
d) An adaptation to cold water
- 43- Fish drinks water, urinates little and expels extra salts via the chloride cells.



- This scenario describes the osmoregulation strategy of a
- Shark
 - Freshwater bony fish
 - Marine bony fish
 - Lamprey
- 44- In cartilaginous fishes, body fluids are isosmotic with environment due to:
- Mineral concentration = 500 mOsm/l
 - Urea 440 mOsmol/l
 - Trimethyl Amine Oxide = 70 mOsmol/l
 - All the above
 - None of the above
- 45- Criteria of back calculations in fish growth include:
- Number of scales is variable throughout life
 - Growth of scale (or hard part) is not proportional to growth of fish
 - Annuli formed yearly at different times
 - None of the above
 - All the above
- 46- Using population fecundity as a measure of reproductive potential assumes with other assumptions:
- Linear fish size- fecundity relationship with on annual variations
 - constant annual sex ratio
 - no annual variation in age/size at maturity
 - all the above
 - None of the above
- 47- Differences between functional fecundity and true fecundity are due to:
- incomplete spawning
 - atresia (degeneration)
 - resorption of oocytes
 - all the above
- 48- implications for fecundity estimation in indeterminate spawners are due to:
- Counts of eggs do not indicate annual fecundity
 - Continuous new batches (size distribution)
 - Protracted season
 - All the above
 - None of the above
- 49- The fish mass movements are influenced by different factors including:
- Temperature and Photoperiod
 - Salinity and Water current
 - Predators and Hormones
 - All the above
 - Only a and c
- 50- Oocyte maturation in fishes includes:
- Germinal vesicle (nucleus) migration
 - Resumption of meiosis (cell division)
 - Water uptake
 - All the above
- 51- Freshwater Chondrichthyes perform like freshwater Osteichthyes by
- Reduction of internal osmotic pressure
 - Decreased urea production
 - Retain higher concentration of Na⁺&Cl⁻
 - Both a&b
 - nothing of the above



52- 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

53- 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

54- Changes in salmon family during spawning migration include:

- a) Enlarge of eyes
- b) Coloration alteration
- c) Degeneration of alimentary tract
- d) Decrease in swim bladder size
- e) None of the above

55- Formation of false annuli on scales is due to

- a) Depression in temperature
- b) Pollution and diseases
- c) Fish parasites and reproduction
- d) All the above
- e) Both a&c

56- 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

57- Sexual selection deals with one component of fitness

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

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

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

59- All the following anatomical requirements are for herbivores except:

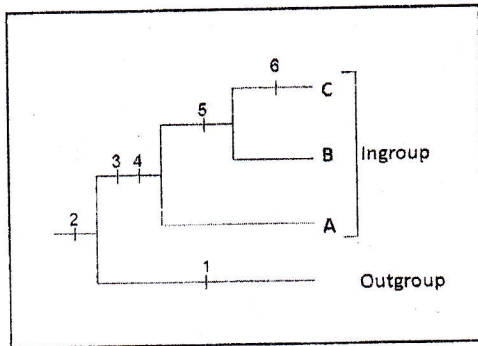
- a) Small mouth with nibbling mouth.
- b) Gizzard like stomachs.
- c) The sharp teeth on multiple bones
- d) Highest relative length of gut.
- e) Beak-like structure.



- 60- Studying food and feeding habits should be executed by one of the following methods except:
- Direct observation.
 - Back calculation from rings on hard structures
 - Observation in captivity.
 - Examination of contents of the stomach.
- 61- Laterally compressed forms, with pectoral fins high on the body, with pelvic fins immediately below; small mouths, eyes large, snout short are:
- Eel-like fishes
 - Ambush predator
 - Surface-oriented fishes
 - Deep-bodied fishes
- 62- Hagfishes are separated from Craniata as sister group to vertebrates because they are characterized by the following except:
- A single semicircular canal
 - Capable of hyperosmoregulation
 - No neuromast cells and no extrinsic eye muscles.
 - Incapable of nervous regulation of the heart.
 - No vertebrae
- 63- The following taxonomic characters discriminate between Chondostei, Holostei and Teleostei:
- Caudal fin- spiracle- notochord
 - Vertebral ossification- upper jaw
 - skull roof- fulcra- cheek- paired fins
 - all the above
 - none of the above
- 64- A clade is defined by
- by shared characters called apomorphies
 - shared derived characters called synapomorphies
 - shared characters called homoplasies
 - unshared characters called paraphylies.
- 65- Extinct jawless fishes are called
- acanthodians
 - Placoderms
 - Ostracoderms
 - Agnathans.
- 66- Homoplasies are characters that are
- shared by ancestry
 - shared by convergent evolution
 - unshared
 - characteristic of a polyphyletic assemblage
- 67- The recent use of genomic techniques has allowed to:
- solve issues that were difficult to address using exclusively morphological characters
 - time diversification events using molecular clocks
 - distinguish between conflicting scenarios such as parallel vs convergent evolution
 - all of the above
 - none of the above.
- 68- Otophysi share the following synapomorphy:
- Pterygiophores
 - Schreckstoff
 - Weberian apparatus



d) Retractor dorsalis.



69- In the above figure of the clade, character 6 is

- a) Syanapomorphy
- b) Symplesiomorphy
- c) plesiomorphy
- d) Autapomorphy

70- In the above figure of the clade, characters 3&4 are

- a) Syanapomorphy
- b) Symplesiomorphy
- c) Syanapomorphy for B&C
- d) Autapomorphy

71- The biggest problem of using scales in age determination is

- a) Stop annuli formation in old fishes
- b) Stop annuli formation in slow-growing fish
- c) Variability over body
- d) Metabolically active
- e) Both a&b

72- Pelagic eggs are characterized by:

- a) Large size, thicker envelop and large yolk.
- b) Small size, thinner envelop and small yolk.

c) Low fecundity, parental care, low dispersal and pigmentation.

d) High fecundity, no parental care, high dispersal and no pigmentation

e) Both "b"&"d"

73- Biparental and uniparental cares are represented by % respectively

- a) 22& 78
- b) 10& 90
- c) 90& 10
- d) 55& 45
- e) 78& 22

74- Lamprey shares *Oreochromis niloticus* with all the following characters except:

- a) Two or three semicircular canals
- b) Vertebrae and true neuromast organs
- c) Extrinsic eye muscles and hyperosmoregulation
- d) True jaws and scales

75- Teleost success was achieved by

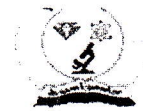
- a) Size and shape variability
- b) Maneuverability and protrusible premaxillae
- c) Reaction plasticity with evolution of intelligence
- d) All the above
- e) b and c only

76- ----- are extant jawless fishes , scavengers, predators of the deep and lazy osmoregulators

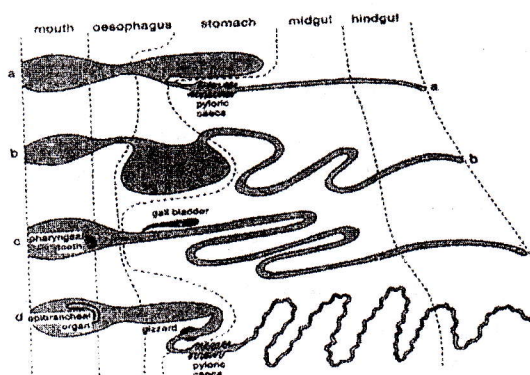
- a) Lamprey.
- b) Conodonts.
- c) Hagfishes.
- d) Lancelets
- e) Placoderms

77- Most speciation in African cichlids is the result of the following except:

- a) Decoupling of jaw bones.
- b) Natal homing.



- c) Sexual selection.
d) Absence of drift and selection
e) Diversification in food habits
- 78- Chondrichthyes are
a) paraphyletic group.
b) Monophyletic group.
c) Polyphyletic group.
d) None of the above
- 79- Demersal eggs are characterized by:
a) Large size, thicker envelop and large yolk.
b) Small size, thinner envelop and small yolk.
c) Low fecundity, parental care, low dispersal and pigmentation.
d) High fecundity, no parental care, high dispersal and no pigmentation
e) Both "a" & "c"
- 80- In external fertilization, male care is represented by%
a) 100
b) 80
c) 76
d) 50
e) 10
- 81- Key to gas exchange into swim bladder include
a) Bohr and Root effects
b) counter-current exchange
c) Salting out
d) Rete Mirabile
e) All the above
- 82- The key traits account for ostracoderm success are
a) True jaws and paired fins
b) Bony dermal plates and internal skeleton
c) Use of filter feeding and first use of bone in support
d) All the above
e) Nothing of the above
- 83- Body fluids of bony fishes are isosmotic with the environment due to
a) Mineral concentration of 500 mOsmol/l
b) Urea of 440 mOsmol/l
c) Trimethylamine Oxide of 70 mOsmol/l
d) All the above
e) Nothing of the above
- 84- Evolutionary trends in fish morphology include
a) A shift in position of the paired fins
b) An increase in overall spinyess
c) Changes in body shape
d) All the above
e) Only a and c
- 85- Maneuverability was better developed in teleosts than in other fishes because they have:
a) No swim bladder
b) Heavy scales
c) Improved position of paired fins
d) All the above
e) Nothing of the above
- 86- Fish hemoglobin loses its bonding capacity with oxygen when
a) The partial pressure of oxygen in the blood plasma increases
b) The pH of blood plasma increases
c) The partial pressure of carbon dioxide in the blood plasma decreases
d) The pH of blood plasma decreases



- 87- In the above figure digestive canal (d) represents a carnivore fish:
- True
 - False
- 88- In the above figure digestive canal (a) represents a carnivore fish:
- True
 - False
- 89- In the above figure digestive canal (c) represent:
- A herbivore fish
 - A carnivore fish
 - An omnivore fish
 - A planktivore fish
 - Algavore fish
- 90- Mackerels, Tunas, Cod and Herring are migratory fishes of the type
- Potamodromous
 - Oceanodromous
 - Aanadromous
 - All the above
 - Nothing of the above
- 91- In the above figure, digestive canal (b) represents:
- A carnivore fish
 - A planktivore fish
 - A herbivore fish
 - All the above
 - Nothing of the above

- 92- Foraging strategy in herbivores is
- Pursuit as in barracuda
 - Stalking as in trumpetfish
 - Ambush as in lizardfish
 - All the above
 - None of the above
- 93- The maximum period between ovulation and deterioration of egg quality of common carp and bighead carp is:
- 15-30 minutes
 - 30-45 minutes
 - 50-80 minutes
 - 7 days
 - 2 hours
- 94- Mode of reproduction in 90% of bony fish is
- Ovoparity
 - Viviparity
 - Ovoviviparity
 - All the above
 - None of the above
- 95- Physoclistous swim bladder are found in
- Sunfishes and perch
 - Cyprinids and eels
 - Salmonids and cat fishes
 - Acanthopterygii
 - Both a&d
- 96- Functional fecundity differs from true fecundity due to:
- Incomplete spawning
 - Atresia
 - Absorption of oocytes
 - All the above
 - All the above except "c"
- 97- Static reduced density advantages include
- Free movement up and down



Assiut University, Egypt

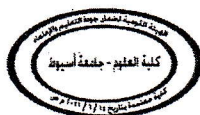
Final Exam in Fish Biology
Course No. Z 280
2nd Semester-2021/2022
Time: 2 hours
Pages 1-11



Faculty of Science,
Zoology Dept

- b) Buoyancy doesn't vary with depth
c) Restricted swimming ability
d) Buoyancy regulation linked to metabolism
e) No relation to energy storage
- 98- Mode of reproduction with direct nourishment from mother (fully advanced at birth) in some sharks and perches is
a) Ovoparity
b) Viviparity
c) Ovoviviparity
d) None of the above
- 99- Physostomous swim bladder are recorded in
- a) Sunfishes and perch
b) Cyprinids and eels
c) Salmonids and cat fishes
d) Acanthopterygii
e) Both b&c
- 100- Hb structure in petromyzontiforms is
a) Dimeric
b) Tetrameric
c) Trimeric
d) All the above except b
e) Nothing of the above

Best wishes- Imam Mekkawy



University: Asyut

Invertebrate II

Total degree = 50

Faculty: Science

Code: 222 Z

Final exam.

Department: Zoology

June 2022

Time: 2 hrs.

Note: The questions are in 2 pages

Q1. Correct over the line:

(14 marks)

- 1- Sea urchins have long legs, small body & large proboscis.
- 2- Harpoon is found in the buccal mass of Tripneustes.
- 3- Cypris is characterized by jet propulsion in swimming.
- 4- Argas eviscerates to avoid predation.
- 5- "Tun" state occurs in Merostomata.
- 6- Cerata are functional regions formed by fusion of segments.
- 7- The oral surface of Daphnia is directed downward.
- 8- Pauropods possess system of hydraulic canals performs several functions.
- 9- Limestone in the earth is formed by Arthropoda.
- 10- Buthus is characterized by ladder form nervous system.
- 11- Parthenogenesis could be noticed in Tantulocarida.
- 12- Scolopendra spreads a cloud of ink suddenly.
- 13- Cyprid larva has 3 pairs of thoracic cirri.
- 14- Dentalium has functional nematocysts at cerata.

Q2. Answer six only of the following:

(24 marks)

- 1- Compare only by drawing with labeling nervous system in both *Penaeus* & *Scolopendra*.
- 2- Demonstrate jet propulsion in *Sepia*.

- 3- Illustrate structure & function of mantle in Mollusca.
- 4- Classify Subphylum Chelicerata giving an example for each.
- 5- Only draw with labeling the blood circulation in both *Buthus* & *Anodonta*.
- 6- Distinguish feeding & digestion in both *Astropectin* & *Eremina*.
- 7- List the main characteristics of Echinodermata.

Q3: Give the reason (s):

(12 marks)

- 1- The exoskeleton is very important in Arthropoda.
- 2- *Limulus* is important medically.
- 3- All spiders have spinnerets.
- 4- Prosobranchs have anterior gills.
- 5- *Iulus* spreads poisonous and repellent substances.
- 6- Presence of Crystalline style in the gut of *Anodonta*.
- 7- Amphipoda can incubate embryos.
- 8- *Pagurus* hides in an empty shell.
- 9- Tardigrades are the most incredible animals on earth.
- 10- Thecosomes can catch planktons.
- 11- *Holothuria* belongs to Echinodermata.
- 12- *Physa* belongs to Basommatophora.

----- End -----

د. هناء عاطف جودة

بالتوفيق و السداد



Assiut University

Date: 10-6-2022

Time: 2 hour



Faculty of Science
Zoology Department

Final Exam of Histology & Histopathology (212z)

For Second Year Students (Credit Hour)

A) Choose the most appropriate answer for each of the following statements:

(25 marks)

- 1- What do you call the simple squamous epithelium that lines the abdominal cavity?
a) Mesothelium b) Endothelium c) Pseudostratified
- 2- According to the mode of secretion (changes in the secretory cells), glands are classified into:
a) Exocrine and endocrine b) Unicellular and multicellular c) Merocrine, apocrine and holocrine
- 3- Which cell is a connective tissue fixed macrophage?
a) Kuffer cells b) Langerhans cells c) Microglia
- 4- Which part of the alimentary canal is lined by stratified squamous epithelium?
a) Gall bladder b) Stomach c) Oesophagus
- 5- Which is the following is highly vascularized?
a) Cartilage b) Areolar connective tissue c) Simple epithelium
- 6- Which type of tissue lines the urinary bladder?
a) Transitional epithelium b) Stratified squamous epithelium c) Simple cuboidal epithelium
- 7- What is the gland called if the secretory portion is tube-shaped ending in a flask-shaped area at the terminus?
a) Simple gland b) Alveolar c) Tubuloalveolar
- 8- Which cells of connective tissue secrete heparin?
a) Mast cells b) Macrophage cells c) pigment cells
- 9- Which cells that their cytoplasm is full of melanin granules?
a) Pigment cells b) fibroblast c) leucocytes
- 10- The mucoid connective tissue found in :
a) Blood vessels b) Lymphatics c) Umbilical cord
- 11- Skeletal muscle is
a) Striated and voluntary b) Striated and involuntary c) Non striated and voluntary
- 12- Sarcoplasmic reticulum found in :
a) Liver cells b) Nerve cells c) Muscle cells
- 13- What do you call the space where a chondrocyte sits (exists) in?
a) Space of Disse b) Vacuole c) Lacune
- 14- According to the shape of secretory part the sebaceous gland is:
a) Simple alveolar b) simple tubule- alveolar c) simple branched tubular

- 15- Which cell type is responsible for bone breakdown?
 a) Chondroblast b) Osteoclast c) osteocyte
- 16- Simple cuboidal epithelium found in :
 a) Ovary b) Spleen c) ileum
- 17-degeneration is a mere advanced stage of the same degenerative process of cloudy swelling.
 a) Cloud b) Hydropic c) Necrosis
- 18- Which of the following organ is mixed gland?
 a) Pancreas b) Thyroid gland c) Pituitary gland
- 19- Gland of special nature is.....
 a) Sebaceous gland b) Lacrimal gland c) Both a& b
- 20- External auditory canal has special nature secretion which is
 a) Waxy secretion b) Fatty secretion c) Water secretion
- 21- The myoepithelium cell function is
 a) Secretion b) Contraction c) Sensation
- 22- The nucleus shrinks in size and the chromatin substance becomes dense this change in nuclei called
 a) Pyknosis b) karyorrhexis c) karyolysis
- 23- The reticular connective tissue found in.....
 a) Spleen b) Kidney c) Both a& b
- 24-is the commonest form of all degenerations.
 a) Cloudy b) Hydropic c) Necrosis
- 25- What happened in deficiency of lipotropic factors?
 a) Fatty infiltration b) Hydropic degeneration c) inflammation

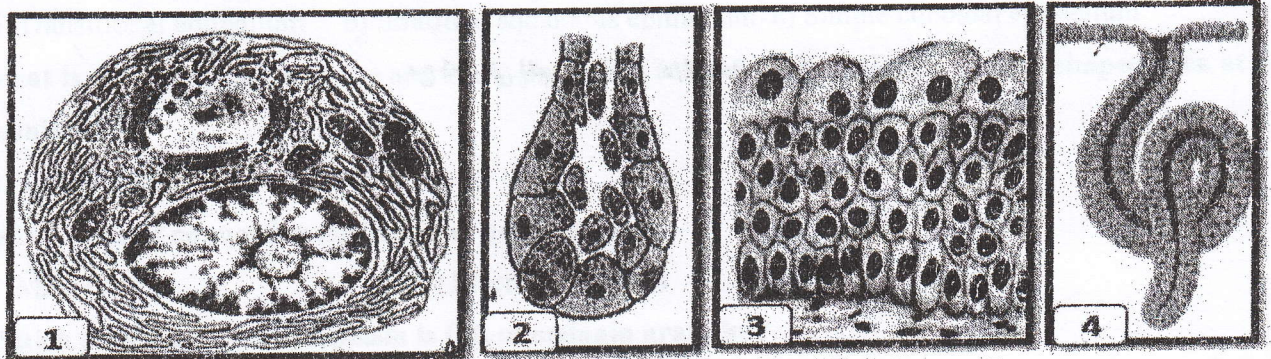
B) Mention whether each of the following statements is true (T) or False (F): (25 marks)

- 26- Exocrine secretion goes into blood stream.
- 27- Multilocular adipose tissue composed of small fat cells which are filled with many droplets of fat.
- 28- Neuroepithelium is found in taste buds in the tongue.
- 29- Degenerations develop to the same extent in all types of tissues.
- 30- Macrophages cells are derived from blood monocytes.
- 31- Fibroblast is resting cell while fibrocyte is active cell.
- 32- The metabolic disturbances of the cells are always reflected by morphologic changes.
- 33- Most of plasma cells die after four to five days and few survive to become memory cells.
- 34- Dense connective tissue found in ligaments and tendons.
- 35- Yellow elastic connective tissue found in arteries.
- 36- Undifferentiated mesenchymal cells cannot change to any other cells.
- 37- Fibroblast helps in healing by forming fibers and intercellular substance.

- 38- Plasma cell function is antibody formation.
- 39- Nervous tissue supports and connects various tissue and organs.
- 40- The cartilage cells receive their oxygen and nutrients by diffusion.
- 41- Osteoblast responsible for bone resorbs.
- 42- No centrosome is present in the adult nerve cells.
- 43- Endocrine glands possess ducts caring their secretion to the surface.
- 44- Germinal epithelial one type of epithelium cells are modification and its function is division.
- 45- The elastic fibers are tough and resist stretch.
- 46- The reticular fibers formed mainly from collagen.
- 47- Bone is rigid, weight bearing tissue, but some degree of flexibility.
- 48- Cartilage is a model for the formation of bone and present in freely mobile joint.
- 49- Connective tissue all their cells rest on basement membrane.
- 50- Cartilage and bone are considering vascular connective tissue

The oral questions: (10 marks)

C)- Choose the correct answer:



51- Figure (1) is

- a) Plasma cell b) Mast cell c) Monocyte

52- Figure (2) iswhich is type of mode of glandular epithelium secretion.

- a) Holocrine b) Merocrine c) Apocrine

53- Figure (3) is

- a) Stratified squamous epithelium b) Stratified columnar epithelium c) Transitional epithelium

54- Figure (4) is

- a) Simple alveolar gland b) Simple coiled tubular c) Simple acinar

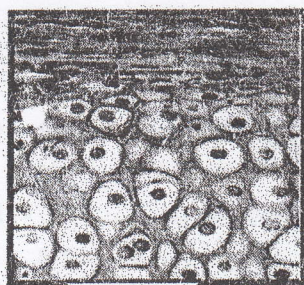


Fig.(5)

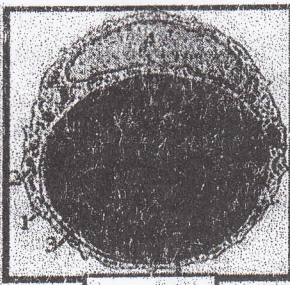


Fig.(6)



Fig.(7)



Fig.(8)

55- Figure (5) is

b) Chondrocytes

b) Gland cells

c) Osteocytes

56- Figure (6) is

b) Macrophage

b) Fat cell

c) Fibrocyte

57- Figure (7) is

b) Cardiac muscle

b) Smooth muscle

c) Skeletal muscle

58- Figure (8) is

b) Dense connective tissue

b) Loose connective tissue

c) Compact spongy

59-is a collection of cells and non-cellular structures, which have the similar origin, structure and functions.

a) The cell

b) The tissue

c) The organ

60- The tissue which has the ability to undergo mitosis and replace damaged cells is

a) epithelial tissue

b) nervous tissue

c) blood tissue

مع تمنياتي لكم بالتوفيق: د/ شيماء محمود صالح



Answer the following questions with Labeled drawing if they needed
(Exam in TWO papers)

1- Put \checkmark or X in front of following sentences and correct the wrong one:- (15 degree)

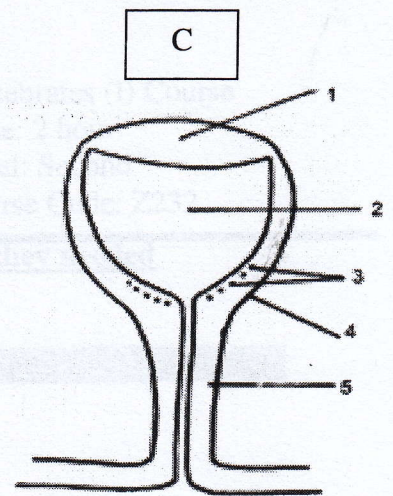
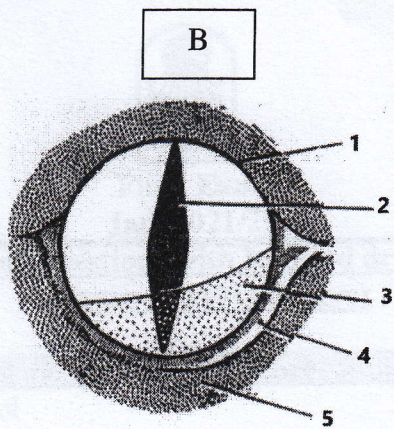
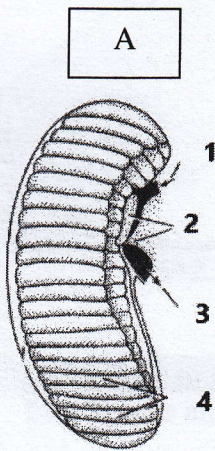
1. Fish is an is anamniote animal
2. The term vertebrata is synonymous to chordate
3. In vertebrates, the pharyngeal gill slits are not more than 7 pairs
4. The first fossil records of vertebrates were found in the rocks of
5. Exoskeleton in lampreys is cartilaginous
6. Muscles of trunk and tail in petromyzon are arranged in D shaped myotomes
7. The cartilage surrounding the buccal funnel in Petromyzon is annular cartilage
8. Anticoagulant in petromyzon is secreted by mucous glands
9. The eggs of lampreys are Teloleithal
10. In Rohu frog stomach is U shaped

3- Mention the function for TEN only from the following structures:- (10 degree)

- | | |
|-------------------------------|-------------------------------------|
| 1. Wheel organ | 7. membranous labyrinth |
| 2. Velum | 8. Neuromast or lateral line system |
| 3. Kollicker's pit | 9. Ampullae of Lorenzini |
| 4. Oral fimbriae or papillae | 10. Air bladder |
| 5. Spiral valve or typhlosole | 11. Scales in fishes |
| 6. Rectal gland or caecal | 12. Masseter muscles in frog |

4- Answer Five only of following themes including numbers 1 and 3 mandatory: (15 degree)

1. **State the different types of caudal fins or tails in fishes.**
2. Diagrammatically show the structure of lateral compound eye of vertebrate.
3. **Draw the pentadactyl limb structure in the vertebrates.**
4. Compare between mature gametes in branchiostomata.
5. Compare between lower vertebrates and higher vertebrates.
6. Discuss the structure of solenocytes of Amphioxus.



5-.....

Best wishes.....,

1. Wheel organ

7. Metamorphic labyrinth

2. Velum

8. Nerve root or lateral line system

3. Kolliker's pit

9. Ampullae of Lorenzini

4. Oral finchiae or papillae

10. Air bladder

5. Spiral valve or typhlosole

11. Scales in fishes

6. Rectal gland or rectal

12. Masseter muscles in frog

1. State the different types of rayed fin or tails in fishes.

2. Diagrammatically show the structure of lateral compound eye of vertebrate.

3. Draw the pentadactyl limb structure in the vertebrates.

4. Compare between mouth gasket in branchiostoma.

5. State the difference between lower vertebrates and higher vertebrates.

6. Discuss the structure of solitary eye of Amphioxus.



Final Exam of invertbrates (I)

(June) 2021-2022



Assiut University

Time: 2 Hours

Faculty of Science

Corse Code: 220 Z

Department of Zoology

Total degree:50

Answer the following questions:

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

1- The cavity of cnidarians is called:

- a) Spongocoel b) Gastrovascular cavity c) Haeomocoel d) None of these

2- Hydra has no special structures for:

- a) Attachment b) Food capture c) Respiration d) Offence and defence

3- What class of flatworm includes flukes ?

- a) Trematoda b) Planaria c) Nematoda d) Cestoda

4-Cells of Hydra possessing flagella and pseudopodia are:

- a) Nematocysts b)Secretory cells c) Epitheliomuscular cells d) Nutritivemuscular cell

5- How many pairs of aortic arches do Annelids have?

- a)1 b) 3 c)5 d) 7

6- The parts of the annelid digestion system in the correct order are...

- A. Mouth, pharynx, intestine, crop, gizzard, anus
B. Mouth, crop, gizzard, pharynx, intestine, anus
C. Mouth, pharynx, crop, gizzard, intestine, anus
D. Mouth, crop, gizzard, stomach, anus

7-The Frist word of the scientific name refers to:

- A. Family B. Genus C. Species D. Kingdom

8. Which of the following is a filter feeder?

- A-hydra B- sponge C- coral D- all of these of these

9-Roundworms belong to which Phylum?

- a-Nematoda b-Platyhelminthes c- Mesozoa d-Cnidaria

10- How does a planarian consume food

- a-by filter feeding b-diffusion across the cell membrane
c-capturing with tentacles d-siphoning food through a phary

11-. Which of the following pairs is most closely related?

- a-roundworm & flatworm b-jellyfish & seaanemone
c-tapeworm & sponge d-sponge & hydra

12-In a small stream, you pick up a rock and observe many small, flattened worms crawling on its undersurface. You decide that they belong to the phylum Platyhelminthes. It is clearly free-living, and not a parasite. To which class do they probably belong?

- A-Cestoda B) Monogenea C) Turbellaria D) Trematoda.

13-Unique adhesive cell type in Ctenophores

- a. Colloblast b. amebocytes c-cnidocytes d-choanocytes.

14- An extension of body wall of Polycheta used in swimming ,gas exchange and burrowing.

- A. Pseudopodia B. flagella C. Cilia D. parapodia

15- The nervous system of the flatworms has sensory, motor, and association nerves, and it is organized into a _____ pattern.

- A.spinal cord B endothelial C. ladderlike D. nerve net

16-African sleeping sickness is caused by a human parasite called

- A-Trypsoma B Panosoma C Trypanosoma D Dipanosoma

17-Which one of the pseudocoelomate phyla are tiny marine animals with 11 external segments and recurved spines on the surface for locomotion

- A)-Gastrotricha b) Kinorhyncha c) Priapulida d)Loricifera

18- Excretion in the phylum Nematoda by

- A) Flame cells B) Nephridia C) Malpighian tubules D) Rennate cells

19The reproductive units of the cestodes are called

- A)siphonoglyphs. B) proglottids. C) opisthaptors. D) scolices

20-When are the differences between protostomes and deuterostomes most apparent?

- A)In the adult stage of development B)During embryonic development
C)At death D)At birth

21- Worm usually found in people in tropical countries and live in lymphatic system

- A.*Wuchereria filarial* B.*Necator americanus* ♀
C.*Trichinella spiralis* D. *Ancylostoma dudonale*

22. The members of following phylum are exclusively marine,radially symmetrical and diploblastic

- A. Echinodermata B. Cnidaria C. Porifera D. Annelida

23) Which one is not typical to all porifers

- A.Perforated body B.Choanocytes C.System of pores and canal D.Presence of spongin fibres

24-Nemerteans are also known as

- A. Tap worm B. Liver flukes C Ribbon worms D. Blood flukes

25)Polycheta free swimming larva is called as

- A.Veliger B.Trochophore C.Parenchymula D.Bipinnaria

26-Pellicle is found in:

- A. Amoeba B. Euglena C. Euglena and paramecium D.All of these

27) Which of these are not tissue grade animals:

- A. Sponges B. Cnidarians C. Annelids D. Molluscs

28) Larva of Hydra is called:

- A. Planula B. Amphiblastula C. Scyphistoma D. Miracidium

29) Turbellarian epidermis differs from that of a trematode due to:

- A) Presence of rhabdites B) Presence of syncytium in trematodes
C) Presence of cilia D) Both (a) and (c)

30) Onchosphere occurs in:

- A) Ascaris B) Fasciola C) Taenia D) Planaria

31) One of the following characteristics is not correct for nematoda:

- A) Elongated cylindrical body B) Fixed number of cells in the body
C) Hermaphroditism D) Pseudocoelomate

32) Which one is not deuterostome:

- A) Chordata B) Cephalochordata C) Annelida D) Echinodermata

33) Which one of the following is not hermaphrodite animal :

- A) Leeches B) Polychaetes C) Flatworms D) Earthworm

34) The typhlosole in earthworm is related with :

- A) Excretion B) Absorption C) Respiration D) Reproduction

35) Botryoidal tissue is found in :

- A) Rabbit B) Ascaris C) Hirudinaria D) Earthworm

Q II: Put (✓) for the correct sentences and (X) for the wrong one:(15 marks one for each point)

- 36-Whittaker classified living organisms into seven kingdoms
37-Snails are the intermediate hosts for both *Schistosoma mansoni* and *Taenia solium*.
38-. Schizont stage of Plasmodium occurs in human liver cells .
39-. Tapeworms lack a digestive system.
40-. A digenetic trematode is one that depends on two or more hosts to complete its life cycle.
41-The infective stage of *Schistosoma mansoni* is meta cercaria
42- Mesozoa have three germ layers.
43-Phylum Placozoa linked between parazoa and metazoa .
44- The larva of Ctenophora is cypdid larva.
45- Excretion cells in the phylum Platyhelminthes are flam cells.
46-Pseudopodia in amoeba help in locomotion, engulfment, and ingestion.
47-Redia is free swimming ciliated stage of *Fasciola gigantica*
48-Clitellum in Oligochaeta is absent
49-Metamerism or metameric segmentation is characteristic feature of Annelida.
50-Pseudocoelom develop from Blastocoel.
-

Good luck

أ.د. ازهار حسين



Faculty of Science

Assiut University

Dept. of Zoology

Exam of Animal Ecology Code No. 225Z

Credit hour system 2nd level. Year 2022

Time allowed: 2 hours

أجب عن الأسئلة الآتية: (لاحظ أن الأسئلة تقع في ورقتين) "درجة لكل نقطة"
س ١: اختر الإجابة الصحيحة من بين الأقواس ثم اطمس الدائرة المقابلة في ورقة الإجابة المعدة لذلك
بالقلم الجاف:

- 1-Saprophytes include: a-(Fungi) b-(Bacteria) c- (mushrooms) d-(all).
- 2-Carnivores include: a-(Predators) b-(Scavengers) c-Cannibalism d-(all).
- 3-Light affects a-(the color of animals) b- (morphology) c- (migration) d-(all).
- 4-Stenotherms are a-(widely distributed) b-(restricted in their distribution) c- (moderate in distribution) d-(all).
- 5- The temperature affects a-(the physiology of animals) b- (morphology of animals) c- (development of the organism) d-(all).
- 6-The maximum rate at which a population can increase under ideal conditions is known as a- (natality rate) b- (biotic potential) c- (biotic potential) d-(mortality rate).
- 7-A large number of young is characteristic of a-(short lived animals) b- (long lived animals) c- (animals that reproduce sexually) d- (all).
- 8- The organisms that break down wastes and dead organisms are known as a-(decomposers) b-(decomposers) c- (decomposers) d-(decomposrs).
- 9- The a-(carrying capacity) b-(biotic potential) c-(biotic factor) d-(all) represents the highest population that can be maintained for an indefinite period of time by a particular environment.
- 10- The population includes similar a-(individuals) b- (community) c- (ecosystems) d- (all).
- 11- a-(The decomposers) b-(Fungi) c- (Bacteria) d- (all) play a good rule in recycling of materials.
- 12- a-(fitness) b-(carrying capacity) c- (Homeostasis) d-(community) is the ability of an organism to reproduce successfully.
- 13- a-(Competition) b-(Climax communities) c- (Homeostasis) d-(Biomes) is the maintenance of conditions within the range that the organism can tolerate.
- 14- a-(Parthenogenesis) b-(Climax communities) c- (Homeostasis) d-(Biomes) is a type of reproduction.
- 15- The least amount of energy in a community is present in a-(producers) b-(predators) c- (consumers) d-(parasites).
- 16- a-(Monogamy) b-(Polyandry) c-(polygyny) d-(all) is the formation of a pair bond between one female and more than two males.
- 17- Consumers include a-(all heterotrophs) b- (bacteria) c-(Biosphere) d-(all plants).
- 18- a-(Transpiration) b- (Homeotherms) c-(Biosphere) d-(Secondary consumers) includes water, soil and air.
- 19- a-(Transpiration) b-(Homeotherms) c-(Biosphere) d-(Secondary consumers) feed on 1st consumers.
- 20- a-(Transpiration) b-(Homeotherms) c-(Nocturnal animals) d-(Secondary consumers) are those which become active during night.
- 21- a-(Transpiration) b-(Homeotherms) c-(Nocturnal animals) d-(Secondary consumers) depend on internal heat production.
- 22- a-(Temperature) b- (Homeotherms) c-(Producers) d-(consumers) is considered one of the abiotic factors. أقلب الصفحة من فضلك

- 23- a-(Light) b-(Temperature) c-(water) d-(all) is the physical factor which has a bifold effects on the animals.
- 24- a-(Light) b-(Temperature) c-(water) d-(all) is the physical factor which affects the migration of birds.
- 25- a-(organic pollution) b-(Thermal pollution) c-(inorganic pollution) d- (all) is a kind of pollution arises from building dams and barrages on rivers.
- 26- a- (the density) b-(natality rate) c-(mortality rate) d-(all) is the number of individuals per unit of space.
- 27- a-(monogamy) b-(polyandry) c-(polygyny) d-(all) is the formation of a pair bond between one female and one male.
- 28-The number of births in a given time period is known as a-(natality rate) b-(natlity rate) c-(natality rate) d- (all).
- 29-A relationship in which one organism benefits while the other is harmed is known as a-(cannibalism) b-(parasitism) c-(mutualism) d-(all).
- 30-The class of organisms found on the top of food pyramid are known as a-(consumers) b-(herbivorous) c- (producers) d-(all).

س٢: ضع علامة صح أمام العبارة الصحيحة (T=True) وعلامة خطأ (F=False) أمام العبارة الخاطئة ثم اطمس الدائرة المقابلة في ورقة الإجابة المعدة لذلك بالقلم الجاف:

- 31- The biosphere includes many complex populations ().
- 32- The limiting factor determines the types of organisms which may exist in the environment ().
- 33- Mutualism is the maintenance of conditions within the range that the organism can tolerate ().
- 34- Thermal pollution may decrease diseases, and parasites as well as the decomposition of organic matter in the ecosystem ().
- 35- Oncology is the science dealing with the interactions between organisms and their environment ().
- 36- The population includes all the ecosystems in a given area ().
- 37- The ecosystem includes all the members of the community plus the physical environment in which they live in ().
- 38- Cannibalism is a relationship in which one organism benefits and the other is not affected ().
- 39- Endothermy refers to animals which control their body temperature by external means ().
- 40-Heterotherms refers to species that sometimes regulate their body temperature and sometimes do not ().
- 41- Interspecific competition occurs among individuals of the same species for environmental resources ().
- 42- Intraspecific competition occurs among individuals of different species for environmental resources ().
- 43- The photoperiod is the factor which affects deer reproduction ().
- 44- Intraspecific competition occurs among two populations for environmental resources ().
- 45- Parasitism is a relationship in which one organism benefits and the other is not harmed ().
- 46- Interspecific competition occurs among individuals of two different species for environmental resources ().
- 47- Clumping is a type of reproduction ().
- 48- Organisms that feed on green plants are considered producers ().
- 49- Secondary consumers, do not feed on primary consumers ().
- 50- Territory is a situation in which an animal share an exclusive area with rivals ().

Good Luck



Answer the following questions:-

Q1-Choose True or False:

(33Marks)

1-In industrially advanced countries, aquaculture is carried out by private sector. (True-False)

2- Aquaculture is estimated to contribute 12.21 million tons in fish production in 1983. (True-False)

3- In pond culture, the farm is essentially located on a tidal creek. (True-False)

4- Mariculture is aquaculture in the saltwater of the sea.(True-False)

5-Culture in rice fields had declined in recent years because of use of fish-toxic pesticides. (True-False)

6- In cage culture, no question of seepage and evaporation losses. (True-False)

7- In pond culture, no problem of pond excavation and dependence on soil characteristics. (True-False)

8- Cage culture is difficult to apply when water is rough.(True-False)

9-The water supply may be from a stream or canal or from underground source or rainfall in brackish water ponds. (True-False)

10- Public acceptance is one of the restrains in wastewater fish culture systems. (True-false)

11- Prevent loss of stock due to flooding is one of merits of cage culture. (True-False)

12- Culture of *Clarias gariepinus* and Tilapias in Africa is a bad example for polyculture. (True-False)

- 13- The soil in the area selected for pond culture should be impervious. (True-False)
- 14- The site of fish farm should be in the vicinity of transportation routes. (True-False)
- 15- Skilled operators are not essential for operating major fish farm efficiency. (True-False)
- 16- Slaughterhouse refuse and fishery byproducts are artificial fish feeds of vegetable origin. (True-False)
- 17- Dropsy and septicemia are fish disease caused by worms.(True-False)
- 18- Pox disease and cauliflower are fish diseases caused by bacteria.(True-False)
- 19- Aquaculture is organized production of a crop in the aquatic medium. (True-False)
- 20- One of the objectives of aquaculture is production of bait-fish. (True-False)
- 21- In developing countries, aquaculture is mostly practiced by large-scale. (True-False)
- 22- Pond culture depends on comparative economics of land use. (True-False)
- 23-Tastes and odour in fish is one of restrains in wastewater fish culture systems. (True-False)
- 24- No need for water replacement in cage culture. (True-False)
- 25- Costiaasis and chilodonelliasis are fish diseases caused by protozoans. (True-False)
- 26- Quality and density of plankton are biological properties of water quality. (True-False)
- 27- In the brackish water pond the competition with agriculture is relatively more than static freshwater ponds. (True-False)

- 28-In running water culture, water is filtered continuously and recirculated. (True-False)
- 29- Oil cakes and kitchen waste are fish feeds of animal origin. (True-False)
- 30- Artificial feeding is important in intensive aquaculture. (True-False)
- 31- Monoculture of milkfish *Chanos chanos* is famous in Japan . (True-False)
- 32- Risk of theft is one of limitations of cage culture. (True-False)
- 33- Vulnerability to predation is one of effects of fish diseases.. (True-False)
-

Q2-Choose the correct answer:

(17Marks)

34-..... is a common type of finfish which used in aquaculture.

(Shrimp – Oysters – Carp)

35- Aquaculture is estimated to contribute million tons in fish production in 1983.

(12.8 – 10.21 – 11.21)

36- is a common type of shellfish which used in aquaculture.

(Prawns – Trout – Tilapia)

37- Molluscs is estimated to contribute..... million tons of aquaculture production.

(3.25 – 0.12 – 2.39)

38- Restrains in wastewater fish culture systems lie in

(Sterilization – sedimentation – Public acceptance)

39- Monoaquaculture as the name implies in the culture of

(a single species – two species – several species)

40- One of the factors have been unfavourable to the development of aquaculture is.....

(aquatic pollution – reduction of fish production – screening)

41- Adoption of traditional techniques of aquaculture is

(Extensive – Intensive – Semi-intensive)

42- One of the water quality data is

(Oxygen content – Foundation of the structure – Stability of the dikes)

43- One of the chemical properties of water is.....

(Temperature – pH – Turbidity)

44- One of the biological properties of water quality is

(Alkalinity – Salinity – Quality and density of plankton)

45- One of the vegetable artificial fish feeds is.....

(Trash fish – Slaughterhouse refuse – Cereals)

46- Methods of dry fish feeds are.....

(Mechanical dispensers – Feeding enclosures – Feeding baskets)

47- Gill rot is..... fish disease.

(Fungal – Protozoan – Bacterial)

48- is a common type of plants which used in aquaculture.

(Mussels – Mullet – Red alga)

49is estimated to contribute 4.45 million tons of aquaculture production.

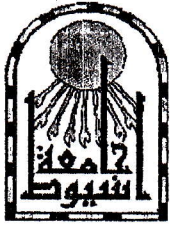
(Finfish – Crustaceans – Sea weeds)

50- is estimated to contribute 8.41 million tons of
aquaculture production.

(Africa – Asia – Europe)

Best wishes

Prof.Usama M. Mahmoud



امتحان الفصل الدراسي الثاني
مادة اساسيات الوراثة (215 ز)
لطلاب المستوى الثاني كلية العلوم (الساعات المعتمدة)
العام الجامعي 2021 / 2022 م



كلية الزراعة - قسم الوراثة

الزمن: ساعتين

لجنة الممتحنين: أ.د/ محمود أبو السعود الراوي محمد

الامتحان مكون من أربعة صفحات

السؤال الاول: - (50 درجة)

- اختر الإجابة الصحيحة من بين الاجابات

- 1- تتحور النسبة المندلية في حالة التفوق المتنحي إلى
(a) 12:3:1 (b) 15:1 (c) 13:3 (d) 9:3:4
- 2- فرد خليط لثلاثة أزواج من العوامل الوراثية وأصيل لأربعة أزواج أخرى يعطي أنواع من الجاميطات
(a) نوعين (b) تسعة (c) أربعة (d) ثمانية
- 3- النظام الذي يحدد الجنس في الاسماك
(a) الكروموسومي (b) الجيني (c) البيئي (d) لا توجد اجابة صحيحة
- 4- جين عمي الالوان في الإنسان يتوارث كجين
(a) سائد في الذكور (b) سائد في الاناث (c) مرتبط بالجنس (d) سائد في الذكور والاناث
- 5- من الصفات المرتبطة بكروموسوم Y في الإنسان صفة
(a) الصلع (b) حراشيف الجلد (c) عمي الالوان (d) جميع ما سبق
- 6- التركيب الوراثي XXX في الانسان ينتج
(a) جسم بار واحد (b) اثنين من اجسام بار (c) ثلاثة اجسام بار (d) أربعة اجسام بار
- 7- التركيب الوراثي للفنران الصفراء اللون يكون دائما
(a) خليط (b) اصيل (c) متنحي اصيل (d) لا توجد اجابة صحيحة
- 8- من امثلة الجينات المتأثرة بالجنس
(a) الصلع (b) عمي الالوان (c) الترييش في الدجاج (d) جميع ما سبق
- 9- نظام تحديد الجنس في حشرة نحل العسل
(a) كروموسومي (b) جيني (c) بيئي (d) مجموعي
- 10- تنشأ حالة الأنوثة الخصيوية في الانسان من طفرة في جين
(a) SRY (b) Tfm (c) الاثنين معا (d) لا توجد اجابة صحيحة
- 11- يمكن ان تنتج ذكور بتركيب XX في الانسان نتيجة انتقال الجين الي كروموسوم X

شور

(a) Tfm (b) Ftm (c) SRY (d) جميع ما سبق

12- إذا تزواج رجل مصاب بعَمي اللون من أنثى سليمة ينتج نسل كالتالي

(a) جميع الذكور مصابة (b) نصف النسل مصاب (c) جميع الإناث مصابة (d) جميع النسل سليم

13- التركيب الوراثي التالي في الدروسوفيلا AAXXX يكون

(a) ذكر (b) أنثى فائقة (c) بين جنسية (d) ذكر فائق

14- تظهر النسبة 1 : 2 : 1 في الجيل الثاني في حالة

(a) السيادة المشتركة (b) السيادة التامة (c) الجينات المميطة (d) الاجابة الاولى والثانية صحيحة

15- التلقيح التالي في نبات الدخان $S1S2 \text{♀} \times S2S3 \text{♂}$ ينتج عنه افراد

(a) $S1S2$ (b) $S1S3$ (c) $S2S2$ (d) جميع ما سبق
16- ثلاث مواقع وراثية تقع على نفس الكروموسوم المسافة بين الموقع الأول والثاني 12 وحدة خريطة والثاني والثالث 20 وحدة خريطة فان نسبة العبور المزدوج المتوقع تكون.....

(a) 0.24 (b) 0.20 (c) 0.024 (d) لا توجد اجابة صحيحة

17- تتحول النسبة المندلية في حالة الجينات المميطة المتتحية ذات الأثر المظهري السائد الى

(a) 2:1 (b) 3:1 اقل من واحد (c) 1:2:1 (d) 1:1

18- تتحول النسبة المندلية في حالة تفوق السائد إلى

(a) 12:3:1 (b) 13:3 (c) 9:7 (d) 9:3:4

19- في حالة التوزيع الحر تكون نسبة التراكيب الجديدة

(a) 80% (b) 50% (c) 25% (d) 100%

20- تتحول النسبة المندلية في حالة تفوق الممتحي المزدوج إلى

(a) 12:3:1 (b) 13:3 (c) 9:7 (d) 9:3:4

21- في حالة الارتباط التام تكون نسبة التراكيب الابوية

(a) 100% (b) 50% (c) 25% (d) لا توجد تراكيب ابوية

22- إذا كان معامل التوافق يساوي 0.5 فان نسبة العبور المزدوج المشاهد تساوي

(a) نصف نسبة العبور المزدوج المتوقع (b) نسبة العبور المزدوج المتوقع (c) ضعف نسبة العبور المزدوج المتوقع (d) لا توجد اجابة صحيحة

23- عملية تثبيط كروموسوم X في التراكيب الوراثية XX تتم بصورة ...

(a) انتقائية (b) عشوائية (c) الاثنين معا (d) لا توجد اجابة صحيحة

24- من الامثلة على السيادة المشتركة

(a) لون ماشية الشورتهورن (b) خلايا الدم المنجلية (c) مجاميع الدم (d) جميع ما سبق

25- يوجد جين Tfm في الانسان على كروموسوم ...

(a) X (b) Y (c) 21 (d) 18

محمد

26- معقد من البروتينات الهستونية والـ DNA

(a) β -Galactosidase (b) Nucleosomes (c) Chromosomes (d) Exons

27- شفرة من شفرات إيقاف عملية الترجمة

(a) UAA (b) UAG (c) UGA (d) جميع ما سبق

28- هرمون يخفض مستوى الكالسيوم في الدم

(a) Calcitonin (b) β -Galactosidase (c) Primase (d) Intron

29- يقوم بتضاعف السلسلة المتأخرة في حقيقيات النواة

(a) δ -DNA polymerase (b) γ -DNA polymerase (c) β -DNA polymerase (d) α -DNA polymerase

30- يحلل سكر اللاكتوز إلى جلوكوز وجلاكتوز

(a) Primase (b) β -Galactosidase (c) Ligase (d) Polymerase

31- هي عبارة عن تتابعات داخل الجين لا يتم ترجمتها

(a) Exons (b) Introns (c) Operon (d) Promoters

32- يقوم بفك الكتينة أثناء تضاعف الـ DNA في بدائية النواة

(a) Ligase (b) Helicase (c) Topoisomerase I (d) Topoisomerase II

33- يتكون من أكوونات (Exons) فقط

(a) Promoters (b) Nucleosomes (c) cDNA (d) DNA

34- تتابع خطي من الجينات التي تشترك في نفس العملية البيوكيميائية والتي تنسخ معا في جزء واحد من mRNA

(a) Operon (b) Promoter (c) Leader (d) Nucleotide

35- يقوم بتخليق خيط الـ DNA مستخدما قالب من RNA

(a) Shine-Dalgarno (b) Reverse transcriptase (c) α -DNA polymerase (d) جميع ما سبق

36- وحدة بناء الـ DNA

(a) Nucleotides (b) Nucleosides (c) DNA polymerase (d) Nucleosomes

37- هي شفرة البدء أثناء عملية الترجمة

(a) UAA (b) GAG (c) AUG (d) UAG

38- يقوم بنسخ جينات rRNA في حقيقيات النواة

(a) RNA polymerase I (b) RNA polymerase II (c) DNA polymerase II (d) RNA polymerase III

39- يوجد نوعين من التتابعات في المرقى (Promoter) في حقيقيات النواة هما عند

(a) 20- و 80- (b) 25- و 80- (c) 10- و 35- (d) 10- و 30-

40- يقوم بإضافة ذيل عديد الادنين الى mRNA

(a) Primes (b) RNA polymerase I (c) Poly A polymerase (d) DNA polymerase II

41- يقوم بنسخ الجينات الخاصة بالتشفير لبناء البروتينات في حقيقيات النواة

(a) RNA polymerase I (b) RNA polymerase II (c) RNA polymerase III (d) جميع ما سبق

42- يقوم بإصلاح الأخطاء أثناء التضاعف في حقيقيات النواة

(a) δ -DNA polymerase (b) γ -DNA polymerase (c) ϵ -DNA polymerase (d) α -DNA polymerase

43- تتابع يتعرف عليه الريبوسوم

(a) Shine-Dalgarno (b) Leader (c) DNA polymerase II (d) جميع ما سبق

44- يقوم بتصحيح الأخطاء أثناء تضاعف الـ DNA في بدائيات النواة

(a) DNA polymerase I (b) DNA polymerase III (c) DNA polymerase II (d) Ligase

45- يزيل الحلزنة الفائقة الموجبة

(a) Helicase (b) Topoisomerase I (c) DNA polymerase I (d) جميع ما سبق

46- يقوم بتضاعف DNA الميتوكوندريا في الكائنات حقيقية النواة

(a) RNA polymerase I (b) α -DNA polymerase (c) γ -DNA polymerase (d) Shine-Dalgarno

47- يحتوي جين الكالسيتونين (Calcitonin) على

(a) موقع لإضافة ذيل عديد الادنين (b) 5 اكسونات (c) موقعين لإضافة ذيل عديد الادنين (d) 7 اكسونات

48- يحتوي اوبيرون (Operon) التريتوفان على

(a) 6 جينات (b) 5 جينات (c) 4 جينات (d) 3 جينات

49- يصل شظايا الـ DNA المتجاورة (شظايا أوكازاكي)

(a) Primase (b) DNA Polymerase I (c) DNA ligase (d) DNA Polymerase III

50- التحكم في ابرون اللاكتوز

(a) موجب (b) سالب (c) شبه موجب (d) غير ذلك

انتهت الاسئلة مع تمنياتي بالتوفيق،،،،،