Assiut University
Faculty of Science
Zoology Department

Final examination
Course number 321 Z
(Parasitology)
Time: 2 hours

June 2022

Answer the following question (Write the answer only in your paper sheet)

Q1: Choose the correct answer: A, B, C, D or E (1 Mark/Each)

1-Which of the following statement is true in respect to trematodes

(A) Dorsoventrally flattened
(B) Adults have suckers
(C) Hermaphrodite except schistosomes
(D) Intermediate host is snail
(E)All of the above

2-Terminal spined eggs are seen in

(A) *Schistosoma haematobium*
(B) *Clonorchis sinensis*
(C) *Schistosoma mansoni*
(D) *Schistosoma japonicum*
(E) None of the above

3- Which of the following is not a cestode

(A) *Diphyllobothrium latum*
(B) *Taenia solium*
(C) *Taenia saginata*
(D) *Schistosoma mansoni*
(E) *None of the above*

4- The first intermediate host of *Heterophyes heterophyes* is

(A) Cattle
(B) Frogs
(c) Sheep
(D) Fish
(E) None of the above

5- Female Anopheles mosquito is insect vectors of

(A) *Entamobea histolytica*
(B)*Trypanosoma gambiense*
(C) *E. coli*
(D) *Giardia lamblia*
(E) None of the above

6- The infective stage of *Trichomonas hominis is*

(A) Merozoite
(B) Trophozoite
(C) Mature cyst
(D) Eight nucleated cyst
(E) None of the above

7- The operculated eggs are seen in parasites

(A) *Fasciola gigantica*
(B) *Diphyllobothrium latum*
(C) *Fasciola hepatica*
(D) *Heterophyes heterophyes*
(E)All of the above

8-The intermediate host of *Fasciola gigantic* is

(A) Cattle
(B) Snails
(C) Frogs
(D) Cyclops
(E)None of the above

9- Digestive tract is completely absent in

(A) Trematodes
(B) Nematodes
(C) Cestodes
(D) Annelides
(E) All of the above

10- Consumption of uncooked pork is likely to cause which of the following helminthic disease

(A) *Taenia saginata*
(B) *Diphyllobothrium latum*
(C) *Taenia solium*
(D) *Fasciola heptica*
(E) None of the above

11- The second intermediate host of *Diphyllobothrium latum* is

(A) Cattle
(B) Snails
(C) Pigs
(D) Frogs
(E) None of the above

12- The infective stage of *Emtamobea gingivalis* is

(A) Mature cyst
(B) Trophozoite
(C) Merozoite
(D) Eight-nucleated cyst
(E) None of the above

13- The infective stage of *Trichomonas vaginalis* is

(A) Mature cyst
(B) Trophozoite
(C) Quadrinucleated cyst
(D) Eight-nucleatede
(E) None of the above

14- The insect vector of *Trypanosoma cruzi* is

(A) Female mosquito
(B) Tsetse fly
(C) House fly
(D) Sand fly
(E) None of the above

15- *Taenia saginata*, to complete its life cycle requires

(A) One host
(B) Three hosts
(C) Two hosts
(D) Four hosts
(E) None of the above

16- The infective stage of the pathogenic free living amoebae, *Acanthamoeba* is

(A) Trophozoite stage
(B) Cyst stage
(C) Larva stage
(D) A & B
(E) None of the above

17- The infective stage of *Plasmodium falciparum* is

(A) Oocyst
(B) Tachyzoite
(C) Sporozoite
(D) Bradyzoite
(E)None of the above

18- The infective form of *Balantidium coli* is

(A) Tachyzoite
(B) Trophozoite
(C) Mature cyst
(D) Sporozoite
(E) None of the above

19-Infection with *Fasciolopsis buski* is due to

(A) Ingestion of metacercariae in undercooked fish
(B) Ingestion of metacercariae on water plant
(C) Ingestion of cysticercus larva in pork poorly cooked
(D) Ingestion of cysticercus larva in fresh raw beef

(E) None of the above

20-Erratic parasites those which are

(A) Found in unusual hosts

(B) Given hosts but in abnormal situation

(C) Normally free living and may be parasitic

(D) Cannot lives as a free living in any life stages

(E) None of the above

Q2: Choose (T) for True sentences or (F) for False sentences: (1 Mark/Each)

21- Transport host, is the host harbouring sexual forms of Protozoa ( )

22- Metacercaria are encysted cercariae without tails ( )

23- Chagas disease is caused by *Trypanosoma rhodesiense* ( )

24- Infective stage of *Fasciola hepatica* is cercariae ( )

25-Final host, is the host harbouring sexual forms of Protozoa ( )

26-Egg of *Enterobius vermicularis* contains fully developed larva when deposited ( )

27- Plerocercoid is a larva of Pseudophyllidean tapeworms ( )

28-Zoonoses are the diseases transmissible between man and other animals ( )

29- Infective stage of *Giardia lamblia* is trophozoite ( )

30-*Lymnaea trancatula* is intermediate host of *Schistosoma haematobium* ( )

31-The infective stage of *Trichomonas Tenax* is trophozoite ( )

32-The crithidial form without undulating membrane ( )

33-Sleeping disease is caused by *Trypanosoma gambiense* ( )

34-Fertilization male and female gametes of *Plasmodium* spp. occurs in human blood ( )

35-Trophozoite is a stage of protozoan which can ingest food ( )

36-The infective stage of *Schistosoma mansoni* is metacercaria ( )

37-The infective stage of the pathogenic free living amoebae, *Naegleria fowleri* is cyst stage ( )

38-Schistosomasis is a chronic debilitating parasitic disease that is caused by *Schistosoma* spp. ( )

39-Infective stage of *Ascaris* sp is cysticercoid larvae ( )

40-The insect vectors of *Plasmodium* sp is male anopheles ( )

41-Infective stage of *Entamoeba coli* is quadrinucleated cysts ( )

42-Some cercariae may have both penetration & cystogenous glands ( )

43- Redia stage is present in *Schistosoma* sp ( )

44- Leptocercous cercaria may have both penetration & cystogenous glands ( )

45 - Infection of *Taenia solium* occurs through ingestion of larval forms in undercooked beef. ( )

46 - The insect vectors of *Trypanosoma gambiense* is house fly ( )

47- Oocyst is the zygote after the formation of the cyst wall ( )

48-Balantidial dysentery disease is caused by *Entamoeba coli* ( )

49- *Lymnaea cailliaudi* snail is the intermediate host of *Fasciola gigantica* ( )

50- Intestinal nematode require an intermediate host to complete its life cycles ( )

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Good luck

Prof. Dr., Gamal H. Abed

جامعة أسيوط - كلية العلوم
قسم علم الحيوان
اختبار مادة البيئة المائية ٣٢٣ح
٢٠٢٢

الزمن: ساعاتان.

أجب عن الأسئلة الآتية: "درجة لكل نقطة"

س١: اختـــر الإجابة الصحيحة من بين الأقواس ثم اطمس الدائرة المقابلة في ورقة الإجابة المعدة لذلك بالقلم الجاف:

1- **Rivers are included under:** a-(lentic) b– (fresh) c- (wetlands) d-(lakes) waters.
2-**Very deep lakes may have chemical stratification that depends on:** a-(microbial processes) b– (temperature) c-(Light) d–(all mentioned before are not true).
3- **Gases in lakes, streams, estuaries and wetlands may exist as:** a-(simple molecules) b- (complex combinations of organic compounds) c-(complex combinations of inorganic compounds) d-(all mentioned before are not true).
4-**Whales are considered as:** a-(nekton) b- (zooplankton) c-(benthos) d-(all).
5-**Organisms found in freshwater habitat include:** a-(Hydra) b-(Protozoa) c-(zooplankton) d-(all).
6- **The first step in eutrophication of aquatic ecosystem is:** a- (the increasing of minerals like phosphate) b- (algal blooming) c- (formation of detritus) d- (all).
7- **A High BOD means:** a-(less of organic materials) b-(lots of organic materials) c-(lots of salts) d–(all).
8- **The aquatic organisms that inhabit the surface of the bottom are considered**: a-(epibenthic) b-(infauna) c- (zooplankton) d–(all).
9- **The identity and quantity of minerals suspended in the lake are affected by**: a- (the size of the lake) b-(slope of the lake) c- (the geological history of the lake) d- (all).
10-**Optimal reef development occurs where the mean annual temperature is about**: a- (32:35) b-(30:35) c- (23:25) d-(30-35).
11- a- (Recycling of nutrients) b- (Nekton) c- (plankton) d- (benthos) **is considered as a factor that determines any aquatic structure.**
12- **The common nutrients needed in large quantities for cell development include:** a-(CO2) b- (No3) c- (SIO2) d-(all).
13- a-(Rivers) b- (lakes) c- (estuaries) d- (seas) **have swift unidirectional water flow.**
14- **The end product of eutrophication of aquatic ecosystem is** a-(increasing of Nutrients) b- (algal blooming) c– (sedimentation of decomposed organic matter) d- (all).
15- **The shallow water in marine habitat is the:** a-(profundal) b–(the benthic) c–(the oceanic zone) d- (the Euphotic zone).
16- **The producers in aquatic habitat include** a-(Zooplankton) b–(algae) c– (Nekton) d–(all).
17- a-(Epilimnion) b- (Metalimnion) c- (Hypolimnion) d- (all) **is the coldest layer of the lake.**
18- **Coral reefs development is harmed by:** a-(very high temperature) b–(high turbidity) c-(dryness) d- (all).
19- a-(Marine ecosystem) b–(Freshwater ecosystem) c- (Lakes) d- (all) **covers 71.0% of the Earth's surface .**
20- **Coral reefs in aquatic habitat is considered as**: a-(abiotic factor) b–(chemical factor) c- (living factor) d-(all).
21- a-(Herbivorous) b– (predators) c–(producers) d-(dissolved oxygen) **in aquatic habitat can be considered as abiotic factor.**
22-**Consumers in aquatic habitat include**: a-(phytoplankton) b-(nekton) c-(algae) d- (all).
23-**Organisms found in freshwater habitat include**: a- (Benthos) b–(Nekton) c- (zooplankton) d–(all).
24- **The middle step in eutrophication of aquatic ecosystem is:** a-(increasing of Nutrients) b- (algal blooming) c–(formation of detritus) d-(decreasing of oxygen).
25- **The deepest water in marine habitat is the:** a-(the Hadalpelagic) b- (the mesopelagic) c–(the epipelagic) d-(the intertidal) zone.
26- **The aquatic organisms include** a-(Zeelpankton) b– (Photoplankton) c– (Nekton) d– (all).
27- a-(Epilimnion) b- (Metalimnion) c- (Hypolimnion) d- (the intertidal) **is the deepest portion of the lake.**
28- **Coral reefs development is enhanced by**: a- (strong wave action) b – (organic pollution) c- (predators) d-(all).
29- a-(Marine ecosystem) b–(Freshwater ecosystem) c–(Estuaries) d-(streams) **covers 0.8% of the Earth's surface**

اقلب الصفحة من فضلك

30- Light in aquatic habitat is considered as **a**-(biotic factor) **b**- (physical factor) **c**- (chemical factor) **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- Ahermatypic corals are worldwide in distribution ( )
32-Leaching of Organic compounds from soil can occur as a result of acid rains ( ).
33-Acetate and glycolate are inorganic compounds providing food for microbes ( ).
34-Oxbow lakes can occur as a result of extensive meanders of estuaries ( ).
35-Humic acid and Citrate are produced by decomposition of dead animals in lakes and streams ( ).
36-Euryhaline organisms are considered heterotrophs in aquatic ecosystem ( ).
37-Algae are considered autotrophic organisms in marine ecosystems ( ).
38-Cu- Zn acts as toxicants or as growth stimulators ( ).
39-Light is considered one of the limiting factors of corals that restricts their distribution in the tropical areas ( ).
40-The hadal zone is the bottom or deepest water in marine habitat ( )
41-Temperature is the limiting factor of corals that restricts their distribution in a certain depth ( ).
42-Chelating compounds are able to change the ionic state of metals that otherwise be toxic ( )
43-Freshwater ecosystem generates 3% of the world's net primary production ( ).
44-Streams are important nursery areas for fish and birds ( ).
45- Humic acid belongs to the refractory compounds in natural waters ( ).
46-The pelagic zone is the open water of the lake ( ).
47-BOD Measures the rate of carbon dioxide consumption by a sample of water ( ).
48-The epilimnion is the portion of the lake where the rate of temperature change with depth is the greatest ( ).
49-Intertidal zone is the area where the soil is saturated or inundated for at least part of the time ( ).
50-Acid rains in some countries are products of increasing Nitric Oxides in the air ( ).

With best wishes

Assiut UniversityFaculty of ScienceZoologyDepartment

Time:3hourLevel:3 &4CourseCode:314Z

SecondSemesterGenetic Engineering Exam(2022/06/07)Answerthefollowingquestions: (60 marks)

I:Choosethecorrectanswer for the following(50 marks)

1-The phosphodiester bond is .....bond

A) Ionic B) Covalent C) Hydrogen D) None of these

2- .....enzyme digest nucleotides from the ends of the DNA molecules.

A) Exonuclease B)Endonuclease C)A&B D) None of These

3- It is considered a molecular glue.

A)Exonuclease B) Endonuclease C) Ligase D) None of These

4- The term genetic engineering initially referred to various techniques used for..... of organisms through the processes of heredity and reproduction.

A) Modification B) Manipulation C) A&B D) None of These

5- Type II restriction endonucleases are classified by the size of recognition sequence to.....

A) Tetracutter B) Hexacutter C) Octacutter D) all of these

6-.....is a sequence made up of nucleic acids within double helix of DNA and/or RNA that is the same when read from 5' to 3' on one strand and 3' to 5' on the other, complementary, strand

A) Palindromic B) Inverted-reverse C) Tetratomic D) A&B

7- Type II restriction endonuclease can be activated by .....

A) ATP B) Mg2+ C) A&B D) None of these

8- When it cuts in a very specific pattern that produces sticky ends.

A) EcoRI B) EcoRV C) SmaI D) A&B

9- Cells that are able to take up the DNA are called.....cells

A) Completed B) Competent C) Computable D) B&C

10- The bacteria are given a ....., which makes them more apt to take up DNA by transformation

A) heat shock B) electric shock C) A&B D) None of these

11-To prevent the restriction enzyme acting on the host cell DNA, the host modify its DNA by .....of particular bases in the restriction enzyme's recognition sequence

A) Methylation B) Acetylation C) Phosphorylation D) all of these

12- It represents the transcriptome.

A) tRNA B) DNA C)mRNA D)all of these

13-the enzyme that can be used in the production of complementary DNA is ……..

A) DNA Polymerase B)Nuclease C)ligase D) Reverse transcriptase

14-After Synthesis cDNA the mRNA can be used by ……

A) Alkaline hydrolysis B) Phosphatase C) RNase D)A&C

15-it is a stretch of RNA that has only adenine bases

A) 5' cap B) 3' UTR C) Poly A tail D) 5'UTR

16-DNA sequence which allows initiation of replication within a plasmid by recruiting transcriptional machinery proteins.

A) ORI B) MCS C) Insert D) all of these

17- It produces proteins capable of killing closely related bacterial strains that lack it ……

A) F plasmid B)R plasmid C) Col plasmid D)all of these

18-……..is an experimental method which leads to reduction of the expression of one or more of an organism's genes

A) Knockout B)Knock-in C) Knockdown D)A&C

19-is a biological process in which RNA molecules inhibit gene expression or translation, by neutralizing targeted mRNA molecules

A) RNAi B) KO C) KI D) A&C

20- It function via base-pairing with complementary sequences within mRNA molecules

A) tiRNA B) miRNA C) tRNA D) A&B

21- it originates with dsRNA and is most commonly a response to foreign RNA with 100% complementary to the target.

A) tiRNA B) miRNA C) siRNA D) B&C

22-……..is a right-handed helix DNA and its helix diameter is approximately 2 nm

A) Z-form B) A-form C) B-form D) all of these

23- It is the nanoscale folding of DNA to create non-arbitrary two- and three-dimensional shapes at the nanoscale.

A) dsDNA B) A-form C)DNA origami D) None of these

24- It is an RNAse III nuclease that cleaves double-stranded RNA (dsRNA) and pre-microRNA (miRNA) into short double-stranded RNA fragments

A) Licer B) RISC C) siRNA D) Dicer

25- It is a gene manipulation method in which a foreign DNA either substitute or inserted into an organism at a specific locus.

A) Knockout B) Knock-in C) Knockdown D) A&C

26- The corresponding figure (1) shows the replacement vector used in gene knock out, where X refers to……..

a-homology arm

b- herpes simplex virus thymidine kinase gene

c- neomycin phosphotransferase gene

d- thymidine analogue

27- The corresponding figure (1) shows the replacement vector used in gene knock out, where y refers to……..

a-homology arm b- herpes simplex virus thymidine kinase gene c- neomycin phosphotransferase gene d- thymidine analogue

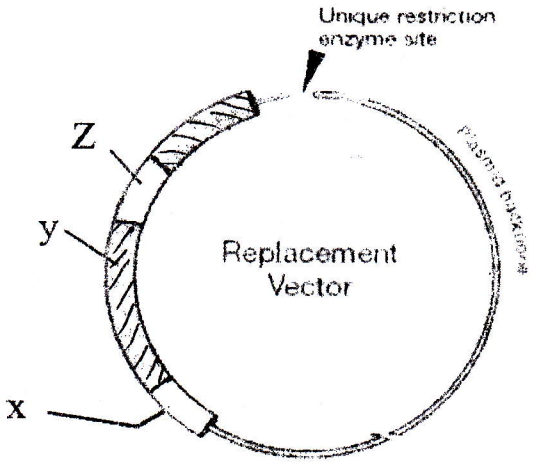


Figure (1)

28- The corresponding figure (1) shows the replacement vector used in gene knock out, where z refers to……..

a-homology arm b- herpes simplex virus thymidine kinase gene

c- neomycin phosphotransferase gene d- thymidine analogue

29- The corresponding figure (1) shows the replacement vector used in gene knock out, where X is also known as…

a- Negative selection marker b- positive selection marker c- restriction enzyme site

d- none of the mentioned

30- The corresponding figure (1) shows the replacement vector used in gene knock out, when homologous recombination occurs successfully, X should be…

a- Cloned inside the genome b- cloned outside the genome c- removed together with z

d- removed with y

31- The implanted blastocyst in gene knock out contains two different types of ES cell, the resulting offspring will

a- be not chimeric b- be true heterozygous c- contain original gene d- not mentioned

32- For obtaining homozygous offspring in gene knock out experiments

a- The chimeric pups are crossed with wild type animals

b- The none-chimeric pups are crossed with wild type animals

c- The true heterozygotes subsequently beinbred

d- Not mentioned

33- There are two homology arms in homologous recombination; the long arm is…..kb.

a- 4-8 b- 5-10 c- 1-1.5 d- 10-15

34- When there are base pair differences between the donor and recipient DNA, the efficiency homologous recombination is ……

a- Stable b- Increased c- decreased d- not changed

35- The CRISPR sequence is found in…..

a-All eukaryotes b- prokaryotes c- some eukaryotes and all prokaryotes d- some eukaryotes

36- In CRISPR cas9 system, which of the following prevents the systems from attacking its own CRISPR

a- PAM b- crRNAs c- Cas10 d- tracrRNAs

37- In modified CRISPR cas9 system used in gene editing, crRNA and tracrRNA can be combined in to ……..

a- single crRNA b- single tracrRNA c- single guided RNA d- single CRISPER cas9

38- CRISPR-Cas system class 2 type II is known as

a- CRISPR Cas 9 b- CRISPR Cas3 c- CRISPR Cas 10 d- CRISPR Cas7

39- In homology recombination, the vector must contain at least …… kb of isogenic DNA homologous with the sequence to be targeted.

a- 50-150 b- 15-20 c- 5-10 d- 50-100

40- To produce knock out mouse,the DNA used to construct the targeting vector is preferable to originate from …… as the ES cells.

a- the same mouse genus b- another mouse strain c- the same mouse strain d- another mouse genus

41- In the CRISPR system, the invading mobile element is recognized by cas

a- 10 b- 1 c- 1 and 10 d- 1 and 2

42- The PAM is required for a Cas nuclease to cut and is generally found …….nucleotides downstream from the cut site.

a- 30-40 b- 5-6 c- 50-60 d- 3-4

43- In Streptococcus pyogenes CRISPR system, Cas9 recognizes a ……..PAM

a- 3′-NGG-5′ b- 5′-NGG-3′ c- 5′-GTT-3′ d- 3′-GTT-5′

44- The spacers in Streptococcus pyogenes CRISPR system are coded by ……. so the Cas9 cannot cut the bacteria's own genome

a- 3′-NGG-5′ b- 5′-NGG-3′ c- 5′-GTT-3′ d- 3′-GTT-5′

45-The PAMDNA sequence in the CRISPR system is……base pairs in length

a- 2-6 b- 12-16 c- 30-40 d- 50-60

46- Small non-coding RNAs (sncRNAs) include

a- short interfering RNAs b- microRNAs c- PIWI-interacting RNAs d- all the mentioned

47- In RNA editing, deaminase can convert

a- C to U b- U to C c- A to I d- all the mentioned

48- The corresponding figure (2) representing the CRSPR cas 9 system, where target DNA is represented by….

a- w b- x c- y d- z

49- The corresponding figure (2) representing the CRSPR cas 9 system, where crRNA is represented by….

a- w b- x c- y d- z

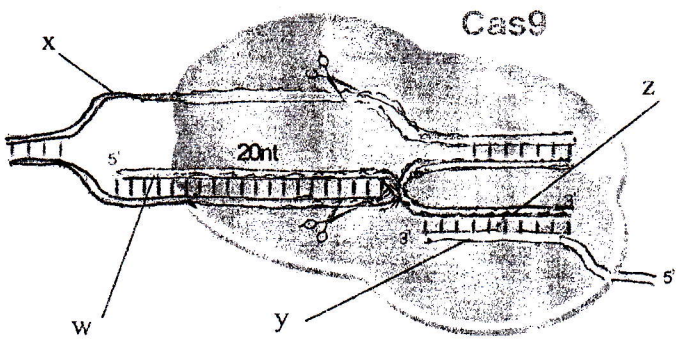


Figure (2)

50- The corresponding figure (2) representing the CRSPR cas 9 system, where tracrRNA is represented by….

a- w b- x c- y d- z

II: Mark the following True (T) or False (F)(10marks, one mark for each)

51-Endonucleases are enzymes digest nucleotides in the interior of a DNA molecule.

52-Joining two DNA fragments by 5`→3` phosphodiester bond is not an energy dependent process.

53-A plasmid is a molecule which can be stably inherited with being linked to the chromosome.

54-A chimeric mouse contains both normal cells and genetically manipulated "knockout" cells.

55-It is not possible to produce different 1D, 2D and 3D constructs, even functional ones, out of DNA molecules.

56- The most common positive selection marker in knocking out is the neomycin phosphotransferase gene.

57- Cas9 produces multiple double-stranded break in the DNA.

58- The CRISPR Cas9 system is used for gene activation.

59- Long non-coding RNAs (lncRNAs) ismore than100 nucleotides in length.

60-Human Apolioprotein (ApoB100) is found as truncated ApoB48 in liver.

End of questions

Best wishes

Prof. Abobakreltayeb and Dr. Ahmed Raslan

Zoology Department

قسم علم الحيوان

Final Exam: Physiology 2 (310Z)
Credit Hour System 116-2022
Total marks: 50

Time: Two Hours
Second Semester

Answer the following questions:

Q1- Choose the correct answer (25 marks)

1. Which of the following hormones is secreted by the anterior pituitary?
a. Oxytocin
b. Antidiuretic hormone
c. Gonadotropin releasing hormone
d. Follicle-stimulating hormone

2. Up-regulation of receptors means:
a. A hormone increases the number of receptors
b. A hormone decreases size of receptors
c. A hormone decreases activity of receptor
d. A hormone decreases number of molecules bind to receptor

3. Direct actions of growth hormone include all of the following EXCEPT
a. decrease glucose uptake into cells
b. increase lipolysis
c. increase production of IGF
d. decrease protein synthesis in chondrocytes

4. Which of the following hormones are inhibited by hypothalamic somatostatin?
a. T3 and T4
b. Growth hormone
c. Calcitonin
d. Prolactin

5. Metabolic actions of thyroid hormones include all the following EXCEPT
a. Glycogenolysis
b. Gluconeogenesis
c. Lipogenesis
d. Glucose oxidation

6. Positive Ca^{2+} balance
a. Is observed in pregnant women
b. Intestinal Ca^{2+} absorption exceeds urinary excretion
c. Is observed in lactating women
d. Intestinal Ca^{2+} absorption is less than Ca^{2+} excretion

7. Parathyroid hormone directly
a. Controls the rate of calcium transport in the mucosa of the small intestine
b. Controls the rate of formation of 1, 25-dihyroxycholicalciferol
c. Stimulate renal tubular phosphate reabsorption
d. Controls the rate of 25-hydroxycholicalciferol formation

8. Which of the following stimulates the secretion of parathyroid hormone?
a. Increase in extracellular calcium ion activity above the normal level
b. Increase in calcitonin concentration
c. Increased secretion of PTH-releasing hormone from the hypothalamus
d. None of the above

9. Selective destruction of the zona fasiculata of the adrenal cortex would produce a deficiency of which hormone?
a. Aldosterone
b. Androstenedione
c. Cortisol
d. Adrenalin

See Next Page

10. Glucocorticoids increase blood glucose level by the following mechanisms EXCEPT

a. Increase protein catabolism
b. Increase lipogenesis
c. Decrease glucose utilization
d. Increase lipolysis

11. Which of the following is functions of estrogen?

a. Decreases uterine contractility
b. Increases growth of lobule-alveolar system in breast
c. Affects cell cleavage in early developing embryo
d. Relax of pelvic ligament

12. Which of the following hormone makes large amount of glucose available to the fetus?

a. Parathormone b.Oxytocin c. Human placental lactogen d. Human chronic gonadotropin

13. Human chorionic gonadotropin is ---------- like function

a. LH b. FSH c. Growth hormone d. Prolactin

14. Which of the following is one of the parts of the hindbrain?

a. hypothalamus b. cerebellum c. corpus callosum d. spinal cord

15. If there is an injury in the hypothalamus region of the brain, it is most likely to affect

a. regulation of body temperature
b. decision making
c. co-ordination during locomotion
d. short-term memory

16. Which of the following divisions is NOT a part of the peripheral nervous system?

a. brainstem b. sympathetic c. parasympathetic d. enteric

17..... is released by motor nerve endings onto muscle.

a. Acetylcholine b. Norepinephrine c. Dopamine d. Serotonin

18. In reflex action, reflex arch is formed by.....

a-brain—spinal cord---muscle
b. receptor—spinal cord---muscle
c-muscle----brain-----spinal cord
d. muscle----receptor----spinal cord

19. Which of the following receptors are responsible for smell and taste?

a. thermoreceptors b. chemoreceptors c. mechanoreceptors d. electroreceptors

20. Which part of the brain maintains posture and equilibrium of the body?

a. forebrain b. midbrain c. hindbrain d. spinal cord

21. Glial cells are the most abundant cells in .....

a. lung b. kidney c. liver d. brain

22. The difference in voltage between the inside and outside of a resting cell is called.....

a. actions potential b. repolarization c. resting potential d. depolorisation

See Next Page

23. What is the purpose of the blood brain barrier?
a. it provide another layer of CSF
b. it protect the peripheral nervous system
c. it supplies nutrients while preventing hazardous chemicals from reaching the brain.
d. it transit electrical signals between neurons.

24. The region in the eye where the rods and cones are located is the.....
a. retina b. cornea c. choroid d. sclera

25. How many lobes are in each cerebral hemisphere?
a. two b. three c. four d. five

Q2- Sign true (√) or false (×): (25 marks)

26. Norepinephrine and epinephrine decrease insulin secretion. ( )
27. Glucagon is produced from beta cells in pancreas. ( )
28. Decreased blood volume causes increased aldosterone secretion. ( )
29. Pituitary gland can be classified as an endocrine and an exocrine gland. ( )
30. Negative feedback control of hormone secretion is self-reinforcing. ( )
31. Growth hormone deficiency in children causes acromegaly. ( )
32. Prolactin is responsible for contraction of uterine smooth muscle. ( )
33. Calcitonin can be used to treat hypercalcemia. ( )
34. Luteinizing hormone stimulates testosterone release by the Leydig cells. ( )
35. During pregnancy, estrogen stimulates growth of endometrium. ( )
36. Human chorionic gonadotropin increases secretion of fallopian tube and uterus. ( )
37. Dihydrotestosterone is responsible for the sexual desire. ( )
38. Neurotransmitters are signal molecules released at synapses. ( )
39. The function of the spinal cord is facilitate the communication between the two hemispheres. ( )
40. NS receives information from the surroundings, processes and interprets it and then responds. ( )
41. The parasympathetic preganglionic cell bodies located in the brain stem. ( )
42. Excessive polarization due to GABA is created due to the opening of Na^+ & K^+ channels. ( )
43. Astrocytes line the ventricles in the brain and central canal of spinal cord. ( )

See Next Page

44. In Phylum Mollusca the NS is composed of nerves with pedal and visceral nodes which are always concentrate in the anterior ring. ( )

45. Most of serotonin receptors are coupled to G-proteins that affect the activities of either adenylate cyclase or phospholipase C (IP3). ( )

46. Functional center for emotional memory includes parts of the thalamus, hypothalamus, and cerebral cortex. ( )

47. Lateral horns of gray matter located ONLY in thoracic and lumbar regions. ( )

48. The 3rd order neuron of ascending tract carries signal from thalamus to sensory region of medulla oblongata ( )

49. Taste drives appetite and protects us from poisons. ( )

50. Humans can hear sounds with frequencies between 20 Hz and 20 kHz. ( )

إنتهت الأسئلة

كل الأمنيات الطيبة بالتوفيق

أساتذة المقرر

أ.د. حسام الدين محمد عمر

د. سمير محمد محمود رجب

Assiut University Faculty of Science Zoology Department	Final Exam of Principles of Embryology (Z 334) for Chemistry-Zoology & Zoology students	July, 22nd 2022 Time: Two hours Total marks: 50

Encircle the right answer: (One mark each)

1- In vertebrates, yolk is synthesized in
a) mitochondria of oocyte b) liver of mother c) fat bodies d) a and b

2- The surface of chick oocyte is covered by an area called
a) corona radiate b) zona radiate c) zona pellucida d) vitelline membrane

3- An example of viviparous animals is
a) Chick b) mice c) duck d) kangaroo

4- Cleavage type in the toad is
a) equal holoblastic b) unequal holoblastic c) meroblastic d) superficial

5- If nondisjunction occurs in the first meiosis, trisomy probable percentage is
a) 100% b) 75% c) 50 d) 25%

6- How many ova are produced from one primary oocyte?
a) 1 b) 2 c) 4
d) 8

7- The type of shell membranes of chick is a
a) primary b) secondary c) tertiary d) quaternary membrane

8- If the cleavage line divides the animal pole but does not extend down to the vegetal, the type of cleavage is
a) holoblastic b) meroblastic c) superficial d) discoidal

9- The space in the toad gastrula is
a) blastocoel b) archenteron c) enterocoel
d) enteron

10- At the age of 33 hours the number of mesodermal somite units in the chick embryo is
a) 13 b) 23 c) 26 d) 33

11- After the fourth cleavage of Amphioxus blastomeres are arranged in
a) two layers b) three layers c) four layers d) five layers

12- How many polar bodies are produced after the meiotic division?
a) 1 b) 2 c) 3 d) none

13- How many cleavages are required for an ovum to produce 64 blastomeres?
a) 4 b) 6 c) 32 d) 64

14- spermiogenesis is hormonally controlled by
a) inhibin & T4 b) LH & T4 c) FSH & T4 d) LH & FSH

15- Entry of sperm into the ovum causes
a) fertilization cone formation b) fertilization membrane formation
c) second maturation division d) all

State true (√) or false (x): (one mark each)

16- Vitellogenesis is a process controlled by testosterone.

17- Fertilization cone functions to prevent entry of more sperms.

18- Axial filament of sperm tail originates from the proximal centriole.

19- Kartagener triad syndrome results due to absence of micro tubulin protein.

20- Chordamesoderm is located at the roof of archenteron.

Complete with a suitable word: (one mark each)

21- Fertilization membrane protects against .....

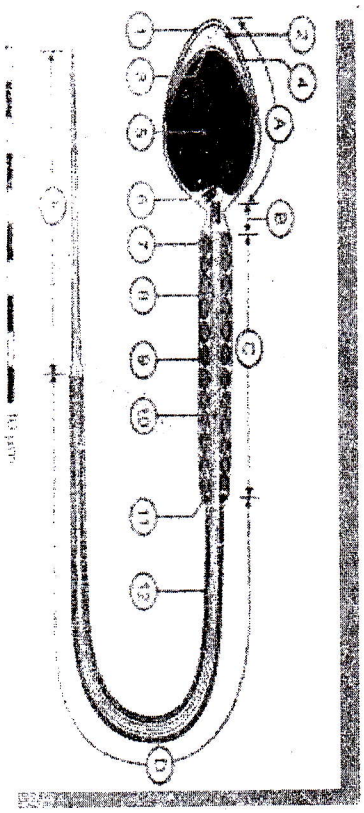
22- When fertilization is ..... the male vertebrate develops copulatory organs.

23- Shortage of ..... might cause chromosomal nondisjunction.

24- Albumin is a tertiary membrane formed in the ..... part of the oviduct.

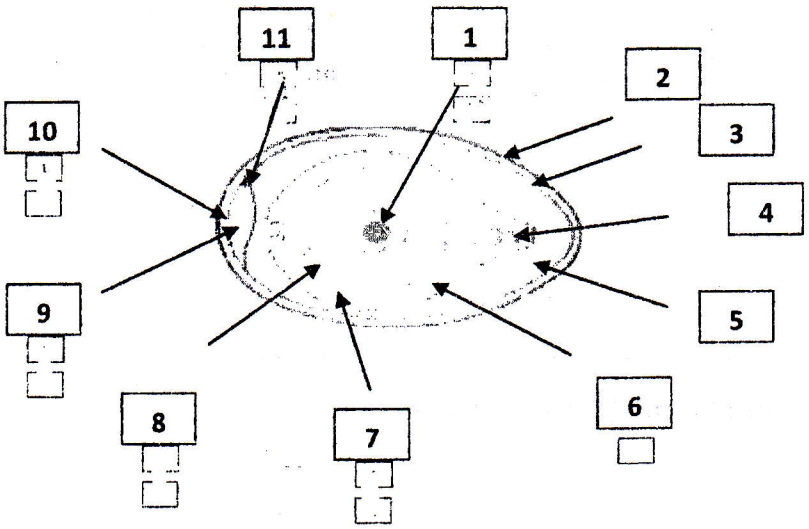
25- ..... of bony fishes is a primary egg membrane.

Nominate each part and identify the drawing: (5 marks)



A		**4**	
B		**5**	
C		**6**	
D		**7**	
E		**8**	
1		**9**	
2		**10**	
3		**Identify**	

Nominate each part and identify the drawing: (5 marks)



Identify	

1	
2	
3	
4	
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7	
8	
9	
10	
11	

Show with labeled drawings only differentiation of somites in Amphioxus and toad (3 marks)

Amphoixus	Toad

Show with labeled drawings only a comparison between gastrula of Amphoixus and toad (2 marks)

What are the factors that control successful external fertilization? (3 marks)

1-

2-

3-

4-

5-

6-

Connect each one from column A with the suitable one in column B (7marks)

A	B
Kartagener Triad Syndrome	Acceleration of development
Zonary placenta	Dynein protein
Sertoli cells	FSH
Vitellogenesis	Secondary sexual characters
Leydig cells	Cat
Lamp brush chromosom	Androgen binding proein
Inhibin	Feedback action

End of questions.....Best of luck

Dr. Reda A. Ali

Prof. Experimental Embryology

Assiut University
Faculty of Science
Zoology Department

Final examination
Course number 324 Z
(Protozoa & Parasitology)
Time: 2 hours
June 2022

Answer the following question (Write the answer only in your paper sheet)

Q1: Choose the correct answer: A, B, C, D or E (1 Mark/Each)

1- The common form of asexual division in the Protozoa may be

(A) Binary fission (B) Multiple fission

(C) Endodyogeny (D) Cyst formation

(E) All of the above

2- The biological association between two organisms may be commensalism, which means

(A) Association is necessary for both and from which both benefit

(B) The relation is not essential, each can get along without the others

(C) In which one is benefited &other is neither benefited nor harmed

(D) In which one injures, the other benefit & causing disease

(E) None of the above

3- Which of the following parasites is not a cestode

(A) *Taenia solium* (B) *Taenia saginata*

(C) *Clonorchis sinensis* (D) *Diphyllobothrium latum*

(E) None of the above

4-Which of the following statement is true in respect to cestode

(A) The body is flat-like and segmented (B) Adults have suckers

(C) Lack a digestive system (D)Usually hermaphrodite

(E) All of the above

5- The insect vector of *Leishmania* sp.is

(A) Female mosquito (B) Tsetse fly

(C) House fly (D) Sand fly

(E) None of the above

6-Obligatory parasites those which are

(A) Found in unusual hosts

(B) Given hosts but in abnormal situation

(C) Normally free living and may be parasitic

(D) Cannot lives as a free living in any life stages

(E) None of the above

7- The class Phasmidia in Nematodae may have

(A) Caudal sense organs (B) well-developed excretory system

(C) Two copulatory spicules (D) Thin egg shell

(E) All of the above

8- The crustacean, Cyclops act as intermediate host for

(A) *Fasciolopsis buski* (B) *Heterophyes heterophyes*

(C) *Taenia solium* (D) *Clonorchis sinensis*

(E) None of them

9- The operculated eggs are seen in parasites

(A) *Schistosoma haematobium* (B) *Diphylobothrium latum*

(C) *Taenia saginata* (D) *Taenia solium*

(E) *None of the above*

10- Consumption of uncooked fish is likely to cause which of the following helminthic disease

(A) *Taenia saginata* (B) *Heterophyes heterophyes*

(C) *Fasciola heptica* (D) *Fasciolopsis buski*

(E) None of the above

11- The infective stage of *Plasmodium falciparum* is

(A) Oocyst (B) Tachyzoite

(C) trophozoite (D) Bradyzoite

(E) None of the above

12-Which of the following parasites transmitted to man through ingestion of raw vegetables

(A) *Fasciola gigantic*
(B) *Ascaris lumbricoides*
(C) *Enterobius vermicularis*
(D) *Giardia lamblia*
(E) All of the above

13- Which of the following parasitic protozoa that may be encountered during analysis of faeces

(A) *Balantidium coli*
(B) *Giardia lamblia*
(C) *Entamoeba histolytica*
(D) *Trichomonas hominis*
(E) All of the above

14- Parasitic *Taenia saginata*, to complete its life cycle requires

(A) One host
(B) Two hosts
(C) Three hosts
(D) Four hosts
(E) None of the above

15- The infective stage of *Emtamobea coli* is

(A) Trophozoite
(B) Merozoite
(C) Mature cyst
(D) Eight-nucleated cyst
(E) None of the above

16-Infection with *Fasciola hepatica* is due to

(A) Ingestion of metacercariae in undercooked fish
(B) Ingestion of metacercariae on water plant
(C) Ingestion of cysticercus larva in pork poorly cooked
(D) Ingestion of cysticercus larva in fresh raw beef
(E) None of the above

17- The infective stage of the pathogenic free living amoebae, *Acanthamoeba* is

(A) Trophozoite stage
(B) Cyst stage
(C) Larva stage
(D) A & B
(E) None of the above

18- The infective stage of *Trichomonas tenax*

(A) Merozoite (B) Trophozoite

(C) Quadrinucleated cyst (D) Eight nucleated cyst

(E) None of the above

19- The first intermediate host of *Heterophyes heterophyes* is

(A) Cattle (B) Frogs

(C) Sheep (D) Fish

(E) None of the above

20- The mode of infection with *Diphyllobothrium latum* is

(A) Ingestion of undercooked pork containing encysted larvae

(B) Ingestion of undercooked meat containing encysted larvae

(C)Ingestion of undercooked fresh water fish containing the plerocercoid larva

(D)Ingestion of fleas or other insects containing the cysticercoids larva

(E) None of the above

Q2: Choose (T) for True sentences or (F) for False sentences: (1 Mark/Each)

21- Redia stage is absent in *Schistosoma* sp ( )

22- Metacercaria are encysted cercariae without tails ( )

23- Defintive host, is the host harbouring sexual forms of Protozoa ( )

24- Infective stage of *Trichomonas hominis* is trophozoite ( )

25- Balantidial dysentery disease is caused by *Entamoeba coli* ( )

26- Infective stage of *Fasciola gigantic* is cercariae ( )

27- Zoonoses, are the diseases transmissible between man and other animals ( )

28-All the tapeworms are hermaphrodites ( )

29-Oncosphere is the egg-encased embryo of cyclophyllidean Tapeworms ( )

30-Egg of *Enterobius vermicularis* contains fully developed larva when deposited ( )

31- Plerocercoid is a larva of Pseudophyllidean tapeworms ( )

32-The crithidial form have a kinetoplast located in the middle of the body ( )

33-Man acts as the definitive host in *Plasmodium* sp. ( )

34- Chagas disease is caused by *Trypanosoma rhodesiense* ( )

35-Fertilization male and female gametes of *Plasmodium* spp. Occurs in human blood ( )

36-Trophozoite is a stage of protozoan which can ingest food ( )

37-*Paramecium* is holozoic in nutrition ( )

38-The infective stage of *Schistosoma mansoni* is metacercaria ( )

39-In the life cycles of digenetic trematodes involving a molluscan host ( )

40-Infective stage of *Ascaris* sp is cysticercoid larvae ( )

41- The insect vectors of *Plasmodium* sp is male anopheles ( )

42-Infective stage of *Entamoeba gingivalis* is quadrinucleated cysts ( )

43- Infective stage of *Trichomonas vaginalis* is trophozoite ( )

44- Costa is a cytoplasmic structure seen at the base of undulating membrane of intestinal flagellates. ( )

45- The scolices of pseudophyllidean cestodes have rostellum ( )

46- Intestinal nematodes do not require an intermediate host to complete their life cycles ( )

47- Infective stage of *Giardia lamblia* is trophozoite ( )

48- The leptomonas form without undulating membrane. ( )

49-Lateral spined eggs are seen in *Schistosoma haematobium* ( )

50-*Naegleria* and *Acanthamobea* are facultative parasites of man ( )

.....

Good luck

Prof. Dr., Gamal H. Abed

Assiut University
Faculty of Science
Dept. of Zoology

Final Exam. of Cell Biology (312Z) for Zoology Students

June 2022 **Time 2 hours**

I- Choose the correct answer: (13 Marks)

1- Which one of the following statements regarding culture fractionation is **FALSE?**

a) selecting cells at the same age b) selecting cells at the same stage of growth division cycle

c) avoids the potential problems of synchronization techniques

2- The phase of population growth cycle in which there is little or no increase in the number of population cells is called: a) exponential phase b) lag phase c) cycle phase

3- Changes in temperature cycle, light cycle and chemical concentrations in a batch culture known as: a) synchrony by induction b) synchrony by selection c) natural synchrony

4- The anterior chamber of the eye is immunologically privileged site because their cells express high levels of: a) TNF-α b) Fas c) Fas L

5- The hallmark of AIDS is the decline in the number of patient's:

a) immune system b) T and B cells c) $CD4^+$ T cells

6- Cell growth and protein production are stop at certain stage in the cell cycle. This stage is?

a) G_2 phase b) M phase c) G_1phase

7- One of the human papilloma virus (HPV) products is a protein (E6) that binds and inactivates the apoptosis promoter → a) P53 b) P58 c) P63

8- The various phases of the growth and reproduction of cells constitute what is called:

a) cell growth b) cell cycle c) cell division

9- In the programmed cell death, Bcl-2 is bound to a molecule of protein which called:

a) caspase 9 b) Apaf-1 c) TNF-β

10- The replication of the nuclear DNA occurs in the portion of the cell cycle known as:

a) interphase b) metaphase c) anaphase

11- In the death by injury, the cells and their organelles undergo changes like:

a) swell b) shrink c) both of them

12- When the population density is high enough for the cells to physically come into contact with each other; this phenomenon is called:

a) continuous culture b) contact inhibition c) non- continuous culture

13-The generation time is the time required for the number of cells in the population to exactly:

a) half b) one third c) double

Qustion	1	2	3	4	5	6	7	8	9	10	11	12	13
Answer													

II- Fill in the spaces (10 Marks)

1- Growth factors include substances which ....many of the actions of hormones.

2- Testosterone supplementation might trigger excessive red blood cell production in some men which can increase a man's risk of..... .....

3- To get continuous culture of cell, one popular method involves the use of .....

4- Proliferative genes, such as *c-fos* and others of its kind, are countered by .....

5- The Enzymes that do the unwinding the double-helical structure that makes up DNA called..... .....

6- In a process called ....., glucose molecules attach themselves to proteins that ends in the protein crosslinking.

7- The telomeres get .....at each time a cell divides.

8- The interleukin, rise with age, and it is speculated that interfere in some way with the immune response is called: ....

9- Melanoma cells avoid apoptosis by inhibiting the expression of the gene encoding .....

10- A free radical can be produced from almost any molecule when .....

III- Write the following data: (17 Marks)

A- In gape 1 (G1) phase, cells are characterized by:

1-

2-

3-

B - In hormonal replacement, supplements of hGH can promote many problems as:

1-

2-

3-

4-

C- Calorically restricted animals live far beyond their normal lifespans due to the following:

1-

2-

3-

4-

5-

6-

D- Programmed cell death is needed to destroy cells that represent a threat to the integrity of the organism, For example:

1-

2-

3-

4-

IV-Answer two only of the following:- **(10Marks)**

1- DNA repair and synthesis.
2- Heat shock protein.
3- Proliferative genes.

Faculty of Science
Zoology & Entomology Department
Population Dynamics
Z 328

كلية العلوم - قسم علم الحيوان

أمتحان نهاية الفصل
المقرر: ديناميكية عشائر
رمز المقرر: 328ح
الزمن: ساعتان
يونية 2022م

الأمتحان فى 4 صفحات

Answer the following questions:

I- Choose the correct answer and also write its letter in the answers table below: **(26 marks)**

1-.... is a form of competition in which individuals of different species compete for the same resources.
A) Intraspecific competition **B)** Exploitative
C) Apparent **D)** Interspecific competition

2- Which distribution pattern does territoriality produce?
A) Random **B)** Uniform
C) Clumped **D)** None of the above

3-..... ecology deals with the array of ecosystems and their arrangement in a geographic region.
A) Population **B)** Ecosystem
C) Landscape **D)** Both A and B

4- ..... is a release of chemical substances by plant species that inhibit the growth of another.
A) Allelopathy **B)** Autotoxicity
C) Antibiosis **D)** Both A and B

5- ..... means a community plus the nonliving factors with which it interacts.
A) Population **B)** Ecosystem
C) Landscape **D)** Both A and B

6- Which one of the following is NOT a density-dependent factor?
A) Competition **B)** Predation
C) Parasitism **D)** None of the above

7-The growth rate of a population slows as intraspecific competition becomes more .....
A) intense **B)** poor
C) weak **D)** None of the above

8-..... is a relationship between two organisms where one is destroyed while the other is unaffected.
A) Commensalism **B)** Mutualism
C) Amensalism **D)** Parasitism

9- All of the following can improve the abilities of predators except .....
A) poison **B)** webs
C) camouflage **D)** weight

10- What type of survivorship curve do humans have?
A) Type I **B)** Type II
C) Type III **D)** Type IV

11- The statistical study of populations is called
A) density **B)** dispersion
C) demography **D)** fecundity

12- The age distribution of a population reflects its

A) history of survival
B) reproduction
C) potential for future growth
D) all of the above

13- .....is an antagonistic association between an organism and the metabolic substances produced by another.

A) Antibiosis
B) Mutualism
C) Commensalism
D) None of the above

14- Which of the following factors will affect population growth rates?

A) net emigration
B) net immigration
C) birth rate
D) all of the above

15- One of the following is Not related to the others

A) Predators
B) Prey
C) Pathogens
D) Parasites

16- What type of population associated with age pyramid which has an extremely broad base?

A) a rapidly expanding population
B) a stable population
C) a population where the birth rate = the death rate
D) a population with more males than females

17- .....is a form of competition where there is a winner and a loser.

A) scramble
B) Exploitative
C) contest
D) interspecific competition

18- One of the following is Not a result of intraspecific competition.

A) Territoriality
B) Dispersal
C) Constant loss
D) Social interactions

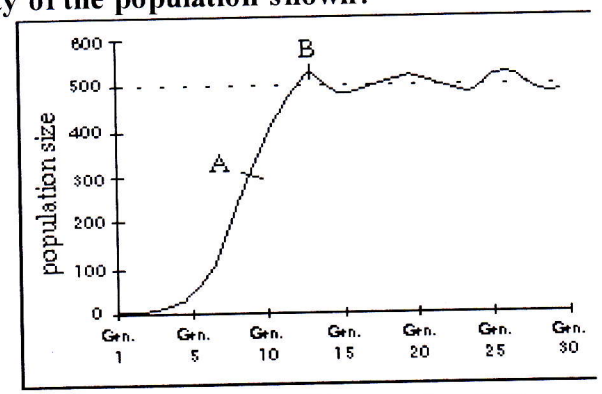
19- All factors which limit the growth of populations

A) environmental resistance
B) Biotic Potential
C) population growth
D) Both A and B

20- The number of individuals per unit area determines the population's

A) survivorship
B) density
C) mortality
D) age distribution

21- What is the carrying capacity of the population shown?

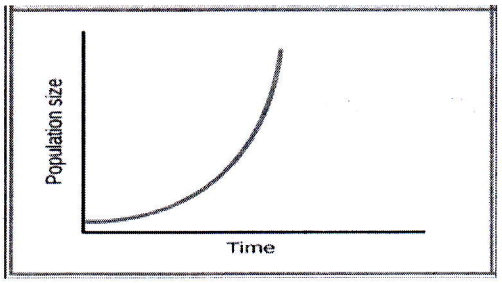


A) around 500
B) more than 500
C) less than 500
D) around 600

22- What is the characteristic shape of a curve illustrating logistic growth?

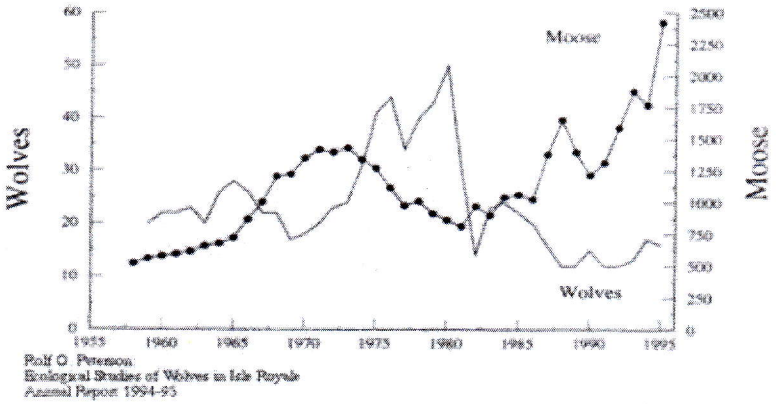
A) J-shaped
B) U-shaped
C) S-shaped
D) L-shaped

23- What type of growth model is this?



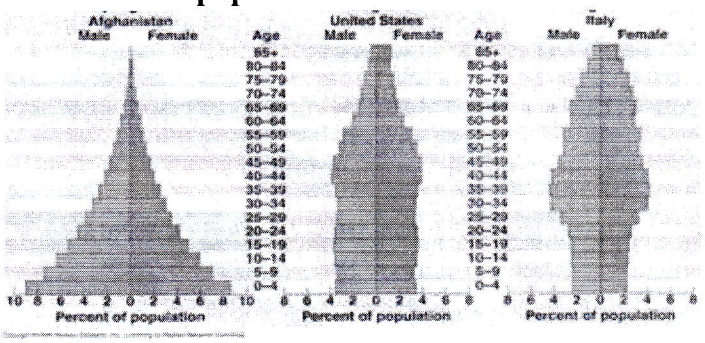
A) exponential growth model
B) logistic growth model
C) Type I curve
D) Type III curve

24- What happened to the wolf population between 1980 and 1982?



A) it increased rapidly
B) it decreased rapidly
C) stabilize
D) none of the above

25- Which country will have a decrease in population?



A) Afghanistan
B) United States
C) Italy
D) all of the above

26- What would cause a population to increase in size?

A) organisms immigrate, or join, the population
B) organisms emigrate, or leave, the population
C) organisms die
D) None of the above

Answers table

Question	1	2	3	4	5	6	7	8	9	10	11	12	13
Answer													
Question	14	15	16	17	18	19	20	21	22	23	24	25	26
Answer													

II- Put true (√) or false (X) for each of the following statements: **(24 marks)**

( ) 1- Natality is the change in the total population size per unit time.

( ) 2- Uniform distribution result from intraspecific competition amongst members.

( ) 3- J-shaped growth curve is independent of population density.

( ) 4- Populations cannot overshoot the carrying capacity.

( ) 5- Life tables provide a summary of mortality for a population.

( ) 6- Prey populations are dependent on predators but predator populations are not dependent on prey.

( ) 7- Population size is determined by the relationship between birth rate, death rate, immigration, and emigration.

( ) 8- Animal populations may fluctuate considerably over time.

( ) 9- Lifespan is an important aspects of life histories.

( ) 10- Population density declines with decreasing organism weight.

( ) 11- Organismal ecology examines factors that affect population size and composition.

( ) 12- Low reproductive rate considered as one of environmental resistance.

( ) 13- Carrying capacity is affected by net migration.

( ) 14- Early loss curves are typical of species that produce low number of offspring.

( ) 15- Population density declines with decreasing organism size.

( ) 16- Environmental resistance means all environmental factors which limit the growth of populations.

أنتهت الأسئلة مع خالص التمنيات بالتوفيق،،،،،،،،،،،،

أ.د. خالد فؤاد عبد الوكيل

K. F. Wakeil