Assiut University Faculty of Science Zoology Department	Final exam of Principles of Embryology (Z 334) for Chemistry-Zoology & Zoology students	July, 7th 2021 Time: Two hours Total marks: 80

Click the right answers in the Answer sheet (One mark each)
Choose the right answer:

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

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 oviparous animals is
a) Chick b) mice c) deer d) kangaroo

4- In the equatorial cleavage, the cleavage line passes
a) through the animal-vegetal axis
b) through the horizontal axis
c) above the equator
d) below the equator

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

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

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

8- The level of third cleavage of toad is
a) equatorial b) horizontal c) vertical d) meridional

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

10- Blastocoel of Amphioxus is surrounded by cells arranged in
a) one layer b) two layers c) multilayered d) scattered

11- 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

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

13- Melanocytes (pigment cells) are derived from
a) ectoderm b) mesoderm c) endoderm d) neural crest cells

14- 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

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

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

17- Coelom is a space surrounded by
a) ectoderm b) mesoderm c) endoderm d) ectomesoderm

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

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

20- Blastula of Amphioxus is converted into gastrula by the process of
a) involution b) invagination c) evagination d) delamination

21- A human sperm can penetrate an ovum only when it remains for some time in the fallopian tube of the female. This is called
a) maturation b) capacitation c) resistance d) none

22-Polyspermy in human is
a) pathological b) physiological c) healthy d) none

23- Human sperm head shape is
a) oval b) spherical c) cylindrical d) pear shaped

24- Kartagener triad syndrome patient suffers from
a) immotile sperm b) respiratory problems c) right sided heart d) all

25- Tertiary egg membranes are formed by
a) ovum b) follicle cells c) oviduct d) a and b

26- Lamp brush chromosomes are important for the embryo to
a) accelerate development b) delay development c) feed embryo d) none

27- Normally during ovulation cycle one oocyte is released from the human ovary after
a) 13 days b) 14th day c) 15 days d) 16 day

28- Yolk sac is not found in
a) Amphioxus b) frogs c) birds d) mammals

29- Fertilization occurs in one of the following parts of oviduct
a) lower half b) upper half c) upper one third d) lower one third

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

State true (√) or false (x):

31- At the union of gametes during fertilization nuclear envelopes disappear before chromosomal duplication.

32- Fertilization cone functions to prevent entry of more sperms.
33- Axial filament of sperm tail originates from the proximal centriole.
34- Kartagener triad syndrome results due to absence of micro tubulin protein.
35- Chordamesoderm is located at the roof of archenteron.
36- Distal centriole functions for the union of male and female nuclei.
37- Fertilization membrane protects against polyspermy.
38- The value of pH is not important factor during fertilization.
39- Type of cleavage in chick embryo is superficial meroblastic one.
40- Yolk material of Amphioxus ovum is manufactured in the liver.
41- Vitellogenesis is a process controlled by testosterone.
42- When fertilization is external the male vertebrate develops copulatory organs.
43- Persons having Dawn syndrome have respiratory problems.
44- The function of acrosome in sperm head is to protect the nucleus.
45- A first cleavage blastomere of a human on isolation can change its fate and develops into a complete embryo.
46- Graafian follicles enlarge and mature under the influence of gonadotrophins.
47- The outer trophoblast cells of a mammalian blastocyst are called as formative cells.
48- In frogs, during gastrulation the prospective mesoderm spreads over and lies above the ectoderm.
49- The process of neurogenesis of Amphioxus begins by flattening and thickening of neuro ectodermal cells at the ventral region of the gastrula.
50- At the end of the fifth cleavage of Amphioxus the embryo consists of 32 blastomeres.

Midterm, oral and activity section:

Choose the right answer:

51- The surface of mammalian oocyte is covered by an area called
a) corona radiate b) zona radiate c) zona pellucida d) zona opaca

52- In males of viviparous and ovo-viviparous animal with accessory reproductive organs, fertilization is
a) external b) internal c) both d) none

53- How many spermatozoa are produced from a secondary spermatocyte?
a) 2 b) 4 c) 6 d) 8

54- Primary egg membranes are formed by
a) ovum b) follicle cells c) oviduct d) a and b

55-Durring ovulation normally one oocyte is released from the human ovary every
a) 13 days b) 14 days c) 28 days d) 30 days

56- The point of contact with sperm and egg cytoplasm bulges out is called
a) penetration point b) fertilization point c) fertilization cone d) fertilization membrane

57- Yolk sac is not found in
a) Amphioxus b) frogs c) birds d) human

58- In which part in the sperm are mitochondria concentrated?
a) neck b) middle piece c) tail d) a & b

59- One of the factors that control the size of the ovum is
a) size of animal b) size of ovary c) amount of yolk d) a & b

60- The type of placenta in human is
a) discoidal b) bidiscoidal c) zonary d) diffused

61- The cell organelle which forms the acrosome is
a) mitochondria b) Golgi complex c) ribosome d) flagellum

62- Suppression of spermatogenesis is controlled by
a) testosterone b) inhibin c) GnRH d) a &b

63- Factors that helps in successful external fertilization
a) pH b) temperature c) number of gametes d) all

64- Digestive system is derived from
a) ectoderm b) mesoderm c) endoderm d) a & c

65- Placenta in human is not functional for
a) nutrition b) respiration c) excretion d) digestion

66- Gastrulation in amphibians is achieved by
a) furrow formation b) epiboly c) invagination d) a & b

67- The type of ovum in Amphioxus is
a) homolecithal b) oligolecithal c) telolecithal d) a &b

68- The type of placenta in lion is
a) zonary b) discoidal c) cotyledonary d) bidiscoidal

69- The embryonic origin of excretory system in human
a) ectodermal b) mesodermal c) endodermal d) mesendodermal

70- The function of allantoic membrane is
a) nutritive b) respiratory c) excretory d) b & c

State true (√) or false (x):
71- Amnion is a protective membrane.
72- Maternal age is a controlling factor in avoiding congenital anomalies.
73- Egg membranes are not found in all animal species.
74- Albumin is a tertiary membrane formed in the middle part of the oviduct.
75- Chorion of bony fishes is a primary egg membrane.
76- Only one ovary is found in the hen.
77- The egg of toad has no zona pellucida.
78- Shortage of oxygen might cause chromosomal nondisjunction.
79- Entry of two sperms in human ovum results in twins.
80- Female germ cells originate from the ovary.

End of questions.....Best of Luck

Dr. Reda A. Ali

Prof. Experimental Embryology

Assiut University

Faculty of Science

Zoology Department

25/6/2021

Course name: Comparative anatomy of vertebrate

Course code: (432-Z)

Time: two hours

Read the question carefully.

Answer the three following questions

Question 1: (Final) (25 pt.)

Choose the single response that is the correct answer of the following.

1- The primary functions of down feather are

a) Display and insulation b) Aerodynamic and insulation c) Thermal insulation

2- The light organ of fish produces light from

a) Glandular portion b) Lens c) Reflector portion

3- Articular bone is formed by the ossification of

a) Meckels cartilage b) Palatoquadrate c) Occipital arch

4-The malleus is derived from

a) Meckels cartilage b) Palatoquadrate c) Occipital arch

5-Which fish has goblet cells?

a) bony and cartilaginous fish b) only bony fish c) only Cartilaginous fish

6- True horn is formed of

a) compacted keratinous fibers
a) bony core covered by keratinized sheath
b) bony core covered by velvet

7- The maxillae is in the category bone

a) Replacement b) Dermal c) Non of all above

8- Which of the following structures does not contain dentin?

a) Ganoid scale b) Placoid scale c)Cosmoid scale

9- Epidermal teeth exist in
a) Duckbill and tadpole b) Shark c) Lizard

10-Which of the following is an epidermal in origin?
a) Bony scale b) Horny scale c) Mammalian teeth

11- The trabeculae cartilage contribute to the formation of
a) Occipital ring b)Basal plate c) Ethmoid plate

12- The best example of analogy is
a) Lizard leg and dolphin flipper
b) Scales of shark and mammalian teeth
c) Pigeon wing and bat wing

13- Our sweat glands are derived from
a) Apocrine glands b) Eccrine glands c) None of all above

14- The scent glands is located on the chin
a) Deer b) Elephants c) Dogs

15- Nasal capsule and trabeculae arise from
a) Endoderm b) Mesoderm c) Neural crest

16- Hyomandibula gives rises to the slender columella in
a) Amphibian b) Bird c) All of above

17- The splanchnocranium does not contribute to the adult jaws or to their suspension in
a) Reptile b) Fish c) Mammals

18- The epidermal cells produce mucous in
a) Fish and Amphibia b) Birds and Reptilia c) Only Fish

19- Acrodont tooth are prominent in
a) Birds and Reptilian b) Only Reptilian c) Reptilian and Mammals

20- Which avian species has salt gland?
a) Marine bird b) Fresh water bird c) Wild bird

21- Sebaceous glands are absent from
a) Chin b) Palms of hands and soles of feet c) Face

22- Vault Series runs across the top of the skull includes

a) Frontal, parietal, postparietal
b) Frontal, Nasal, parietal, postparietal
c) Frontal, parietal

23- The dermatocranium is absent in

a) Chondrichthyan and osteichthyes fishes
b) chondrichthyan fishes
c) chondrichthyan and amphibian

24- The most conspicuous component of the dermis is composed mostly of

a) Collagen fibers
b) Elastic fibers
c) Reticular fibers

25- Mitotic activity is present in epidermal cells, not restricted to the basal layer of skin

a) Tadpole
b) Fish
c) Only Lampreys

Question2: (Mid term+ Oral+ Activity) (30 pt.)

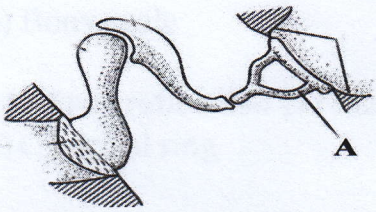
Choose True or False of the following:

26- Femoral glands restrict along the underside of the hindlimb, in the thigh region of Crocodiles and some turtles
27- The jaw joint presents in bird is Quadrate- articular
28- Rhinoceros has true horn
29- The uropygial gland located at the base of the tail of some mammals
30- Ecdysis is a phenomenon among Lizards
31- Reptilian teeth are homodont
32- Sphenoid bones constitute from ossification of the trabecular plate
33- Keratinization is a major challenge to face aquatic life
34- Exoskeletal structures of reptiles and birds presented by Feather and claws
35- Gland associated with hair is sebaceous gland
36- Goblet cells are common in epidermis of Amphioxus only
37- Teeth of petromyzon are a permanent structure
38- Bony scale of extinct fish are epidermal derivatives
39- During development the teeth form a specialized layer of ameloblasts to secrete enamel
40- pleurodont teeth is attached to the crest of the bone

Question3: (Practicle) (20 pt.)

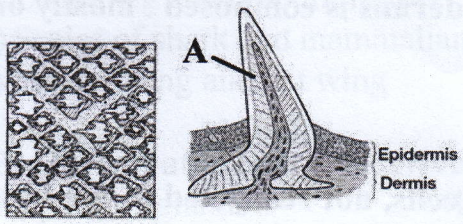
- Choose the definition of the picture, and What does A letter indicate, if any ?

(41



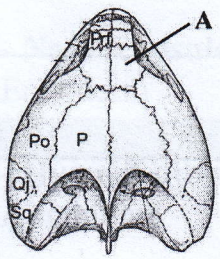
incus -Middle ear .A
Stapes - Middle ear .B
Malleus - Middle ear .C

(42



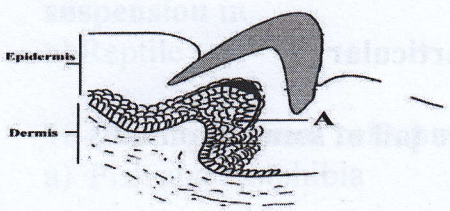
enamel -cycloid scale .A
dentine - placoid scale .B
enamel - placoid scale .C

(43



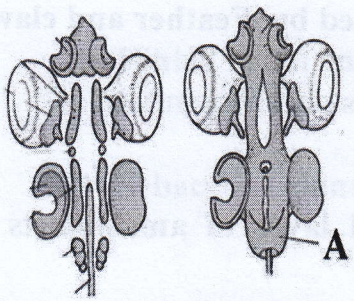
Toad skull- Frontal .A
Chelonian skull- Nasal .B
Chelonian skull- Frontal .C

(44



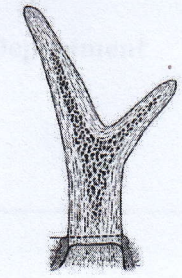
enamel -Horny teeth .A
Replacing teeth – Horny teeth .B
enamel - placoid scale .C

(45



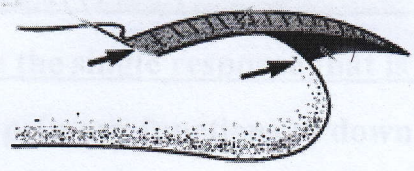
ethmoid plate - development of chondrocrnium .A
basal plate - development of chondrocrnium .B
occipital arch - development of chondrocrnium .C

(46



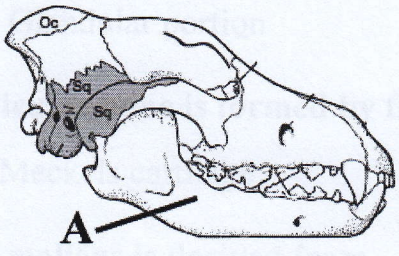
Horn- deer .A
Antler- cattle .B
Antler- deer .C

(47



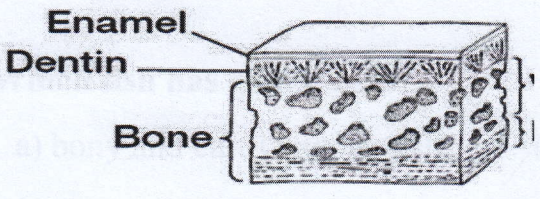
hoof- horse .A
claw- lizard .B
claw- human .C

(48



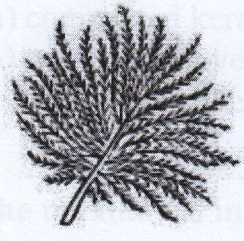
Mammalian skull- maxilla .A
Mammalian skull- dentary .B
Mammalian skull- Jugal arch .C

(49



Cycloid scale .A
Cosmoid scale .B
Ganoid scale .C

(50



Down Feather .A
Flight Feather .B
Contour Feather .C

"والله ولي التوفيق"

University: Assiut Introduction to embryology&evolution

Faculty: Science Code: 418 Total degree: 80 marks

Department: Zoology Final exam. June 2021 Time: 2 hrs.

Answer the following questions: **Note: Questions are in 7 pages**

Q1. Choose the correct answer (Final exam.): **(50 marks)**

1- All these structures are derivatives of the ectoderm except

(a) Spinal cord (b) Thyroid gland (c) Epidermis

2- The larval stage is a characteristic of

(a) Reptile (b) Mammals (c) Amphibia

3- The liver cells are derived from the

(a) Ectoderm (b) Mesoderm (c) Endoderm

4- Secondary egg membrane is produced by

(a) Follicular cells (b) Ovum (c) Oviduct

5- The epimere is differentiated into

(a) Dermatome & sclerotome (b) Myotome (c) All answers

6- The wall of the amnion is made up of

(a) Ectomesoderm (b) Mesoendoderm (c) Endoderm

7- The allantois grows from the floor of the

(a) Foregut (b) Midgut (c) Hindgut

8- The somatopleure consisted of

(a) Mesoderm (b) Ecto-mesoderm (c) Endo-mesoderm

Follow the rest of questions

9- Gametogenesis started with

(a) Maturation (b) Proliferation (c) Growth

10- Chromatophores of the skin are derived from

(a) Ectoderm (b) Endoderm (c) Neural crest

11- Alecithal eggs are found in:

(a) Birds (b) Human (c) Amphioxus

12- External fertilization occurs in

(a) Terrestrial animals (b) Aquatic animals (c) Both

13- The primary spermatocyte gives rise to ..... sperms

(a) One (b) Two (c) Four

14- The mesodermal somites are found in the gastrula of Amphioxus at the

(a) Ventral side (b) Dorsolateral sides (c) Dorsal side

15- The chorion is made up of

(a) Ectomesoderm (b) Mesoderm (c) Endoderm

16- Meroblastic cleavage occurs in

(a) Isolecithal eggs (b) Mesolecithal eggs (c) Polylecithal eggs

17- Reproduce by meiotic division (meiosis)

(a) Gamete cells (b) Somatic cells (c) Both

18- All these classes are amniotic animals except

(a) Amphibia (b) Birds (c) Mammals

19- Unequal holoblastic cleavage occurs in

(a) Isolecithal eggs (b) Mesolecithal eggs (c) Polylecithal eggs.

<u>Follow the rest of questions</u>

20- Multipotent stem cells give rise to

(a) Whole embryo (b) Body of the embryo only (c) Some tissues of the embryo

21- The lining of the mouth is made up of

(a) Ectoderm (b) Mesoderm (c) Endoderm

22- The outer most layer of the amnion is made up of

(a) Ectoderm (b) Mesoderm (c) Endoderm

23- Dorsal root of spinal nerves are derivatives of the

(a) Fore-brain (b) Midbrain (c) Neural crest

24- In the gastrula of the amphibia the neural plate is found in the

(a) Dorsal side (b) Lateral sides (c) Ventral side

25- Connective tissues originate from

(a) Ectoderm (b) Mesoderm (c) Endoderm.

26- ..... is /are physical obstacle/(s) to transition from water to land.

(a) Weight bearing (b) Mutations (c) Both

27- Evolutionist claimed that living organisms would emerge from nonliving by

(a) cloning (b) spontaneous generation (c) homology

28- Antibiotics and insecticides depend upon

(a) immunity (b) natural selection (c) evolution

29- Mutations give rise to

(a) cloning (b) natural selection (c) no correct answer

30- Darwinism claimed that life developed from one single common ancestor

(a) gradually (b) suddenly (c) both

<u>Follow the rest of questions</u>

31-Evolution considered ..... to be vestigial organ/s.

(a) coccyx (b) appendix (c) both

32- ..... deny evolution concept.

(a) Cloning (b) Antibiotic mechanism (c) both

33- Evolution considered ..... is the interstitial state between birds & reptiles.

(a) *Coelacanth* (b) *Archaeopteryx* (c) *Amoeba*

34- Mutation is the mechanism of evolution in.....

(a) new Darwinism (b) darwinism (c) lamarckism

35- Mendel's laws..... the concept of evolution.

(a) accept (b) refuse (c) no correct answer

36- If gene flow occurred, the population must be.....

(a) same (b) different (c) both

37- Darwin & Wallace were based on .....

(a) cloning technology (b) mutation (c) natural selection

38-"The inheritance of acquired traits" was established by .....

(a) Wallace (b) Lamarck (c) Haeckel

39- Finches of Galapagos are examples of.....

(a) variation (b) microevolution (c) speciation

40- Evolutionists claimed that wings in..... are analogous structures

(a) birds (b) insects (c) both

<u>Follow the rest of questions</u>

41- Organs similar in function but different in structure are .....

(a) analogous (b) homologous (c) parallel

42- ..... cause abnormalities.

(a) Analogy (b) Fossil records (c) Mutations

43- New Darwinism relies on .....

(a) cloning (b) mutation (c) natural selection

44- ..... means different characteristics of a certain type or species within the same gene pool.

(a) Macroevolution (b) Homology (c) Variation

45- Progeria Syndrome is an evidence of .....

(a) evolution (b) mutation (c) natural selection

46- Traits could be transmitted across .....

(a) mutations (b) genes (c) natural selection

47- Homology depends upon similar .....

(a) structures (b) functions (c) no one

48- BURGESS SHALE's fossils proved that most modern phyla appeared .... in the fossil record.

(a) suddenly (b) gradually (c) no correct answer

49- .....claimed " The inheritance of acquired traits"

(a) Metabolism (b) Darwinism (c) Lamarckism

<u>Follow the rest of questions</u>

50- Evolutionists claimed that fore limbs in .....is / are homologous.

(a) human (b) whale (c) both

Q2- PUT (√) OR (X): Mid-Term, Activity & Oral (30 marks)

51- Blastomere contains the diploid number of chromosomes.

52- Parthenogenesis means the development of the eggs after fertilization.

53- Zona pellucida is found in the ovum of placental mammals.

54- Oviparous animals have no direct contact with mother.

55- The yolk sac is made up of the splanchnopleure.

56- Spermiogenesis is the changes of spermatids to sperm.

57- Fertilizin attracts the sperm to the egg membrane.

58- The lining of the alimentary canal arises from the mesoderm.

59- Pluripotent stem cells forming both the embryo and placenta.

60- Both the vitelline and the plasma membranes are produced by the ovum.

61- In oogenesis each primary oocyte produces 4 mature ova.

62- Centrolecithal eggs are found in birds.

63- In the blastula of Amphioxus cells are arranged in more than one layer.

64- A developmental pattern including larval stage is called direct development.

65- The ovum is highly mobile cell.

66- Variation gives rise to new species.

67- Metamorphosis is important physical obstacle to transition from water to land.

Follow the rest of questions

68- Homology is dealt with structures similar in origin and different in function.

69- Antibiotics accept the evolution concept.

70- Natural selection according to Darwin is the struggle for survival in nature.

71- Non-living matter could form living organisms.

72- Fossil record revealed the existence of different species altogether at the same time suddenly & in complete forms.

73- People's death & abnormalities in Hiroshima & Nagasaki is due to homology.

74- Darwin suggested unlimited changes during species formation.

75- Natural selection can explain complex organs, such as eyes, ears or wings.

76- Metamorphosis is a complex preplanning process.

77- Mutations give rise to sterility, disforming and maybe death.

78- Respiration is an important physical obstacle to transition from water to land.

79- Darwinism can explain the origin of rodents.

80- Old Darwinism relies on natural selection.

----------END----------

إنتهت الأسئلة بالتوفيق والسداد د. إقبال تادرس و د. هناء عاطف

Faculty of Science,

Zoology Department,
Zoology & Zoology and
Chemistry Section,

Final Exam
28 June 2020/2021

Course: Selected Topics in Zoology II

Time: 2 hours

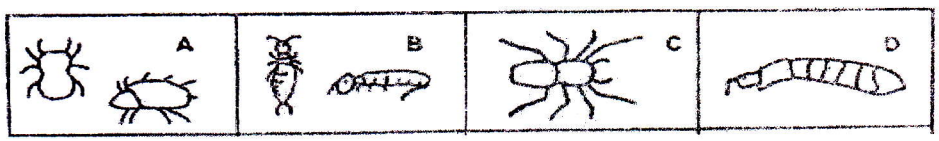
Course Code: Z402

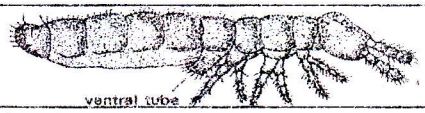
Answer the following questions (**NOTE:** Exam in **FOUR** pages)

Section: 1

Q1: Shade the correct answer; A, B, C, or D **(1 Mark each, 25 Degree)**

1- Ecosystems can be classified to main two major ecosystems; …… and …….ecosystems.	
A) environment / aquatic	B) air / water
C) terrestrial / aquatic	D) all of the above
2- One of the following is not related to the others.	
A) stratosphere	B) hydrosphere
C) lithosphere	D) atmosphere
3- In the biosphere energy is received from	
A) The interior of the earth	B) The Sun
C) decomposition product	D) None of the above
4- The solid phase of soil has two main constituents namely …… and …… materials.	
A) mineral / botanic	B) mineral / organic
C) organism / organic	D) animal / plant
5- In soil profile, …. is called fermentation layer were a partial decomposition occurs.	
A) L-layer	B) F-layer
C) H-layer	D) C-layer
6- …….is a soil horizon mainly composed of organic and mineral matter.	
A) A1-layer	B) A2-layer
C) B1-layer	D) B2-layer
7- The extraction and separation of animals from the soil can be by …… methods.	
A) electrical	B) mechanical
C) behavioral	D) mechanical and behavioral
8- One of the following is <u>Not</u> related to the others	
A) Baermann funnel	B) Berlese funnel
C) Dry sieving	D) Sand extractor
9- Wet sieving is often more efficient than the dry method, particularly for …….	
A) Earthworms	B) enchytraeids and small molluscs.
C) Microarthropods	D) collembolans
10- ……. is the best collected methods of enchytraeids and nematodes.	
A) Flotation method	B) Sieving method
C) Baermann funnel	D) Berlese funnel

11- It is recommended for most soil arthropods to preserve in stored glass vials preservation in.....	
A) 60-70% alcohol and 5% glycerol	B) 70-80% alcohol and 5% glycerol
C) 60-70% alcohol and 10% glycerol	D) 70-80% alcohol and 10% glycerol
12- The mineral soil is separated from the organic matter by making use of the different .....of these two fractions.	
A) specific viscosities	B) specific dryness
C) specific gravities	D) None of the above
13- One of the following is not related to the others.	
A) suction traps	B) pitfall traps
C) lighted traps	D) color traps
14- The most popular kind of dry behavioral extractor is	
A) Berlese-Tullgren funnel	B) Baermann funnel
C) Flotation method	D) Sieving method
15- In the following plate, Figure (A) refers to ..... 	
A) Mites	B) Springtails
C) Spiders	D) Fly larvae
16- In the previous plate, Figure (B) refers to	
A) Mites	B) Springtails
C) Spiders	D) Fly larvae
17- In the previous plate, Figure (C) refers to	
A) Mites	B) Springtails
C) Spiders	D) Fly larvae
18- Soil active geophiles includes the following insect orders	
A) Diptera, Collembola and Lepidoptera	B) Diptera, Coleoptera and Isopoda
C) Diptera, Coleoptera and Hymenoptera	D) Diptera, Coleoptera and Lepidoptera
19- Soil animals inhabit the vegetation layer above the soil surface is called	
A) heiedaphon	B) epigon
C) euedaphon	D) None of the above
20- One of the following is <u>Not</u> related to the others	
A) Manystigmata	B) Cryptostigmata
C) Prostigmata	D) Mesostigmata

21- The opposite collembolan structure refer to it surviving in 	
A) litter layer	B) deeper layer of soil
C) surface layer of soil	D) humus layer of soil
22- Soil Tardigrades are a group of very small animals, sometimes called	
A) Water bears	B) Soil bears.
C) Water fox	D) Soil wolf
23- ..... are larvae abundant in arable soils.	
A) Tipulids	B) Crane flies
C) Leather-jackets	D) all of the above
24- ..... are animal moving the soil mechanically from in front and depositing it somewhere else	
A) excavators	B) tunnellers
C) burrowers	D) Both A and B
25- The opposite Figure shows 	
A) Head of dung beetle.	B) Head of dor beetle.
C) Head and forelegs of dung beetle.	D) Head and forelegs of dor beetle.

Q2: Shade (T) for True statements or (F) for false statements (1 Mark each, 25 Degree)

1. Carcinogens are compounds that induce serious mutations to DNA that can lead to cancer.
2. Absorbed dose is the sum of all individual doses.
3. Toxicity can result from adverse cellular, biochemical, or macromolecular changes.
4. Bioactivation process converts lipid-soluble compounds to polar compounds.
5. Additive: effect is equal to their individual effects added together.
6. Acute nonlymphoblastic leukemia usually a malignancy of the myeloblast (more common in adults).
7. Cyotoxic refers to a substance or process which results in cell damage or cell death.
8. Increased amount of fibrinogen in the blood can cause rouleaux formation.
9. Blood has regulatory, protective and distributive functions.
10. MCH: Average Hb concentration of a RBC.
11. Cancer cells are immortal cells.
12. Mutagens are any substance that causes no alteration in genetic material.
13. Cancer occurs without a mutation.
14. Chromosome mutations include polyploidy and aneuploidy.
15. Nonsense mutation: Deletion of nucleotide(s).

16. Teratogen is a substance which can cause physical defects in a developing embryo.
17. Administered dose is the amount of a xenobiotic encountered in the environment.
18. The toxicity of a substance depends on Excretion and metabolism.
19. Environmental pollutants include heavy metals.
20. Antagonism occurs when one chemical inhibits the action of another.
21. Schistiocytes is indicator of abnormal erythropoiesis due to abnormal RBC destruction.
22. Components of blood include erythrocytes.
23. MCH is the average volume of the WBC.
24. Burr cell Observed in led poisoning, alcoholism megaloblastic anemia.
25. Spherocyte Observed in immune induced hemolysis, post blood transfusions, and congenital anemia.

Section: II Oral

Q3: Put V or X in front of the following sentences:- (1 Mark each, 10 Degree)

1. Mechanical methods included passive techniques and they utilize the behavioral of the animals.
2. The body size of soil microfauna ranged within 20 to 200 µ.
3. Adaptations to Subterranean life to exist in the absence of light and reduced oxygen supply.
4. Lactic acid is used as a fixative for soil micro arthropods.
5. Nematodes as bacterial feeders they may well have a direct effect on decomposition.
6. Deletion, insertions, inversion and translocation mutations are genome mutations.
7. Point Mutation, missense and nonsense are gene mutations.
8. Deletion mutations: replacement of one nucleotide with another.
9. Frame-shift mutations: Deletion of nucleotide(s).
10. Types of DNA mutation include gene mutations and chromosome mutations only.

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

أ.د. خالد فؤاد عبد الوكيل أ.د. علاء الدين حامد سيد

Department of Zoology
Course: Immunology (Z412)
Second semester 2020-2021
Time: 3 hours Total degree: 100

قسم علم الحيوان
المقرر: علم المناعة (Z412)
الفصل الدراسي الثاني 2020-2021
المستوى الرابع
الزمن: ثلاثة ساعات الدرجة الكلية : 100

Answer all the following questions:

Q1 Fill in the following sentences: (80 marks)

1. T cell receptor consists of one .....chain and one .....chain and has only one.....located among the.....
2. NK cells produce cytotoxic proteins .....and .....onto the surface of.....
3. B cells have distinct recognition receptor know as .....which consists of four chains: two.....and two.....and this receptor possesses only two.....sites located between.....
4. Based on the type of constant region of the heavy chains.....are classified into ..... classes which are:.....,..... ,..... ,.....and.....
5. All the immune cells except.....are developed and matured in the.....
6. The three types of progenitor stem cells are.....,.....and....., therefore T cells originate from the .....lineage, but DC cells originate from.....
7. CD40 is expressed on the surface of ..... and binds with a receptor known as.....on the surface of .....during immunological synapses.
8. The four cell types that act as APC cells are .....,.....,.....and .....
9. Mature B cells are classified into three types: .....,.....and.....
10. T helper cells express CD3+ and CD4+, while T cytotoxic express.....and ....., but macrophages express.....
11. MHC class I is expressed on the surface of....., while MHC class II is expressed on the surface of .....
12. The two types of immunity are ..... and .....
13. Pathogen is a ..... that causes disease.
14. Antigen is a material from ..... that causes an immune response.
15. The first line of immune response is defined as .....
16. The factors of immune system are ....., ... and .....
17. Lymph nodes and spleen are types of ....., while bone marrow and thymus are types of .....
18. The major site of immune responses to blood-borne antigens is .....
19. Langerhans cells are located in the .....layer of the skin.
20. Membranous epithelial cells are antigen transporting cells that are located in .....
21. The three types of granulocytes are ....., ... and .....
22. The three types of lymphocytes are ....., ... and .....
23. ..... have short life span and play important role in clearing bacterial infections, while ..... plays important role in parasitic infection and .....plays central role in the allergic reactions.
24. Leukopenia is a ..... in the number of ....., but leukocytosis is an ..... in the number of .....
25. Band cells are .....
26. Lymphocytosis is an ..... in the number of ....., multiple myeloma is a cancer of ....., while leukemia is .....of immature WBCs.

27. Hodgkin's disease is a malignancy of .....
28. ..... and ..... are the only cells that produce memory cells.
29. Th1 cell produces ..... , while Th2 produces ..... and ....
30. Macrophages are phagocytes that produce ..... and .....

Q2 Write whether each of the following statement is True (✓) or Falls (X) (20 marks)

1. Peyer's patch and appendix are primary lymphoid organs.	( )
2. Nurse cells are located in the thymus cortex.	( )
3. Passive immunity is a resistance transmitted to a recipient in a readymade form.	( )
4. Immune responses to lymph-borne antigens are initiated in the lymph nodes.	( )
5. Red and white pulps are the main structure of the live.	( )
6. The main APCs in the dermis are Langerhans cells.	( )
7. Neutrophils are the most abundant WBCs in the blood.	( )
8. RBCs are derived from erythroid lineage.	( )
9. NK, B- and T-cells are originated from the lymphoid lineage.	( )
10. Monocyte is a granulocyte.	( )
11. Neutrophilia is an obvious decrease in the numbers of band cells.	( )
12. The blue granules that contain toxic compounds are found in basophils.	( )
13. Th cells help B cells to produce immunoglobulins.	( )
14. Vaccines are types of artificial active immunity.	( )
15. Acute myelogenous leukemia is the most common leukemia in adults.	( )
16. Nodular sclerosing is the most common Non-Hodgkin's Lymphoma.	( )
17. The complements are proteins that are secreted from the liver.	( )
18. The lactoperoxidase in milk is antibacterial enzyme.	( )
19. Blebbing occurs in the apoptotic cells.	( )
20. Hyperaemia is redness that occurs due to an increase in the blood flow in tissue.	( )

GOOD LUCK

د/ جمال بدر

Dr. Gamal Badr
Professor of Immunology
Permanent Web site: http://www.aun.edu.eg/membercv.php?M_ID=393
Email : gmal.badr@aun.edu.eg