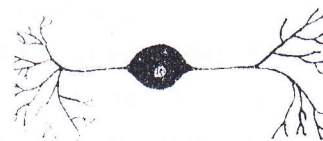




1- Choose the correct answer and fill the circle in the answer sheet:

(30 marks)

1. Glycoproteins make as on the cell membrane.
 - A. receptors
 - B. bonds
 - C. coat
 - D. pores
2. is the movement of molecules against their concentration gradient.
 - A. simple diffusion
 - B. passive transport
 - C. active transport
 - D. phagocytosis
3. The inner membrane of mitochondria form folds which are called
 - A. cristae
 - B. villi
 - C. filaments
 - D. tubules
4. The lipid give the cell membranes their
 - A. hardness
 - B. flexibility
 - C. transportation
 - D. all of them
5. The non-membranous organelles directly in cellular metabolism.
 - A. participate
 - B. adhere
 - C. attached
 - D. don't participate
6. In the liver, SER are responsible for
 - A. synthesis protein
 - B. neutralizing toxins
 - C. form pores
 - D. synthesis glycoproteins
7. Mitochondria are the only organelles that have their own
 - A. RNA
 - B. protein
 - C. carbohydrates
 - D. DNA
8. On the outside of the cell membrane, attached to some proteins and lipid.
 - A. chain of sugar
 - B. ATP energy
 - C. digestive enzymes
 - D. all of them
9. Cardiac muscle fibers cells are branched and connected to one another at their ends which allowing electrical impulse conduction from cell to cell by
 - A. intercalated discs
 - B. sarcolemma
 - C. sarcoplasm
 - D. neuron
10. This type of neuron is known as.....
 - A. unipolar
 - B. bipolar
 - C. multipolar
 - D. neuroglia
11. is characterized by abundance of interstitial material between the cells and not based on the membranes of the base.
 - A. connective tissue
 - B. epithelial tissue
 - C. muscular tissue
 - D. nervous tissue
12. are White fibers, made from collagen; strong, high tensile strength.
 - A. collagen fibers
 - B. elastic fibers
 - C. reticular fibers
 - D. myofibrils



- 13-act as fat (food) storage area and thermal insulation function.
 A. regular C.T B. adipose C.T
 C. Areolar C.T D. reticular C.T
- 14- Cartilage which contains type of cell known as.....
 A. chondrocyte B. fibroblast
 C. osteocytes D. hematopoietic cells
- 15- Goblet cell is considered.....
 A. mixed gland B. unicellular exocrine gland
 C. endocrine gland D. multicellular exocrine gland
- 16- Epithelial cells rest on.....
 A. a basement membrane B. a cartilage
 C. directly on a connective tissue D. a body surface
- 17- who developed a Hierarchy (a ranking system).
 A. Aristotle B. Linnaeus
 C. Ray D. Whittaker
- 18- Multinucleation is a characteristic of.....
 A. Apicomplexa B. Porifera
 C. Ciliophora D. Mastigophora
- 19- The coelom is present in
 A. Human B. Nematoda
 C. Trematoda D. both a and b
- 20- In chordates, the long supporting rod that runs through the body is called the.....
 A. nerve cord B. notochord
 C. pharyngeal D. tail
- 21- Nephridia are excretory units of phylum.....
 A. Nematoda B. Annelida
 C. Platyhelminthes D. Porifera
- 22- Which one of the following is Not related to protozoa?
 A. unicellular B. contractile vacuoles
 C. formed of tissues and organs D. eukaryotes
- 23- The first invertebrates to develop jointed legs are.....
 A. Sponges B. Annelids
 C. Flat worms D. Arthropods
- 24- Endocrine glands discharge hormones into
 A. lymph B. blood
 C. cerebrospinal fluid D. synovial fluid
- 25- The pituitary gland is stimulated by secretions from
 A. Hypothalamus B. Thalamus
 C. Limbic system D. Cerebellum
- 26- The anterior pituitary secretes these hormones EXCEPT
 A. Thyroid stimulating hormone B. Growth hormone
 C. Prolactin D. Oxytocin
- 27- Hormone plays a vital role in menstrual cycle and sperm production
 A. Thyroid stimulating hormone B. Adrenocorticotrophic hormone
 C. Follicle stimulating hormone D. Antidiuretic hormone

28- Melanocyte-stimulating hormone found in

- A. Reptiles
- B. Amphibians
- C. Mammals
- D. Both a and b

29- stimulates calcium ions uptake by bones

- A. Parathyroid hormone
- B. Calcitonin
- C. Antidiuretic hormone
- D. Follicle stimulating hormone

30- is responsible for uterine contraction

- A. Prolactin
- B. Glucagon
- C. Oxytocin
- D. Luteinizing hormone

II- Choose the correct answer and fill the circle in the answer sheet:

(20 marks)

31- The transport in which larger materials are enter or exit from the cells is called

- A. massive transport
- B. active transport
- C. simple diffusion
- D. facilitated diffusion

32- The centriole composed of 9 sets of

- A. microtubule doublets
- B. microtubule triplets
- C. microfilaments
- D. elastin fibers

33- The nucleus is surrounded by two membranes, together known as

- A. nuclear membrane
- B. nuclear folds
- C. nuclear envelope
- D. nuclear processes

34- The water soluble parts of phospholipids is called

- A. hydrophobic
- B. lipophobic
- C. Lipophilic
- D. hydrophilic

35- The DNA in prokaryotic cells is

- A. circular
- B. linear
- C. grouped
- D. batches

36- Facilitated passive diffusion takes place by:

- A. proteins
- B. lipids
- C. carbohydrates
- D. glycoproteins

37- The intermediate filaments are made of protein

- A. collagenous
- B. reticular
- C. fibrous
- D. tubular

38- The proteins that stay in the cytosol are made by.....

- A. attached ribosomes
- B. attached lysosomes
- C. free ribosomes
- D. free lysosomes

39- Lysosomes contain to breakdown waste materials.

- A. digestive carbohydrates
- B. digestive lipids
- C. ATP
- D. digestive enzymes

40- The nucleolus is the site of formation.

- A. ribosome
- B. lysosome
- C. peroxisome
- D. phospholipid

41- The outer layer of Bowman's capsule of the kidney is formed of.....epithelium.

- A. simple columnar
- B. simple squamous
- C. simple cuboidal
- D. stratified squamous

Melanocyte stimulating hormone found in

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- B. simple squamous
- C. simple cuboidal
- D. stratified squamous

- 42- The junction between an axon of neuron which transmits a nerve impulse with another neuron called
- A. neuroglia B. synapse
C. sensory neuron D. motor neuron
- 43- The structure of nervous tissues which support, protect neurons and don't transmit nerve impulse is.....
- A. neurons B. neuroglia
C. axon D. interneurons
- 44- Dense regular connective tissue which attaches muscle to muscle is known as
- A. tendon B. fibers
C. ligaments D. bones
- 45- Keratinized stratified squamous epithelium found in.....
- A. epidermis of skin B. mouth
C. esophagus D. uterus
- 46- Bones consist mainly of.....
- A. chondrocytes B. mast cells
C. osteocytes D. lymphocytes
- 47- All motor neurons are.....
- A. unipolar B. bipolar
C. multipolar D. neuroglia
- 48- In the central nervous system, glial cells include.....
- A. oligodendrocytes B. Schwann cells
C. satellite cells D. d) neurons
- 49- Type of tissue has regeneration characteristics which replace rapidly the damage cell is.....
- A. epithelial tissue B. connective tissue
C. muscular tissue D. nervous tissue
- 50- What distinguishes cartilage from most other connective tissue?
- A. it lacks blood vessels B. the common cell type is endodermal derivatives
C. the common cell type secretes collagen D. its matrix is rich in nerve
- 51- Which of the following is the correct scientific name for Human.
- A. *Homo Sapien* B. *homo sapiens*
C. *Homo sapien* D. *homo Sapiens*
- 52- Trichocysts occur in.....
- A. Hydrozoa B. Porifera
C. Protozoa D. Ctenophora
- 53- Insects are characterized by
- A. 3 pairs of legs B. 2 pairs of antennae
C. 3 pairs of wings D. none of these
- 54- Amoeba locomote with the help of
- A. Cilia B. Pseudopodia
C. Flagella D. Lobopodia
- 55- *Musca domestica* is the scientific name of.....
- A. House fly B. Toad
C. Cockroach D. Dog
- 56- Insects are grouped under
- A. Protozoans B. Invertebrates
C. Vertebrates D. none of the above

- 7- Nematodes are characterized by absence of circulatory and respiratory systems and are considered.....animals.
- A. Acoelomate
 - B. Pseudocoelomate
 - C. Coelomate
 - D. Diploblastica
- 58- Paramecium locomotion by
- A. Flagella
 - B. Pseudopodia
 - C. Cilia
 - D. Pellicle
- 59- Reason for including amoeba in phylum protozoa is
- A. Cell wall
 - B. Contractile vacuole
 - C. Acellular organization
 - D. Phagocytosis
- 60- Osmoregulation in amoeba is controlled by
- A. Plasmalemma
 - B. Plasma gel
 - C. Exo osmosis
 - D. Contractile vacuoles
- 61- Insulin and glucagon are secreted from
- A. Liver
 - B. Pancreas
 - C. Stomach
 - D. Kidneys
- 62- Epinephrine and norepinephrine are secreted from
- A. Adrenal cortex
 - B. Pituitary gland
 - C. Hypothalamus
 - D. Adrenal medulla
- 63- regulates the kidney's retention of water
- A. ACTH
 - B. ADH
 - C. FSH
 - D. TSH
- 64- It has little yolk distributed uniformly through the cytoplasm
- A. Centrolecithal
 - B. Isolecithal
 - C. Telolecithal
 - D. None of them
- 65- One example for centrolecithal egg is
- A. Amphioxus
 - B. Mammals
 - C. Arthropods
 - D. Birds
- 66- Fusion of male and female gametes is called
- A. Gametogenesis
 - B. Cleavage
 - C. Fertilization
 - D. Gastrulation
- 67- The process of blastula rearrangement to form three-layered embryo is called
- A. Fertilization
 - B. Cleavage
 - C. Gastrulation
 - D. Blastula formation
- 68- is a solid mass of cells formed by cleavage
- A. Morula
 - B. Blastula
 - C. Gastrula
 - D. Zygote
- 69- Budding is a type of
- A. Sexual reproduction
 - B. Asexual reproduction
 - C. Parthenogenesis
 - D. Both b and c
- 70- All the following classes follow internal fertilization EXCEPT
- A. Mammals
 - B. Most fishes
 - C. Birds
 - D. Reptiles

III- Choose the correct answer and fill the circle in the answer sheet:

(10 marks)

- 71- The cell membrane is made of mix of proteins and
A. carbohydrates
B. lipids
C. glycoproteins
D. some vitamins
- 72- Both glycolipids and glycoproteins (glycocalyx) are called
A. cell coat
B. cell membrane
C. nuclear membrane
D. cellular organelles
- 73- Ligaments are.....
A. dense irregular connective tissue
B. mesenchymal connective tissue
C. mucoid connective tissue
D. dense regular connective tissue
- 74-type of muscle which is involuntary, none-striated with single nucleus.
A. skeletal muscle
B. cardiac muscle
C. smooth muscle
D. non-smooth muscle
- 75- Malaria fever is caused by
A. *Plasmodium vivax*
B. Monocystis
C. Cockroach
D. Mosquito
- 76- Platyhelminthes are generally called
A. Flat worms
B. Round worms
C. Tubiculus worms
D. Blind worms
- 77- Which phylum has highest number of species?
A. Protozoa
B. Porifera
C. Arthropoda
D. Insecta
- 78- is the phenomenon of keeping balanced internal body processes in a changing habitat.
A. Hemostasis
B. Diastasis
C. Metastasis
D. Homeostasis
- 79- Each somatic animal cell has chromosomes
A. 23
B. 46
C. 92
D. 56
- 80- The target organ of prolactin is
A. Thyroid gland
B. Adrenal cortex
C. Breast
D. Kidneys

Best Wishes

Prof. Gamal EL-Sokkary;

Dr. Mona M. Atia;

Dr. Sohair M.M. Ragab;

Dr. Gehad N. Aboulnasr

92- In the above figure digestive canal (a) represents:

- a) A carnivore fish
- b) An omnivore fish
- c) A herbivore fish
- d) A planktivore fish

93- In the above figure digestive canal (c) represent:

- a) A herbivore fish
- b) A carnivore fish
- c) An omnivore fish
- d) A planktivore fish
- e) Algavore fish

94- In the above figure digestive canal (b) represent:

- a) A carnivore fish
- b) A planktivore fish
- c) A herbivore fish
- d) All the above
- e) None of the above

95- In the above figure digestive canal (d) represent:

- a) A carnivore fish
- b) A herbivore fish
- c) An omnivore fish
- d) A planktivore fish

96- Foraging strategy in herbivores is
a) Pursuit as in barracuda

- b) Stalking as in trumpetfish
- c) Ambush as in lizardfish
- d) All the above
- e) None of the above

97- Mode of reproduction in 90% of bony fish is

- a) Ovoparity
- b) Viviparity
- c) Ovoviviparity

98- Mode of reproduction without direct maternal nourishment (advanced at birth) in most sharks and rays is

- a) Ovoparity
- b) Viviparity
- c) Ovoviviparity

99- Mode of reproduction with direct nourishment from mother (fully advanced at birth) in some sharks and perches is

- ☒ a) Ovoparity
- ☒ b) Viviparity
- ☒ c) Ovoviviparity

100- Modes of ovoparity include

- a) Broadcasting spawning
- b) Demersal non-guarding
- c) Demersal guarding
- d) Brooders
- e) All the above

With best wishes- Imam Mekkawy

- 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

84- Fishes are

- a) Paraphyletic group.
- b) Monophyletic group.
- c) Polyphyletic group.
- d) None of the above

85- Agnatha are

- a) Paraphyletic group.
- b) Monophyletic group.
- c) Polyphyletic group.
- d) None of the above

86- Chondrichthyes are

- a) paraphyletic group.
- b) Monophyletic group.
- c) Polyphyletic group.
- d) None of the above

87- Scorpaeniformes are

- a) paraphyletic group.
- b) Monophyletic group.
- c) Polyphyletic group.
- d) None of the above

88- Periformes are

- a) paraphyletic group.
- b) Monophyletic group.
- c) Polyphyletic group.
- d) None of the above

89- The key traits account for ostracoderm success are

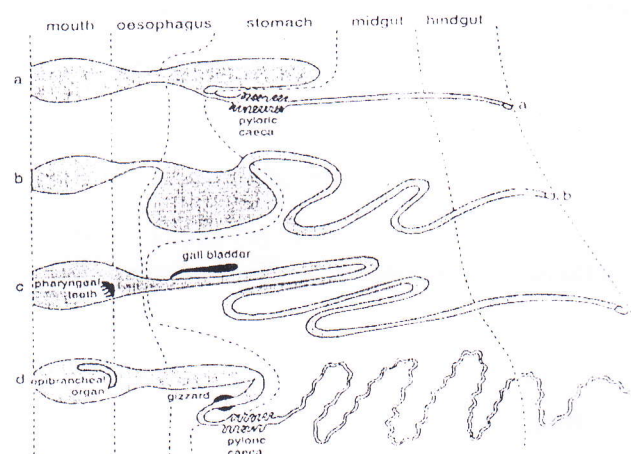
- a) True jaws and paired fins
- b) Bony dermal plates and internal skeleton
- c) Use of filter feeding and first use of bone
- d) All the above
- e) None of the above

90- Evolutionary trends in fish morphology include

- a) A shift in position of the paired fins
- b) An increase in overall spininess
- c) Changes in body shape
- d) All the above
- e) Only a and c

91- Each of the following methods is used to measure reproductive indices

- a) Raise in a controlled environment
- b) Mark and recapture
- c) Length – frequency distribution
- d) All the above
- e) None of the above

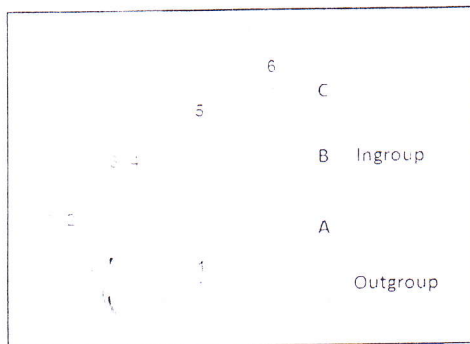


c) distinguish between conflicting scenarios such as parallel vs convergent evolution

- d) all of the above
- e) none of the above.

76- Otophysi share the following synapomorphy:

- a) Pterygiophores
- b) Schrekstoff
- c) Weberian apparatus
- d) Retractor dorsalis.



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

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

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

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

79- In the above figure of the clade, character 5 is

- a) Syanapomorphy for A, B& C
- b) Symplesiomorphy

- c) Syanapomorphy for B&C
- d) Autapomorphy for C

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

- a) Age allowed lots of time for evolution
- b) Persistence provided a stable habitat over geologic time
- c) North-South orientation provided a refuge during glaciation
- d) Wide diversity of habitats
- e) All the above

81- Which of the following statements is true?

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

82- 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

83- Teleost success was achieved by



67- 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.

68- Studying food and feeding habits should be executed by one of the following methods except:

- a) Direct observation.
- b) Back calculation from rings on hard structures
- c) Observation in captivity.
- d) Examination of contents of the stomach.

69- Laterally compressed forms, with pectoral fins high on the body, with pelvic fins immediately below; small mouths, eyes large, snout short are:

- a) Eel-like fishes
- b) Ambush predator
- c) Surface-oriented fishes
- d) Deep-bodied fishes

70- Hagfishes are separated from Craniata as sister group to vertebrates because they are characterized by the following except:

- a) A single semicircular canal
- b) Capable of hyperosmoregulation

- c) No neuromast cells and no extrinsic eye muscles.
- d) Incapable of nervous regulation of the heart.
- e) No vertebrae

71- The following taxonomic characters discriminate between Chondostei, Holostei and Teleostei:

- a) Caudal fin- spiracle- notochord
- b) Vertebral ossification- upper jaw
- c) skull roof- fulcra- cheek- paired fins
- d) all the above
- e) none of the above

72- A clade is defined by

- a) by shared characters called apomorphies
- b) shared derived characters called synapomorphies
- c) shared characters called homoplasies
- d) unshared characters called paraphylies.

73- Extinct jawless fishes are called

- a) acanthodians
- b) Placoderms
- c) Ostracoderms
- d) Agnathans.

74- Homoplasies are characters that are

- a) shared by ancestry
- b) shared by convergent evolution
- c) unshared
- d) characteristic of a polyphyletic assemblage

75- The recent use of genomic techniques has allowed to:

- a) solve issues that were difficult to address using exclusively morphological characters
- b) time diversification events using molecular clocks

60- The fish mass movements are influenced by different factors including:

- a) Temperature and Photoperiod
- b) Salinity and Water current
- c) Predators and Hormones
- d) All the above
- e) Only a and c

61- 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

62- Unexploited fish stocks have:

- a) Fast growth and good condition
- b) Small average size of fish caught
- c) Both a&b
- d) None of the above

63- A bipartite life cycle can best be described by

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

- c) fishes reside part of their life in the pelagic environment as larvae and part of their life in the benthic environment
- d) fishes that maintain cartilaginous skeletons initially and then calcify their skeletons later

64- 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

65- Sexual selection deals with one component of fitness

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

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

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



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Time: 2 hours

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- c) pectoral fin
- d) all of the above

- d) None of the above
- e) All the above

53- **Schreckstoff** is

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

57- **Using population fecundity as a measure of reproductive potential assumes with other assumptions:**

- a) Linear fish size- fecundity relationship with on annual variations
- b) constant annual sex ratio
- c) no annual variation in age/size at maturity
- d) all the above
- e) None of the above

54- **Fish drinks water, urinates little and expels extra salts via the chloride cells. This scenario describes the osmoregulation strategy of a**

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

58- **Differences between functional fecundity and true fecundity are due to:**

- a) incomplete spawning
- b) atresia (degeneration)
- c) resorption of oocytes
- d) all the above

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

- a) Mineral concentration = 500 mOsm/l
- b) Urea 440 mOsmol/l
- c) Trimethyl Amine Oxide = 70 mOsmol/l
- d) All the above
- e) None of the above

59- **implications for fecundity estimation in indeterminate spawners are due to:**

- a) Counts of eggs do not indicate annual fecundity
- b) Continuous new batches (size distribution)
- c) Protracted season
- d) All the above
- e) None of the above

56- **Criteria of back calculations in fish growth include:**

- a) Number of scales is variable throughout life
- b) Growth of scale (or hard part) is not proportional to growth of fish
- c) Annuli formed yearly at different times



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- c) Migration and fertility
- d) All the above
- e) None of the above
- b) Resumption of meiosis (cell division)
- c) Water uptake
- d) All the above

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

- a) Less than 3
- b) Larger than 3
- c) Equal to 3
- d) None of the above

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

- a) Less than 3
- b) Larger than 3
- c) Equal to 3
- d) None of the above

36- **Europhagous plankton feeders have:**

- a) Mixed diet.
- b) A limited sort of food.
- c) One sort of food.
- d) None of the above

37- **Maturity stage 4 is concerned with**

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

38- **Oocyte maturation in fishes includes:**

- a) Germinal vesicle (nucleus) migration

39- **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

40- **Maturity stage 2 is concerned with**

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

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

- a) Less than 3
- b) Larger than 3
- c) Equal to 3
- d) None of the above

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

- a) $W = a * L^b$
- b) $\log_{10} W = \log_{10} a + b * \log_{10} L$
- c) Both of a& b
- d) None of the above

43- **Stenophagous plankton feeders have:**



- a) Mixed diet.
- b) A limited sort of food.
- c) One sort of food.
- d) None of the above

44- **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

45- **Monophagous plankton feeders have:**

- a) Mixed diet.
- b) A limited sort of food.
- c) One sort of food.
- d) None of the above

46- **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.

47- **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.

48- **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.

49- **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.

50- **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.

51- **Overfished stocks have:**

- a) Fast growth and good condition
- b) Small average size of fish caught
- c) Both a&b
- d) None of the above

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

- a) pelvic fins
- b) caudal fin



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B- Choice the correct answer of each list in the following:

26. Pituitary growth hormone in fishes leads to:

- a) increases appetite and increases food conversion efficiency
- b) decreases production of somatomedin
- c) both of a & b
- d) none of the above

27- Anabolic steroids that stimulate growth include:

- a) testosterone and estrogen
- b) prolactin
- c) corticosteroids
- d) all the above
- e) both a & c

28- Wintering migration includes:

- a) Cata- and ana-dromous migrations
- b) Potamo- and oceano-dromous migrations
- c) All the above
- d) None of the above

29- Gametic migration includes:

- a) Cata- and ana-dromous migrations
- b) Potamo- and oceano-dromous migrations
- c) All the above

- d) None of the above

30- Protection mass movements of fishes includes:

- a) Spawning and wintering migrations
- b) Feeding migration
- c) All the above
- d) None of the above

31- Maturity stage 1 is concerned with

- a) Oocyte development
- b) Vitellogenesis
- c) Oocyte maturation
- d) Spawning
- e) None of the above

32- Maturity stage 3 is concerned with

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

33- The food supply is a determining factor of:

- a) Distribution and abundance
- b) Condition and rate of growth

14. Hagfishes and lampreys have been assigned to separate Craniate classes, which mean that the name "Agnatha" is a monophyletic assemblage of jawless fishes.
15. The primitive gape and suck feeding mechanism as in *Elops* provide the raw material for the evolution of protrusible jaws.
16. Chondrichthyes have internal fertilization, but sharks may be oviparous, ovoviviparous, or viviparous.
17. Instead of a toothed mouth, the jaws of chimaeras bear large flat plates in their jaws, the upper one of which is completely fused to the cranium.
18. *Micropterus salmoides* consumes food at 10C three times than that in 20C.
19. When the allometric coefficient is equal 3, large specimens with fusiform body are in better condition than small ones.
20. Fishes with high RGL = species consuming detritus and algae with high proportion of indigestible matter.
21. In Lepidosirenidae, the pectoral and pelvic fins are reduced to thin fleshy filaments
22. Fishes having 50-75 vertebrae are more advanced than those with 24 vertebrae
23. Aestivation occurs in mud tunnels in *Lepidosiren* or cocoons in *Protopterus* during the dry season.
24. Ceratotrichia are found in Osteichthyes whereas Lepidotrichia characterize Condriichthyes.
25. Weberian apparatus is an anatomical structure that connects the swim bladder to the auditory system in fishes belonging to order Cypriniiform.



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

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

1. Growth rate of immature fish are much faster than those of mature fish.
2. Cyclostomata have paired gonads with gametes released into body cavity.
3. In positive allometric growth, the shape of fish changes over time.
4. In dry fertilization the sperm is added to the eggs after water.
5. Amazon River fish switch from invertebrates to detritus in the rainy season.
6. Stenohaline does not tolerate a narrow range of salinities in external environment - either marine or freshwater ranges
7. The clithrum and opercular bones are suitable for age determination.
8. Freshwater bony fish are hyperosmotic facing challenge to homeostasis: constant loss of water from body to environment by osmosis
9. Herbivores are represented by > 5% of all bony fishes.
10. In Euryhaline bony fish, hormone-mediated changes are associated with metamorphosis - convert from freshwater adaptations to saltwater or vice versa, depending on direction of migration
11. Scavengers are represented by 5-10% of all fish species.
12. In freshwater Chondrichthyes, rectal gland is reduced, but present and urine flow is low.
13. In the most highly evolved Elasmobranches, the anterior end of the premaxilla develops what's called an ascending process.

Answer all questions:-

Q1- Only answer by $\sqrt$ or X for these sentences:- (35 Marks: one mark each)

- 1- Proteins play an important role in the formation of mucus (glycoprotein) and blood clotting. ()
- 2- Secondary active transport is *coupled transport* and the use of a carrier protein to transport of two atoms; Ex. Na with glucose or amino acid: symport. While, Na with calcium or hydrogen ions: antiport..... ()
- 3- Vermiform appendix lies on the right side of the human body, and has a few role in food digestion. ()
- 4- Secondary active transport is due to the electrochemical potential difference and ATP units generated by pumping ions out of the cell leading to disturbances in the equivalent ion distribution. ()
- 5- The deficiency of dietary proteins may lead to decreased plasma protein leading to leakage of water from blood to different tissues (called edema disease). ()
- 6- The increase of temperature increases the rate of enzyme reaction until a certain temperature at which the enzyme acts maximally. ()
- 7- In the lung with normal altitude: At 100 mmHg PO_2 : Partial pressure of oxygen PO_2 in alveoli is 100 mmHg will give arterial bl. with Hb 93.5 % saturated with oxygen at normal altitude. ()
- 8- Permanent teeth grow below the milk teeth gradually to be exchanged by them at 3 to 5 years old, while wisdom teeth start to grow at 17 -25 years (sometimes delay to 25 years old. ()
- 9- Pyloric sphincter muscle is weak in infants , so renin enzyme secreted from stomach to compensate this situation by coagulation of milk for trapping it until digested by pepsin enzyme. ()
- 10- In the heart, sino-atrial node (S-A) is located at the superior lateral wall of the right atrium near the opening of the superior vena cava. ()
- 11- All enzymes and some hormones like insulin, sex hormones, thyroxin and parathormone consider as derived proteins. ()

- 12- Gastric HCL stimulates the pyloric muscle to be relax to facilitate the easy passage of food to the duodenum ()
- 13- There is spontaneous generation of an action potential or nerve impulse (Self propagation) in the sinus node or sino-atrial node (S-A) (Pace maker) located in the wall of the right atrium. ()
- 14- The effective part of lungs in gas exchange is only the alveoli and few passages but the other parts are respiratory air passages; and pleura helps in Lung distension and prevent lung collapse. ()
- 15- Vitamin C deficiency causes scurvy disease with easy bruising and haemorrhages under the skin due to increased capillary fragility. ()
- 16- Facilitated diffusion of molecules is via proteins channels (water soluble molecules) or carriers (with concentration gradient) without consume energy. ()
- 17- When the body increase the dependence on body protein to produce energy leading to increase the level of keto bodies (acetone , acetoacetic acid, B- hydroxy buterate) which are very toxic. ()
- 18- The cortex of kidney contains few renal corpuscles and all proximal & distal convoluted tubules. Also the normal glomerular filtration rate = 125 ml / min or 180 L / day. ()
- 19- Any disorders in the intrinsic factor secretion by the gastric mucosa, absorbed through the intestine and stored in the liver, can inhibit vitamin B12. ()
- 20- The Deficiency in the dietary amino acids may lead to deficiency A,D,E and K vitamins in the body. ()
- 21- Copper deficiency leads to anemia, decrease of the immune power of the body and ceruloplasmin. ()
- 22- During inspiration (inhalation), the diaphragm and external intercostal muscles contract, causing the rib cage to expand and move outward, and expanding the thoracic cavity and lung volume. ()
- 23- Vitamin K deficiency hemorrhagic manifestation in skin and mucous membranes due to stimulation of blood coagulation mechanism..... ()
- 24- Kidney secretes renin, which inactivates angiotensin (secreted from liver), aldosterone . controls blood pressure and electrolyte balance. ()
- 25- Excess of vitamin K in food leads to disturbances in intestinal function and may increase of probability of clot formation particularly in blood-disease patient. ()
- 26- The excess of body cholesterol transformed into cholate salts excrete in urine and faeces. ()

- 27- Vitamin K deficiency caused prolonged clotting time. ()
- 28- The filtered fluid at the arterial bl. capillaries is one liter, 950 ml of which enter venous system and 50 ml enter lymph system / hour. ()
- 29- During inspiration (inhalation), the diaphragm and external intercostal muscles contract, causing the rib cage to expand and move outward, and expanding the thoracic cavity and lung volume. ()
- 30- Vitamin D deficiency causes rickets in young children : bowed legs and deformity of the thorax and sternum (like "pigeon chest) and osteomalacia and scurvy in adults. ()
- 31- Gastric HCL stimulates the pyloric muscle to be relax to facilitate the easy passage of food to the duodenum ()
- 32- The rate of enzyme reaction is increased with the increase of substrate concentration till a certain point at which any increase in the substrate concentration will cause no further increase in the rate of enzyme reaction. ()
- 33- Vitamin C ascorbic acid, participates in formation of collagen and influences biosynthesis of adrenaline. ()
- 34- 70 % Carbon dioxide liberated from tissues enters red blood cells where it combines with water to form carbonic acid (H_2CO_3), then it comes out in the form of $NaHCO_3$ in blood. ()
- 35- Vitamin B1 deficiency leads to weak Krep's cycle, where decarboxylation of pyruvic into acetyl CoA is stopped. ()
- Ooo
- Q2-Choose the appropriate letters A, B,C or D. (15 Marks: $\frac{1}{2}$ mark each):-**
- 36- Hydrochloric acid stimulates duodenal mucosa to secrete hormone called:
 -A: Gastrin.
 B- Secretin hormone which reach to the gall bladder to be stimulated to secrete bile juice.
 C- Secretin hormone which reach to the pancreas to be stimulated to secrete pancreatic juice.
 D- Not the above.
- 37- Derived Lipids include:-
 -A: Lipoproteins
 -B Waxes
 -C: Sex hormones
 -D: Not the above.
- 38- Function of vitamin A includes:-

-A: It synthesizes a photosensitive pigment called rhodopsin (or visual purple) in rods.

-B: It synthesizes a photosensitive pigment iodopsin in the Cones which is responsible for vision in bright and colored light.

-C: Glycoprotein synthesis and this protects the mucosa.

-D: All the above.

39- Each kidney contains about one million of nephrons and after sixty years old:

-A: 10% of nephrons is lost each 10 years.

-B: The number of nephrons are not change.

-C: 20% of nephrons is lost each 10 years.

-D: Not all the above.

40- The region of renal cortex contains some parts of nephrons such as:-

-A: Parts of collecting tubules.

-B: All Malpighian corpuscles.

-C: Parts of Henle's loop.

-D: All the above.

41- The function of bile juice include:-

-A: Facilitate absorption of fats.

-B: Emulsification of fats.

-C: Multiply the efficiency of the pancreatic lipase enzyme three times.

-D: All the above.

42- The formation of urine includes some steps which include:-

-A: Glomerular filtration

-B: Tubular Reabsorption:

-C: Tubular secretion

-D: All the above.

43- The nerve impulse travel from the sino-atrial node (S-A) rapidly through both atria to reach:-

-A: Atrio-ventricular node (A-V) located in left atrium .

-B: Atrio-ventricular node (A-V) located in right atrium at the junction between the atria and ventricles.

-C: Purkinje network fibers distributed in both ventricles.

-D: His bundle.

44- The region of renal medulla contains some parts of nephron such as:-

-A: Some parts of proximal convoluted tubules.

-B: Some Malpighian corpuscles.

-C: Some parts of Henle's loop and parts of collecting tubules

- D: Not all the above.
- 45- Some vitamins can be synthesized by intestinal bacteria such as:
- A: Vitamin A.
 - B: Vitamin K & B.
 - C: Vitamin K only.
 - D: Not the above.
- 46- Regulation of the flow of biliary and pancreatic secretions into the duodenum is carried out by:-
- A: Cardiac sphincter.
 - B: Pyloric sphincter.
 - C: The sphincter of Oddi.
 - D: Not the above.
- 47- Function of renin enzyme is:
- A: Coagulate and digestion of milk in stomach of children and young animals.
 - B: Enzyme has ability to coagulate milk in stomach of children and young animals.
 - C: Digestion of milk in stomach of children and young animals.
 - D: All the above except A.
- 48- In the digestive system of Human, the vermiform Appendix is found at:
- A: The left side of large intestine:-
 - B: The right side of large intestine and participate in food digestion.
 - C: The right side of large intestine and not participate in food digestion.
 - D: Not the above.
- 49- The longest length of small intestine is:-
- A: Jejunum
 - B: Ileum
 - C: Duodenum
 - D: All are the same length.
- 50- Function of tricuspid valve is:-
- A: It allows passage of non-oxygenated blood from right auricle to right ventricle:-
 - B: It allows passage of oxygenated blood from left auricle to left ventricle.
 - C: It allows the passage of blood from right ventricle to pulmonary artery.
 - D: All the above.
- 51- The contraction of both atria and transported blood to both ventricles takes time as:-
- A: 0.1 sec.
 - B 0.3 sec.

-C: 0.4 sec.

-D: Not all the above.

52- Secondary active transport characterized by:-

-A: It can transport (symport) sodium and glucose into the cells.

-B : It participate in antiport cellular transport of sodium and calcium.

-C: Energy used is the generated from electrochemical potential.

-D: All the above.

53-9- Deficiency of Vitamin E leads to:-

-A: It increases the synthesis of osteocalcin

-B: Inflammation of conjunctiva

-C: Sterility in rats (production of immature gametocytes and abortion in pregnant females).

-D: Not the above.

54- The contraction and relaxation of diaphragm participate in inspiration and expiration by:-

-A: 70-90% of change of thorax cavity resulting respiration.

-B: 30-50% of change of thorax cavity resulting respiration.

-C: 10-20% of change of thorax cavity resulting respiration.

-D: Not the above.

55- Osmosis cellular transport characterized by:

-A: Water moves from high to low concentrations of water.

-B: Sodium ions moves from high to low concentrations of water.

-C: It does not need protein carriers.

-D: the above A & C.

56- Simple lipids are esters of fatty acids with fatty alcohol with example such as:

-A: Globulin and oils

-B: : Oils and butter

-C: Wax of honey bees

-D: the above B & C

57- Taking of excess of certain vitamin in food leads to disturbances in intestinal function and may increase of probability of clot formation particularly in blood-disease patient and example of this vitamin is:-

-A: Vitamin K

-B: Vitamin C.

-C: Vitamin D

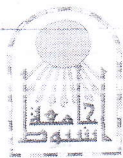
-D: Not the above.

58- Facilitated cellular transport characterized by:

- A: It occurs with concentration gradient.
 - B: Needing to carriers or channels proteins.
 - C: It is passive i.e. no energy is required.
 - D: All the above.
- 59- Tubular secretion is one step of formation of urine where:-
- A: Tubular walls of renal tubules extracted sodium ions from blood.
 - B: Tubular walls of renal tubules extracted only drugs from blood.
 - C: Tubular walls of renal tubules extracted drugs and ammonia from blood.
 - D: All the above.
- 60- Partial pressure of oxygen PO_2 in alveoli at normal altitude is 100 mm Hg will give arterial blood with hemoglobin saturation % by:-
- A: 97.5 % saturated Hb with oxygen.
 - B: 93.0 % saturated Hb with oxygen.
 - C: 90 % saturated Hb with oxygen.
 - D: not the above.
- 61- There are factors decrease urine volume per day such as:
- A: Epinephrine hormone.
 - B: Antidiuretic hormone.
 - C: Aldosterone hormone.
 - D: All the above.
- 62- Near tissues: At PO_2 Less than 10 mm Hg: during severe muscular exercise, the PO_2 and this leads to:-
- A: That tissues getting more oxygen from blood.
 - B: That tissues getting oxygen from myoglobin.
 - C: That tissue is unable to get more oxygen.
 - D: Not the above.
- 63- The main functions of dietary lipids include:-
- A: The second source of energy (25% of body needs).
 - B: Act as thermal insulator and synthesis of some hormones.
 - C: The sources of some enzymes.
 - D: All the above except C.
- 64- The body can stored certain substance by unlimited level which is in the form of:-
- A: Proteins and lipids
 - B: Lipids and carbohydrates.
 - C: Only Lipids
 - D: All of the above
- 65- Examples of simple proteins are:-

- A: Albumin Globulin and glycine
- B Albumin Globulin, Collagen and Gelatin
- C: Albumin Globulin, Collagen and cephaline
- D: Albumin Globulin, Collagen and glycerin

With my best wishes and great success,
Professor Dr. Mohamed Bassam Al-Salahy Elbradei



Answer all questions:-

Q1- Only answer by $\sqrt$ or X for these sentences:- (35Marks: one mark each):-

- 1- Leptin is secreted by large mass of adipocytes into the circulation to reach the high centers in the hypothalamus.()
- 2- Vitamin E deficiency causes Anemia which may be due to decreased production of hemoglobin or hemolysis of RBCs (causes destruction of cell membrane).()
- 3- Any group of food pyramid does not replace each other because each has a different benefit.()
- 4- The physical activity of the person must be done daily as in new food pyramid, which is walking movement for 30 to 60 min for children and 90 min for adult()
- 5- Basal metabolic rate for man of 70 Kg body weight equal 1580 calories, while for women of 70 Kg Body Weight equal 1512 calories.()
- 6- The stored subcutaneous fat act as thermal insulator to prevent loss of heat and the body ability to store lipids is unlimited.()
- 7- Some of Vit. K and B complex are synthesized in intestine by the help of some micro=organisms and can be affected by antibiotic drugs()
- 8- By body mass index equation, the man of 90 Kg body weight and length of 175 Cm , the obesity consider as an average weight.()
- 9- Ghrelin secreted from intestinal wall and it increased gastric motility, bone formation and growth hormone secretion.()
- 10- Base of the old food pyramid includes bread, cereals, oils and pasta which supplies us with fiber, carbohydrates, vitamins and minerals.()
- 11- Fats enter in synthesis of some hormones. Ex sex hormones, adrenocortical hormones (aldosterone and cortisol.).....()
- 12- The higher amount of lipids in the body causes great leptin production. but in obese, there is resistance to leptin.()
- 13- Dietary fibers improve and control blood glucose levels in diabetes, improving blood lipid profiles and reduces disorders of haemorrhoids. ..()
- 14- Lipids represent the minor part of stored substances in the body , mainly in adipocytes: depot fats.()

- 15- Basal metabolic rate BMR constitutes the few proportion ($\frac{1}{4}$) of a person's daily energy expenditure.()
- 16- The rise of keto bodies which include acetone, beta hydroxyl buterate and aceto-acetic acid , in blood called ketonemia.()
- 17- One role of the antimicrobial additives is for more safety of food and prevent the growth of microorganisms. ()
- 18- Preservative antioxidants include natural antioxidants such as vitamins C & E; and also butylated hydroxy toluene (BHT).....()
- 19- Browning color of some vegetable and fruit food products of non enzymatic browning occurred as combination of an amino acid and amino acids, during heating of food.()
- 20- Citric acid can prevent antibrowning agents of enzymatic browning for some fruit or vegetables.()
- 21- Simple proteins include albumin globulin, collagen and gelatin.....()
- 22- Vermiform appendix lies on the right side of the human body, and has few role in food digestion.()
- 23- There are some artificial coloring agents such as quinoline Yellow carmoisine used as additives and consider less safe than the natural ones..()
- 24- The artificial flavoring which used for giving butter flavor is carried out by adding of acetylpropionyl (Acetoin) with plant oil for Buttery.()
- 25- Gastric renin enzyme coagulates milk in stomach of children and young animals to give a time to complete digestion of milk protein by gastric trypsin enzyme()
- 26- Proteins differ from each other as a result of the difference in the number , type and arrangement of amino acids involved in protein synthesis.()
- 27- Addition of monosodium glutamate, and brothy to food to become beefy and giving soya bean and fruit flavor.()
- 28- Pyloric sphincter muscle of stomach is weak in infants , so renin enzyme secreted from stomach to compensate this situation by coagulation of milk for trapping it until digested by pepsin enzyme.()
- 29- Vitamin D deficiency causes rickets in young children : Bowed legs and deformity of the thorax and sternum (like "pigeon chest) and oseomalacia in adults.()
- 30- Fatty acid oxidized in stages and in each phase a molecule separated containing one carbon atoms (called beta-oxidation).()
- 31- The acidic medium in stomach suitable for activation of gastric enzyme, PH = 5 in adult and PH = 3 in children.()

32- Gastric HCL inhibits the pyloric muscle to be relax to facilitate the easy passage of food to the duodenum. ()

33- Bile salts also act as bactericides, destroying many of the microbes that may be present in the food. _____ ()

34- Excess intake of vitamin D leads to the deposition of calcium salts in soft tissues such as kidney and ureter forming stones. ()

35- Emulsification and digestion of fats. multiply the efficiency of the pancreatic peptidase enzyme three times after transfer the fat to emulsion.

pancreatic peptidase enzyme will be found in ()

[illegible]

Q2-Choose the appropriate letters A, B,C or D. (15 Marks: $\frac{1}{2}$ mark each):-

36- Leptin hormone:-

A: Control of food consumption.

B: Increasing energy expenditure.

C: Increases body weight.

D: All the above.

37- In the digestive system of Human, the vermiform Appendix is found at:

-A: The left side of large intestine.

- B: The right side of large intestine and participate in food digestion.

- C: The right side of large intestine and not participate in food digestion.

-D: Not the above.

38- The functions of saliva includes:-

-A: To maintain the regulation of water content in the body.

- B: Stimulates the cardiac muscle.

- C: Neutralize the acid or alkali which may found in the food.

-D: All the above except B.

39- The longest part of small intestine is:-

-A: Jejunum

-B: Ileum

-C: Duodenum

-D: All are the same length.

40- The main functions of dietary proteins include:-

-A: body builder

-B: The sources of all enzymes are proteins.

- C: maintain the normal levels of plasma proteins which prevent edema.

-D: All the above.

41- There are factors affecting basal metabolic rate BMR such as:-

A: Diet - Severe calorie restriction reduces BMR.

B: Increase body temperature will decrease basal metabolic rate.

C: Food type - carbohydrates increase BMR.

D: All the above except B.

42- Taking of excess of certain vitamins in food leads to disturbances in intestinal function and may increase of probability of clot formation particularly in blood-disease patient and example of this vitamin is:-

-A: Vitamin K

-B: Vitamin C.

-C: Vitamin D

-D: Not the above.

43- The function of bile juice include:-

-A: Multiply the efficiency of the pancreatic lipase enzyme three times.

-B: Facilitate the removal of excess of cholesterol

-C: Facilitate absorption of fats.

-D: All the above.

44- The all the intestinal juices participate in:

-A: Inhibition of bacteria.

-B: Protein digestion.

-C: Carbohydrate digestion.

-D: All the above.

45- The main functions of dietary lipids include:-

-A: The second source of energy (25% of body needs).

-B: act as thermal insulator and synthesis of some hormones.

-C: The sources of some enzymes.

-D: All the above except C.

46- Example of the Disadvantages of additives include:-

-A: It may led to Allergies: migraine, hyperactivity, rashes., and Some additives destroy some nutrients.

-B: Side effects of artificial types the healthy is not found.

-C: Increase shelf life - preservatives

-D: All the above.

47- One type of the dietary fibers is the soluble fibers such as:

A: Beans, nuts, , some vegetables and fruits. (act as a colloidal mixture in intestine.

-B: Some vegetables and fruits. (act as a colloidal mixture in intestine.

-C: Flax seed and peas.

-D: All the above.

- 48- Edema disease can be induced by the case of lowering of:-
-A: Plasma fats.
-B: plasma protein
-C: RBCS.
-D: All the above.
- 49- The digestive juices contain enzymes for digestion of proteins such as:-
-A: Polypeptidase, tripeptidase and dipeptidase
-B : Trypsin, chemotrypsin and carboxypeptidase.
-C: Pepsin and tripeptidase.
-D: All the above.
- 50- Fats enter in synthesis of some hormones such as:
-A: Sex hormones
-B Insulin
-C: some peptide hormone
-D: All the above.
- 51- Gastric HCL stimulates duodenal mucosa to secrete hormone called:
-A: Gastrin.
-B Secretin hormone which stimulate the gall bladder to stimulate secretion of bile juice.
-C: Secretin hormone which stimulate the pancreas to stimulate secretion of pancreatic juice.
-D: All the above.
- 52- Examples of preservatives antimicrobial preservatives:
A: Sodium benzoate.
B: Benzoic acid.
C: nitrate.
D: All the above.
- 53- The small upper part of the pyramid. This group includes:-
A: meat, birds, fish, dried beans and eggs.
B: Oils, butter, cream, margarine, sugars, sweets.
C: bread, cereals, rice and pasta.
D: Vegetables and fruits.
- 54- Ghrelin hormone secretion:-
A: Ghrelin secreted from stored fats.
B: Ghrelin secreted from gastric wall and pancreas during hangry.
C: Ghrelin secreted from intestine.
D: All the above.

- 55- The photosensitive pigment found in rods in the retina of the eye called rhodopsin or visual purple which synthesized by the help of :
- A: Vitamin B12.
 - B: Vitamin B1.
 - C: Vitamin A.
 - D: the above B & C.
- 56- New pyramid added an association between:-
- A: All types of food found in the food pyramid.
 - B: The guide that how much food to eat daily and the types of foods.
 - C: The food pyramid and the physical activity of the person.
 - D: All the above.
- 57- Enzymatic browning of some fruits and vegetables is due to:-
- A: Containing of vitamin D in the food products.
 - B: Containing of an amino acid,.
 - C: Presence of enzyme such as polyphenol oxidase in some fruits and vegetables.
 - D: Not the above.
- 58- Deficiency of vitamin D leads to:
- A: Bowed legs and deformity of the thorax and sternum (like "pigeon chest).
 - B: Rickets in young children : bowed legs and deformity of the thorax and sternum (like "pigeon chest).
 - C: Osteomalacia in adults softening of skeleton due to demineralization
 - D: All the above.
- 59- Snacks cause obesity due to:-
- A: Its higher energy content.
 - B: Its reduced complex carbohydrates & fiber .
 - C: Its greater saturated fat.
 - D: All the above.
- 60- There are factors affecting basal metabolic rate such as:-
- A: Gender - males higher due to high muscle mass in male.
 - B: Fever, illness, or injury may increase basal metabolic rate.
 - C: More muscles - more basal metabolic rate.
 - D: All the above except B.
- 61- The international numbering system (INS systems: It is adopted or approved by:
- A: World Health Organisation (WHO).
 - B: Food and drugs administration FDA.
 - C: Codex alimentarius commission.

D: All the above.

62- Preservatives are additives such as:-

A: Antioxidants.

B: Antibrowning agents.

C: Coloring agent.

D: All the above except C.

63- Leptin hormone:-

A: Regulates bone mass.

B: Increased heart rate.

C: Regulate menstrual cycle, and activate immune cells.

D: All the above.

64- Function of vitamin D includes:-

-A: It enhances the reabsorption of Ca^{2+} and phosphate in kidney.

-B: Nyctalopia (impaired dark adaptation). Xerophthalmia.

-C: It increases phosphate and calcium absorption from intestine.

-D: The above A & C.

65- Ghrelin hormone:-

A: Inhibits insulin secretion.

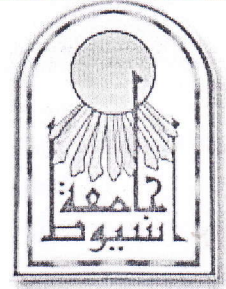
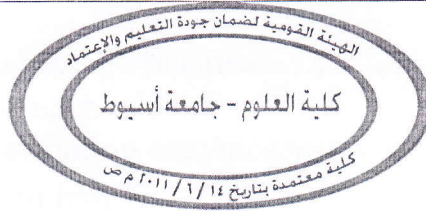
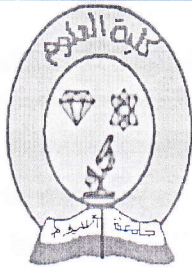
B: Ghrelin plays an important role in feeling of hunger,

C: Increase food intake and therefore weight gain increased.

D: All the above.

With my best wishes and great success,

Professor Dr. Mohamed Bassam Al-Salahy Elbradei



Final Exam: Animal Venoms (219Z)
Credit Hour System 2020/2021

Time: Two Hours
First Semester

I- Choose the correct answer: (25 Points)

- 1- Snakes venom is.....
 - a. modified saliva
 - b. modified enzymes
 - c. modified antigen
 - d. modified carbohydrate
- 2- Toxicity of the snake venom determined by its content of.....
 - a. enzymes
 - b. proteins
 - c. minerals
 - d. lipids
- 3- Toxins that turn urine brown to black is called.....
 - a. neurotoxin
 - b. haematoxins
 - c. myotoxins
 - d. active metabolites
- 4- The venom of cobra and coral snakes is.....
 - a. neurotoxin
 - b. haematoxins
 - c. myotoxins
 - d. necrotoxic
- 5- The venom of yellow-bellied sea snake is.....
 - a. neurotoxin
 - b. haematoxins
 - c. myotoxins
 - d. necrotoxic
- 6- Stonefish have potent neurotoxins secreted fromwhen fish threatened
 - a. fins
 - b. glands
 - c. muscles
 - d. stomach
- 7- Poison frog epibatadine is non-addictive and lacking serious side effects of.....
 - a. morphine
 - b. histamine
 - c. serotonin
 - d. dopamine
- 8- Brazilian wandering spider has the most potent.....venom of any living spider.
 - a. neurotoxin
 - b. haematoxins
 - c. myotoxins
 - d. necrotoxic
- 9- The dose is dependent upon
 - a. environmental concentration
 - b. properties of the toxicant
 - c. The frequency, length and pathway of exposure
 - d. All are true
- 10- Organs in biotransformation includes
 - a. Liver
 - b. Kidney
 - c. Intestine
 - d. All are true
- 11- Difference in response to a toxicant in a population can be
 - a. 10-30 fold
 - b. 5-10 fold
 - c. 20-30 fold
 - d. All are true

- 12-Individual susceptibility due to age because.....
a. underdeveloped excretory mechanisms
b. underdeveloped biotransformation enzymes
c. underdeveloped blood-brain barrier
d. All are true
- 13- Nicotine caused adverse effects due to.....
a. Alterations in receptor-ligand interactions b. Alterations in membrane function
c. Interference with calcium homeostasis d. All are true
- 14- Toxicants are eliminated from the body by.....
a. urinary excretion b. exhalation c. biliary excretion d. All are true
- 15- The amount of chemical entering the body is usually given as.....
a. mg/kg b. g/kg c. µg/kg d. All are true
- 16-The Gila monster is one of only two venomous.....
a. lizards b. birds c. fishes d. invertebrates
- 17- Adverse effects of toxins can be
a. local vs. systemic b. reversible vs. irreversible
c. immediate vs. delayed d. All are true
- 18- The process in which chemical agent translocate throughout the bod is.....
a. distribution b. deposition c. storage d. excretion
- 19-Toxins induce adverse effects on the cellular level through.....
a. interfere with receptor-ligand binding b. interfere with membrane function
c. interfere with cellular energy production d. All are true
- 20- Alterations in membrane function caused by.....
a. nicotine b. cyanide c. aflatoxin d. hydrocarbons
- 21- Red-backed poison frog has toxicity.
a. moderate b. low c. height d. All are true
- 22- The blue ringed octopus venom is.....
a. not powerful enough to kill human b. powerful enough to kill human
c. not toxic at all d. none of all are true
- 23- Epibatidine is anfound on the skin of the frog.
a. alkaloid b. proteins c. lipids d. enzymes

24-. Epibatidine acts as an acetylcholine agonist to invoke the release of.....
a. dopamine b. serotonin c. thyroxine d. heparin

25-Blue-ringed octopuses hunt crabs and may bite attackers including.....
a. human b. fishes c. birds d. reptiles

II- Put true or false for each one (25 points)

- 26- Antivenin only blocks further damage, it can't undo what's already been done ().
- 27- Antivenin could cause an allergic reaction ().
- 28- The venom of animals are used to defeat a prey and defensive functions. ()
- 29-Phospholipase A₂ is the most important allergen in the honeybee ().
- 30-Mellitin, the major component of honeybee venom causes lysis of red cells and consequently a pigment nephropathy ().
- 31-The first local treatment for honeybee sting is the removal of the stings left in the skin by scraping them out with a fingernail ().
- 32- Tick toxin cause presynaptic failure due to liberation of acetylcholine ().
- 33- Major neurotoxin component of blue-ringed octopus venom was *maculotoxin* ().
- 34- Tetrodotoxin blocks sodium channels, causing motor paralysis and respiratory arrest leading to cardiac arrest due to a lack of oxygen ().
- 35- Contoxins is a toxin of cone snails ().
- 36- Pterois fish venom has a depressing effect on rabbit blood pressure ().
- 37- Stargazers are bony fishes related to sharks ().
- 38- Toxic effect of dyeing dart frog makes the birds feathers grow in different colors ().
- 39- Two micrograms of blue poison dart frog's poison is enough to be fatal ().
- 40- Epibatidine bind to the muscarinic a acetylcholine receptor and causes hypotension ().
- 41- Vinegar disables jelly box nematocysts that not yet discharged into the blood stream ().
- 42- Death stalker scorpions are spread in North Africa and Middle East ().
- 43- Very lipophylic compounds will store in fat. Hence, rapid mobilization of the fat (starvation) can rapidly increase their blood concentration ().
- 44- Biotransformation can result in the formation of reactive metabolites ().
- 45- All organs are affected equally by toxicants ().
- 46-Ticks and mites are blood sucking endoparasites ().
- 47-Puffer Fish are the second most poisonous invertebrate on earth ().
- 48- Copperhead venom contains anticoagulants that are able to dissolve blood clots ().
- 49-Toxinss are substances injected by one species into another ().
- 50- Typical effectiveness of route of exposure is iv > inhale > ip > im > ingest > topical ().

Good Luck

Dr. Hossam El-Din M Omar, Prof. of Physiology



Botany and Microbiology Department

For Students of the Second level

{50 Marks}

Plant Ecology (B 221)

Time : 2 hours

First Semester 2020/2021

Choose the correct answer of the following:

1-Root hairs are found in the region of

- a- root cap b- maturation c- elongation d - meristem.

2-Haustorial root is related to:

- a- parasites b- halophytes c- xerophytes d- saprophytes.

3-Root cap is originated from:

- a- phellogen b- dermatogen c- calyptragen d- procambium

4-Secondary roots is originated from :

- a- prop root b- pericycle c- endodermis d- pneumatophore.

5-Root hairs are:

- a- unicellular b- glandular c- multicellular d- none.

6-Foliar bud is developed from:

- a- root b- stem c- leaf d- flower

7-Vegetative bud can be modified into

- a- flower b- fruit c- tendril d- leaf.

8-Stem modified into leaf is calle

- a- phylloclade b-runner c- corm d- scaly leaf

9-Scaly leaf means

- a- mesophyll b- cataphyll c- prophyll d- hyposophyll.

10-Main function of leaf petiole is :

- a- conduction b-protection c-reproduction d- onvection

-11-Compound leaf is composed of :

- a-one leaf b- leaflets c- branch d-unifolaite.

12-Arrangement of leaves on stem is called

- a-phylloclade b- phyllotaxy c- cladode d- multifoliate .

- 13-Insectivorous plants catch insects to fulfill requirement of:
a-calcium b-nitrogen c-potassium d- phosphorus
- 14-Lamina is modified into pitcher in:
a- Drosera b- Nepenthes c-Utricularia d- Dionaea
- 15-leaves are modified into spines in:
a-mesophytes b-xerophytes c-halophytes d- hydrophytes
- 16-The micropyle helps the entry of:
a- water b- egg cell c- pollen grain d- none
- 17-Scutellum is a :
a- endosperm b- cotyledon c- sheath d- plumule .
- 18-The function of caruncle is:
a- nutritive b-absorptive c- secretive d- none .
- 19-Seed dormancy means:
a-stimulation b- inhibition c- activation d- adaptation.
- 20-In semihypogeal germination cotyledons are:
a- free b- enclosed c-crushed d underground
- 21-Impermeable seed coat means:
a- physical b- mechanical c- chemical d- morphological ...dormancy
- 22-Leafy stem is a modification of:
a- stem b- leaf c- foliage bud d- floral bud.
- 23-The embryonic axis of seed is:
a-plumule b- radicle c- hypocotyl d-all the previous
- 24- Fasciculated roots are:
a-storage b- climbing c-floating d-aerial
- 25- The Scar appears after fallen of:
a-branch b- root c- leaf d- flower.
- 26- Dermatogen gives:
a- cortex b- epidermis c- pith d- vascular tissue.
- 27-Phellogen is an example of:
a- lateral b- apical c- primary d- secondarymeristems.

28-Mechanical tissue devoid of lignin is :

- a- parenchyma b- collenchyma c- sclenchyma d- chlorenchyma

29-Collenchyma are abundantly found in :

- a- hydrophytes b- herbaceous plants c- xerophytes d- halophytes

30-Cells between endodermis and vascular bundles are called:

- a- epidermis b- pith c- pericycle d- cortex.

31-Radial vascular bundles are found in:

- a-root b- dicot stem c- monocot stem d- leaf.

32-Radial vascular bundles are found in:

- a-root b- dicot stem c- monocot stem d- leaf.

33-Epidermal outgrowth are:

- a- sclerides b- trichomes c- lenticels d- hydathodes

34-Dumb-bell shape of stomata are found in leaf of :

- a- monocots b- dicots c- gymnosperms d- ferns

35-Hydathodes function is :

- a- transpiration b- guttation c- evaporation d- respiration

36-Lysigenous gland is :

- a- digestive b- secretive c- nectary d- none .

37-Casparian strips are found in :

- a- epidermis b- exodermis c- hypodermis d- endodermis

38-Endodermis function is:

- a- supporting b- controlling c- storage d- division.

39- Transpiration process occurs through :

- a- hydathodes b- stomata c- lenticels d- pits.

40-Cortex is connected with pith by:

- a- starch sheath b- medullary rays c- casparian strips d- pericycle

41-The vessels of heart wood are blocked by :

- a- callus b- latex c- tyloses d-

42-Vascular bundles of dicot. Stem are :non

- a- scattered b- arranged c- amphycribal. D-radial

43- Wood is common name of :

- a- Vascular bundles b- phloem c- secondary xylem d- all.

44-Passage cells are found in :

- a-pith b-endodermis c- epidermis d- pericycle

45-Sieve cells are found in:

- a- gymnosperms b- monocot stem c- dicot.stem d- roots

46-Callose is a complex carbohydrates and forms plugs of:

- a- sieve tubes b- vessels c- tracheids d- fibers.

47-Bordered pits are found in:

- a-parenchyma b- collenchyma c- tracheids d- sclerenchyma

48-Bundle sheath is a characteristic of:

- a-monocot stem b- dicot stem c- monocot root d- gymnosperms

49- Annual rings are found in :

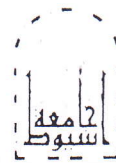
- a-herbs b- perennials c- annuals d-biennials

50- Cork cambium gives:

- a- protoderm b- phylloclerm c- hypoderm d- exoderm.

GOOD LUCK

Prof. K.A. Farghali



Faculty of Science

Assiut University

Dept. of Zoology

Exam of Animal Ecology Code No. 225Z

Credit hour system 2nd level. Year 2020-2021

Time allowed: 2 hours

أجب عن الأسئلة الآتية:

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-(behavior) d-(all).
- 4-Eutherns 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-(life cycles 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-(biotic potential) b-(biotic potential) c-(biotic potential) d-(biotic potential).
- 7-A few numbers of young is characteristic of a-(short lived animals) b-(long lived animals) c-(animals that reproduce once in their life) d-(all).
- 8- The organisms that break down wastes and dead organisms are known as a-(decomposers) b-(producers) c-(consumers) d-(all).
- 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 role in recycling of materials.
- 12- a-(Competition) b-(Climax communities) c-(Homeostasis) d-(Biomes) is the struggle between species.
- 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-(Competition) b-(Climax communities) c-(Homeostasis) d-(Biomes) are the end of succession.
- 15- a-(Competition) b-(Climax communities) c-(Homeostasis) d-(Biomes) is the division of the earth into regions by climate.
- 16- a-(Monogamy) b-(Polyandry) c-(polygyny) d-(all) is the formation of a pair bond between one male and one female.
- 17- a-(Transpiration) b-(Homeotherms) c-(Biosphere) d-(Secondary consumers) plays an important role in the water cycle.
- 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-(Types of substrate) b-(Homeotherms) c-(Producers) d-(consumers) is considered one of the abiotic factors.
- 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. اقلب الصفحة من فضلك

27- a-(monogamy) b-(polyandry) c-(polygyny) d-(all) is the formation of a pair bond between one female and two males.

28-The number of births in a given time period is known as a-(natality rate) b-(natlity rate) c-(nataliy 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 ecosystems ()

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 increase 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 community includes all the populations 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- The canopy is the site where decomposition takes place in the forest ().

43- The photoperiod is the factor which affects the migration of birds ().

44- Intraspecific competition occurs among two populations for environmental resources ().

45- Parasitism is a relationship in which one organism benefits and the other is harmed ().

46- Egypt is found in desert biome ().

47- The canopy is the primary site of energy fixation in the forest ().

48- Succession in the replacement of one community by the other ().

49- Primary succession takes short time compared with secondary succession ().

50- Territory is a situation in which an animal defends an exclusive area not shared with rivals ()

س٣: اختر الإجابة الصحيحة من بين الأقواس ثم اطمس الدائرة المقابلة في ورقة الإجابة المعدة لذلك بالقلم الجاف:
(السؤال بديلاً عن الشفوي ١٠ درجات):

51- The population includes a-(one species) b-(more than two species) c-(one community) d-(two communities).

52- The ecosystem includes a-(a biotic factor and abiotic factor) b-(biotic factor only) c-(abiotic factor only) d-(living factor only).

53- One of the positive impacts of man is a-(thermal pollution) b-(Oil pollution) c-(Organic pollution. d-(biological control).

54- One of the negative impacts of man is a-(natural reserve of certain places) b-(control of overfishing) c-(biological control). d-(organic pollution).

55-In competition two populations can a-(Coexist) b-(The weaker will eliminate the stronger) c-(both of them will be eliminated) d-(both a and b are right).

56-The visible light includes: a-(Ultra violet light) b-(Infra-red) c-(the well-known 7 colors) d-(micro waves).

57-The animals which are active during day time are known as a-(diurnal) b-(nocturnal) c-(Invertebrates). d-(vertebrates).

58-Light affects a-(the color of animals) b-(morphology) c-(reproduction) d-(all).

59- The animals which are active during night are known as a-(diurnal) b-(nocturnal) c-(Invertebrates) d-(Vertebrates).

60- The physical factor which has a bifold effect on animals is a-(temperature) b-(light) c-(UV) d-(all).

Good Luck



امتحان الفصل الدراسي الأول

لطلاب كلية العلوم

للمصام الجامعي ٢٠٢٠-٢٠٢١



القسم الذي يقدم المقرر: الوراثة

الفرقة: المستوى الثاني (ساعات معتمدة)

الزمن: ساعتان

اسم المادة: (٢١٥) أساسيات الوراثة

د/ محمود أبو السعود الراوي

لجنة المتحنيين: أ. د/ بهاء الدين السيد عبد الفتاح

ملحوظة هامة: الاجابة تتم في نموذج التصحيح الالكتروني فقط مع مراعاة التظليل الجيد للاختيار الصحيح وتجنب تظليل أكثر من خانه لكل سؤال

سؤال

اجب عن جميع الأسئلة الآتية

السؤال الاول:- :- ضع حرف (T) امام العبارة الصحيحة وحرف (F) امام العبارة الخاطئة (٢٥ درجة)

1	تتحور النسبة المندلية من ٩ : ٣ : ٣ : ١ في حالة التفوق السائد والمتنحي إلى النسبة 9:7	()
٢	الصفات التي تنتقل من الذكور لأبنائها الذكور مباشرة تعرف باسم الوراثة الهولاندرية	()
٣	نظام تحديد الجنس في دودة البونيليا نظام جيني	()
٤	فرد خليط في ثلاث أزواج من العوامل الوراثية بينهما ارتباط تام يعطي ثمانية أنواع من الجاميطات	()
٥	التهجين بين نباتات ♂ S ₂ S ₃ مع نباتات ♀ S ₂ S ₄ يعطي نسل بنسبة ٥٠% في حالة سلسلة اليلات عدم التوافق الذاتي	()
٦	صفة الصلع في الانسان من الصفات المتأثرة بالجنس التي تعني ظهورها في جنس دون الجنس الآخر	()
٧	النسبة 13:3 تمثل التفوق المتنحي المزدوج بينما النسبة ١٢:٣:١ تمثل التفوق السائد	()
٨	تكون نسبة الاتحادات الجينية الجديدة في حالة الارتباط هي 50%	()
٩	تحديد الجنس في نبات الأسبرجس يعتمد على النظام البيني	()
١٠	عندما تكون نسبة $X/A = 1/3$ يكون نوع الجنس في الدروسوفيلا (بين جنسي)	()
١١	التلقيح العادي والتلقيح العكسي يعطي نتائج متماثلة في حالة الصفات المرتبطة بالجنس.	()
١٢	النسبة ٩:٧ تمثل حالة الجينات المكملة والتي تتطلب أليل سائد من أي موقع وراثي لظهور الصفة	()
١٣	وراثة مجاميع الدم يمكن أن تكون مثلاً لكل من الأليلات المتعددة و السيادة الجزئية والسيادة التامة	()
١٤	التهجين بين نباتات ♂ S ₂ S ₁ مع نباتات ♀ S ₂ S ₄ يعطي نسل بنسبة ١٠٠% في حالة سلسلة اليلات عدم التوافق الذاتي	()
١٥	في حالة الجينات المهيمنة تزواج فئران صفراء أصيلة مع أخرى رمادية يعطي نسل بنسبة ١٠١	()
١٦	في حالة سلسلة الأليلات المتعدد للون الفراء في الأرانب فإن تزواج أفراد شتلا أصيلة وراثياً مع أفراد هيمالايا خليطه وراثياً يعطي في النسل الناتج أفراد لها شكل مظهري شتلا و هيمالايا وألبينو	()
١٧	في حالة سلسلة الأليلات المتعدد للون الفراء في الأرانب فإن تزواج أفراد ملونه أصيلة وراثياً مع أفراد ملونه خليطه وراثياً يعطي في النسل الناتج جميع الأشكال المظهرية المحتملة للون الفراء	()
١٨	عندما تكون نسبة $X/A = 1/2$ يكون نوع الجنس في الدروسوفيلا (ذكور)	()
١٩	ظاهرة الانوثة الخصيوية testicular Feminization تحدث نتيجة طفرة في منطقة الجين TFM	()
٢٠	فرد خليط في ٦ مواقع وراثية مع وجود ارتباط تام بين ثلاث مواقع منهم فإنه يعطي عدد أنواع من الجاميطات يساوي ٨	()
٢١	أحد التتابعات التي تدخل في تركيب المرقى (Promoter) هي GAAT	()
٢٢	أنزيم الليجيز (Ligase) يصل شظايا الـ DNA المتجاورة (شظايا أوكازاكي)	()
٢٣	يمكن ان يكون للجين الواحد أكثر من وظيفة وذلك عن طريق القص المتنوع	()

٢٤	من متطلبات عملية الترجمة الـ mRNA فقط	()
٢٥	توجد الشفرة المضادة (Anticodon) في الـ tRNA فقط	()

(٢٥ درجة)

السؤال الثاني: - اختر الإجابة الصحيحة من بين الإجابات

- 26- معقد من البروتينات الهستونية والـ DNA
- (a) Introns (b) Nucleosome (c) Operon (d) Nucleoside
- 27- شفرة من شفرات إيقاف عملية الترجمة
- (a) UGA (b) AAA (c) GUA (d) GAU
- 28- يخفض مستوى الكالسيوم في الدم
- (a) Reverse Transcriptase (b) β -Galactosidase (c) Calcitonin Hormone (d) RNA Polymerase II
- 29- يقوم بتضاعف السلسلة المتأخرة في حقيقيات النواة
- (a) DNA Polymerase II (b) β -DNA Polymerase (c) β -Galactosidase (d) α -DNA Polymerase
- 30- يحلل سكر اللاكتوز إلى جلوكوز وجلاكتوز
- (a) cDNA (b) β -DNA Polymerase (c) β -Galactosidase (d) Primase
- 31- هي عبارة عن تتابعات داخل الجين لا يتم ترجمتها
- (a) Introns (b) Nucleosomes (c) Exons (d) cDNA
- 32- يقوم بفك الكتيبة أثناء تضاعف الـ DNA في بدائية النواة
- (a) Topoisomerase I (b) Reverse Transcriptase (c) Topoisomerase II (d) Primase
- 33- يتكون من أكسونات (Exons) فقط
- (a) Intron (b) Nucleosome (c) Operon (d) cDNA
- 34- تتابع خطي من الجينات التي تشترك في نفس العملية البيوكيميائية والتي تنسخ معا في جزئ واحد من mRNA
- (a) Operon (b) Nucleosome (c) Primase (d) Promoter
- 35- يقوم بتخليق خيط الـ DNA مستخدما قالب من RNA
- (a) Primase (b) Reverse Transcriptase (c) Telomerase (d) Poly A polymerase
- 36- وحدة بناء الـ DNA
- (a) Nucleosome (b) Nucleotide (c) Intron (d) Exon
- 37- هي شفرة البدء أثناء عملية الترجمة
- (a) UAA (b) UGA (c) AUG (d) GUA
- 38- يعمل على فك سلاسل الـ DNA عن بعضها في خيط الـ DNA المزدوج انزيم
- (a) Helicase (b) DNA ligase (c) α -DNA Polymerase (d) Primase
- 39- هي عبارة عن تتابعات داخل الجين يتم ترجمتها
- (a) Introns (b) Nucleotides (c) Exons (d) Promoters
- 40- يحتوي جين الكالسيتونين (Calcitonin)
- (a) ٤ أكسونات (b) ٥ أكسونات (c) ٦ أكسونات (d) ٧ أكسونات
- 41- يقوم بتخليق ذيل من عديد الادنين
- (a) Poly A Polymerase (b) β -DNA Polymerase (c) α -DNA Polymerase (d) β -Galactosidase
- 42- يتضاعف الـ DNA بالطريقة

(a) المحافظة (b) الشبه محافظة (c) المتقطعة (d) جميع ماسبق

43- يحتوي اوبيرون (Operon) الترتيبات علي

(a) ٦ جينات (b) ٥ جينات (c) ٤ جينات (d) ٣ جينات

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

(a) RNA Polymerase I (b) RNA Polymerase II (c) RNA Polymerase III (d) جميع ماسبق

45- يقوم بفك الحلزنة الفائقة الموجبة أثناء تضاعف الـ DNA في بدائية النواة

(a) Reverse transcriptase (b) DNA ligase (c) Topoisomerase II (d) Topoisomerase I

46- في حالة التلقيح الاختباري لإثبات حشرة دروسوفيليا خليطة في ثلاث مواقع a, b, c وكانت المسافة بين a, b = ٢٠ وحده على الخريطة والمسافة بين b, c = ١٠ وحده على الخريطة ومعامل التعارض = ٠.٥ والمجموع الكلي للأفراد = ١٠٠٠ فإن معامل التوافق يساوي.....

(a) 0.33 (b) 0.52 (c) 0.5 (d) 0.67

47- من المسائل السابقة يكون عدد الأفراد الناتجة من العبور بين a, b هو

(a) ٢١٠ (b) ١٩٠ (c) ١٨٠ (d) ٩٥

48- من المسائل السابقة يكون عدد الأفراد الناتجة من العبور بين b, c هو

(a) ٩٠ (b) ١٠٠ (c) ٤٥ (d) ١١٠

49- من المسائل السابقة يكون عدد الأفراد الناتجة من العبور المزدوج هو

(a) ١٠ (b) ٢٠ (c) ٥ (d) ٣٠

50- من المسائل السابقة يكون عدد الأفراد الأبوية هو

(a) ٨٠٠ (b) ٣٥٥ (c) ٧١٠ (d) ٤٠٠

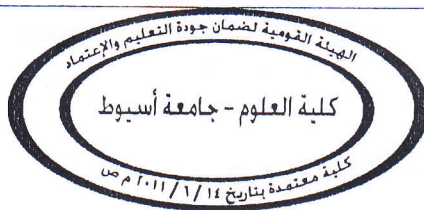
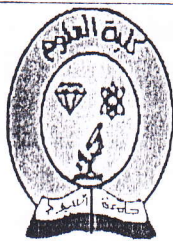
السؤال الثالث (الشفوي) :- ضع حرف (T) امام العبارة الصحيحة وحرف (F) امام العبارة الخاطئة (١٠ درجات - شفوي)

51	تتحور النسبة المنذلية من ٩ : ٣ : ٣ : ١ في حالة الجينات متماثلة التأثير إلى النسبة 9:7	()
52	نظام تحديد الجنس الطيور والاسماك نظام جيني	()
53	فرد خليط في خمس أزواج من العوامل الوراثية اثنين منهم يرتبط تام يعطي ثمانية أنواع من الجاميطات	()
54	التهجين بين نباتات ♂ S ₂ S ₄ مع نباتات ♀ S ₂ S ₄ يعطي نسل بنسبة ٥٠% في حالة سلسلة اليات عدم التوافق الذاتي	()
55	الطفره في جين الـ TFM على كروموسوم X في الانسان تؤدي لظهور الصفات الانثوية على الأفراد ذات كروموسومات الجنس XY	()
56	النيوكليوتيدة عبارة عن قاعده نيتروجينية وشكر و مجموعة فوسفور	()
57	الـ SSBP تعمل على فك حلزنة الـ DNA المزدوج	()
58	تجهيز الـ mRNA يشمل استبعاد الـ Exons وربط الـ Intron	()
59	عمليتي التضاعف والنسخ للخط القائد والخط المتأخر للـ DNA تتم في نفس الاتجاه	()
60	نسبة الـ A+G/T+C في خط الـ DNA المزدوج تساوي الواحد الصحيح	()

انتهت الأسئلة مع أطيب التمنيات بالتوفيق،،

د/ محمود أبو السعود الراوي

لجنة المتاحين :- أ.د/ بهاء الدين السيد عبد الفتاح



Zoology Department

Final Exam: Physiology 1 (217Z)

Credit Hour System 2020/2021

**Time: Two Hours
First Semester**

I- Choose the correct answer: (25 points)

1. Which of these is true of the endocrine system?
A. secretes hormones that are transported to target cells by blood
B. causes changes in metabolic activities
C. effects are prolonged
D. All of above are true
2. What gland is located just superior to the kidneys ?
A. Pituitary B. Adrenal C. Pancreas D. ovaries
3. In the pancreas, which are the cells that secrete insulin
A. delta B. alpha C. beta D. all are true
4. Endocrine glands differ from exocrine glands in that:
A. Endocrine glands are ductless and exocrine glands release secretions into ducts
B. Endocrine glands release hormones, whereas exocrine glands release waste.
C. Endocrine glands are epithelial tissue, but exocrine glands are connective tissue.
D. Endocrine glands are all interconnected; whereas exocrine glands act completely independently.
5. The primary target of the hypothalamus is the:
A. adrenal B. gonads C. anterior pituitary D. bone marrow
6. Which of these is not an endocrine gland ?
A. Pancreas B. Testes C. Salivary gland D. Parathyroid
7. Which of the following gland which can be classified as an endocrine and an exocrine gland?
A. Thyroid B. Thymus C. Pancreas D. Pituitary
8. The Glucagon is:
A. accelerates the conversion of glycogen into glucose B. slows down glucose formation from lactic acid.
C. decreases the conversion of glycogen into glucose. D. speeds up protein synthesis within cells.
9. Calcium level in the blood is regulated by the:
A. Thyroid B. Parathyroid C. Posterior pituitary D. A and B
10. This substance cannot pass through semipermeable walls of glomerulus
A. Globin B. Albumin C. Blood cells D. All of the above

11. This artery passes blood to the kidney

- A. common iliac B. cystic C. renal D. coeliac

12. The functional unit of the kidney is

- A. Hilum B. Neuron C. Nephron D. Medulla

13. An organ or structure that is not a component of the urinary system is the:

- A. Kidney B. Urinary bladder C. Ureter D. Adrenal gland.

14. The urinary system is the principal system responsible for:

- A. Removal of carbon dioxide B. Water and electrolyte balance.
C. Excretion of toxic nitrogenous compounds D. B and C

15. Schwann cells are located in the.....

- A. PNS B. CNS C. ANS D. A, B and C

16. The sensory neurons transmits information from the..... to the CNS.

- A. skin B. eyes C. ears D. All of them

17. Amount of air moved into or out of lungs during a single respiratory cycle is..

- A. tidal volume B. vital capacity C. total capacity D. inspiratory reserve volume

18. Which of the following is not part of the respiratory system?

- A. Nose B. Oral cavity C. Pharynx D. Trachea

19. This structure prevents food or water from entering the trachea.

- A. Arytenoid cartilage B. Epiglottis C. Nasopharynx D. Thyroid cartilage

20. Which is the dominant method of carbon dioxide transport?

- A. Bound to haemoglobin B. Bound to oxygen C. Dissolved in plasma as a gas
D. Dissolved in plasma as bicarbonate ions

21. Which nutrients do not need to be digested?

- A. Protein, minerals and vitamins B. minerals, vitamins and water
C. Fat, minerals and vitamins D. minerals, vitamin and enzymes

22. What does lipase digest?

- A. carbohydrates B. proteins C. Fats D. vitamins

23. Where is bile produced?

- A. Anus B. Liver C. Stomach D. gall bladder

24. Which of the following does NOT manufacture digestive juices?

- A. Liver B. Kidneys C. Stomach D. Pancreas

25. The liver is located in the abdomen and performs many functions. Which of the following is NOT a function of the liver?

- A. Storing food B. Manufacturing insulin C. Producing digestive juices
D. Healing itself when it is damaged.

I- Put true or false for each one (25 points)

26. The kidneys function as our body's filters, cleaning blood of waste. ()
27. Kidneys do not in any way influence hormones. ()
28. Proteins are a major source of energy in diet and used in the body as a store of available energy. ()
29. Insoluble fiber can help in prevent constipation. ()
30. Cholesterol are precursor molecules for steroid hormones and vitamin D. ().
31. Malnutrition is a condition which occurs when there is a deficiency of certain vital nutrients in diet. ()
32. GluT transporters bring amino acids into the cell via facilitate diffusion. ().
33. When more calories are consumed than needed for ATP production, liver cells and adipose cells synthesize lipids from glucose or amino acids. ()
34. Systole is the contraction of heart chambers; diastole is their relaxation. ()
35. Sinuo atrial (SA) the pacemaker of the heart is found in right atrium. ()
36. Atherosclerosis is due to a build-up of fatty material mainly triglycerides, under the inner lining of arteries. ()
37. Surfactant consists of phospholipids secreted by type I alveolar cells. ()
38. Automatic breathing is influenced by activity of chemoreceptors that monitor blood PCO_2 , PO_2 , & pH in medulla oblongata and in large arteries near heart. ()
39. Difusion of oxygen through the respiratory membrane is very slow due to their short distance. ()
40. The amount of exerteted water by sweating is highly variable, depending on physical activity and environmental temperature. ()
41. Urine formation begins with filtration of large amounts of fluid through the glomerular capillaries into Bowman's capsule controlled by sympathetic nervous system and hormones. ()

- 42- Creatinine as abnormal component of urine is produced as a result of the breakdown of creatine phosphate in muscle tissue. ()
43. Extracellular fluid account about 20 % of the body weight (14 liters), divided into two compartments, interstitial fluid (11 Liters), and the plasma (3 Liters). ()
44. The physiological effects of hormones depend on their concentration in blood. Disease results when hormone concentrations are either too high or too low. ()
- 45 Thyroid hormones are a double tyrosine with the incorporation of 3 or 4 iodine atoms. ()
46. Posterior pituitary hormones are synthesized in the hypothalamus and are released via synapses in posterior pituitary. ()
47. Paracrine hormones are released and act on the cell that secreted them. ()
48. Myelin sheath is a fatty layer covering nerve fibers. ()
49. Nerve fibers conduct impulse in two direction. ()
50. Neuron are classified on the basis of number of processes arising from the cell body. ().

Good luck

Dr. Hossam El-Din M Omar, Prof. of Physiology

- Read the following statements and choose the most appropriate answer for each: (25 Marks; one mark each)**
- 1- The process by which a vesicle is formed at the plasma membrane to bring substances into the cell is called:
a. endocytosis b. exocytosis c. plasmolysis
 - 2- Lysosomes are involved in:
a. Extracellular digestion b. Intracellular digestion c. both (a) and (b)
 - 3- Which of the followings most correctly identifies the sequence of organelles involved in the production and secretion of proteins?
a. Ribosomes, Golgi apparatus, secretory vesicles, rough endoplasmic reticulum, cell membrane
b. Ribosomes, rough endoplasmic reticulum, Golgi apparatus, secretory vesicles, cell membrane
c. Rough endoplasmic reticulum, ribosomes, secretory vesicles, Golgi apparatus, cell membrane
 - 4- The membrane proteins that extend through both sides of lipid bilayer are:
a. Acidic proteins b. Integral proteins c. Glycoproteins
 - 5- The process that is called: "cell drinking" is:
a. Endocytosis b. Exocytosis c. Pinocytosis
 - 6- Which organelle is involved in lipid metabolism?
a. Rough endoplasmic reticulum b. Smooth endoplasmic reticulum
c. Golgi apparatus
 - 7- The presence of an intermembrane that is folded to form cristae is a characteristic of:
a. Lysosomes b. Mitochondria c. Golgi apparatus
 - 8- Cells that produce large numbers of steroid hormones are expected to have:
a. Fatty deposits b. Smooth endoplasmic reticulum
c. Many ribosomes
 - 9- The hydrophobic ends of phospholipid molecules are:
a. Polar b. Non polar c. Bipolar
 - 10- The lipid bilayer of the cell membrane is made up of:
a. Phospholipids and cholesterol b. Phospholipid only c. Phosphoprotein

Look at the back of the page for the rest of the exam

- 11- Active transport is a**
a. Movement of molecules against concentration gradient
b. Movement of molecules along the concentration gradient
c. Movement of molecules to and from plasma membrane
- 12- Cells that engulf and digest foreign bacterial cells could be expected to have lots of**
a. Nuclei b. Ribosomes c. Lysosomes
- 13- The face of Golgi apparatus which receives the transfer vesicles from the rER is called:**
a. Granular face b. Mature face c. Immature face
- 14- If all the ribosomes of a cell were destroyed, then**
a. Photosynthesis will stop b. Protein synthesis will not take place
c. Respiration will not take place
- 15- Nuclear membrane is:**
a. Non continuous structure b. Lipid structure c. Continuous structure
- 16- Centrioles are not present in:**
a. Liver cells b. Mature nerve cells c. Pancreatic cells
- 17- A chromosome in which the centromere is terminal is called:**
a. Metacentric b. Submetacentric c. Acrocentric
- 18- The interphase stage includes:**
a. G₁, G₂, M b. G₁, S, M c. G₁, S, G₂
- 19- What part of the cell forms nuclear envelop?**
a. Golgi apparatus b. ER c. Cytoskeleton
- 20- The diameter of microtubule is about:**
a. 6 nm b. 10 nm c. 25 nm
- 21- The nuclear pores are enclosed by:**
a. Two rings b. Four rings c. Eight rings
- 22- Diploid chromosome number in human is:**
a. 44 b. 46 c. 48
- 23- Desmin filaments present in:**
a. Fibroblasts b. Muscles c. Skin
- 24- Ribosome is formed of:**
a. Two subunits b. Four subunits c. Three subunits
- 25- Number of chromatids present in a metaphase chromosome is:**
a. Two b. Five c. Six

11. Mention whether each of the following statements is true (T) or false (F)
(25 Marks; one mark each)

SN	Statement	(T) or (F)
26-	Lysosomes are produced by nucleus and cell membrane.	
27-	The sodium pump is an example of active transport.	
28-	Cell membrane contains hydrophilic tail and hydrophilic head	
29-	Rough endoplasmic reticulum plays a role in detoxification	
30-	Secretory granules of Golgi apparatus usually bud from cis face.	
31-	In lipid bilayer, the phospholipid molecules are arranged in such a fashion that their hydrophobic ends are directed outwards.	
32-	Acrosome is formed by Golgi body.	
33-	Cell coat consists of glycolipids and phospholipids.	
34-	Golgi apparatus is associated with glycosylation.	
35-	Cells that secrete extracellular lysosomal enzymes are osteoblasts.	
36-	The movement of water through a membrane is called osmosis.	
37-	The cell structures that break down food to produce energy are mitochondria	
38-	The phase during which the cell does not undergo division is called interphase.	
39-	In karyotype, colchicine is added to induce cell division.	
40-	Microfilaments play a role in the movement of cilia.	
41-	The protein synthesized by the attached ribosomes is destined for secretion.	
42-	Euchromatin appears in EM as electron lucent regions among heterochromatin.	
43-	Tatto marks are endogenous pigments.	
44-	Chemically, the nucleolus is rich in DNA.	
45-	Cytoplasmic inclusions are living structures.	
46-	The centriole is composed of 27 microtubules arranged in triplets.	
47-	Sex chromatin represents one of the euchromatin.	
48-	With EM, alpha glycogen particles appear as aggregations of rosette shaped particles.	
49-	A well-organized nucleus with distinct nuclear membrane is found in eukaryotic cells.	
50-	Microtubules are formed of protein actin.	

Oral exam

III. Mention whether each of the following statements is true (T) or false (F)
(10 Marks; one mark each)

SN	Statement	(T) or (F)
51-	Plasma membrane thickness ranges from 8 to 10 angstroms	
52-	Golgi apparatus is called suicide bags	
53-	Krebs cycle takes place in mitochondrial matrix	
54-	Strong adhesion between cells needs gap junctions	
55-	The function of the RER includes lipid synthesis and HCL formation	
56-	Ribosomes are formed in the nucleus	
57-	The mitotic spindle contains four types of microtubules in anaphase	
58-	Microtubules form the contractile ring	
59-	Melanin pigment is present in the cells of hair and skin	
60-	Haemoglobin and haemosidrin are endogenous pigments	

End of exam

Name of the examiners:

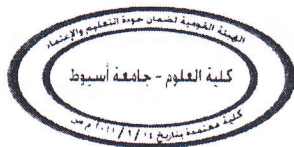
Prof. Abdallah B. Mohmoud

Prof. Bothaina M. Khidr

Best wishes



Assiut University
Faculty of Science
Zoology Department



Time: 2 hour
Level: three
Course Code: 317Z

First Semester Micro Techniques Exam (4 /3 / 2021)

Answer the following questions: (50 marks)

I: Choose the best single correct answer

(26 marks)

1- Alpha helix of protein deformed by.....

- a) osmium b) glutaraldehyde c) alcohols d) formalin

2- Hard in room temperature.....

- a) Epon b) paraffin c) cellodin d) xylol

3- Denaturation fixatives

- a) Acetic acid b) osmium c) chromic acids d) eosin

4-used in rapid freezing

- a) Liquid CO₂ b) formalin c) N₂ d) HCL

5- Resinous mounting medium used for..... preparation.

- a) permanent b) temporary c) both d) none

6- Vital staining technique: means staining of tissues and cells..... the body.

- a) Inside b) outside c) both d) dead tissues

7- Best fixation for immunocytochemistry is.....

- a) Formaldehyde b) glutaraldehyde c) osmium d) alcohols

8- Paraffin sections are.....

- a) thick b) thin & serial c) separated d) thick & serial

9-Techniques take long time for their preparation.....

- a) paraffin b) cellodin c) Epon d) whole mounts

10-Filteration of wax to remove.....

- a) fine dust b) crystals c) xylol d) pigment

11- Celloidin blocks and sections are stored in alcohol until it is cut.

- a) 50% b) 70 % c) 80% d) 100

12-.....dissolved in absolute alcohol and ether represented thick celloidin.

- a) 15% b) 10% c) 7.5% d) 20%

13-In celloidin technique , clearing is done in alchol and ether.

- a) 70% b) 90% c) 100% d) 80%

14-is refers to the strength which the epitope binds to an individual paratope (antigen-binding site) on the antibody.

- a) Avidity b) specificity c) sensitivity d) affinity

15- Method which is essential for preventing non-specific binding of antibodies or other reagents to the tissue called.....

- a) Deparaffinization b)Rehydration c)Blocking d)Antigen retrieval

16- The non-specificsites on the nitrocellulose membrane can be blocked by:

- a) SDS b) Sodium chloride c) Re-hydrated milk d) Dehydrated milk

17- Layer of electrophoresis gel with low pH and low acrylamide percentage called.....

- a) resolving gel b)stacking gel c)PAGE gel d)Agarose gel

18- In lysis which, The membranes are solubilized, lysing cells and liberating their contents

- a) Detergent b) Ultrasonication c) Freeze/thaw d) Enzymatic digestion

19-detection, the substrate is luminal which is oxidized by HRP in the presence of H_2O_2 to produce light

- a) ECL b) Colorimetric c) HRP d) fluorescent

20-Why subculture of cells is necessary?

- a) No enough space for cell growth b) Accumulation of toxins
c) No enough nutrients for cell growth d) All of the above

21- Why do samples need to be treated with hydrogen peroxide prior to staining with horseradish peroxidase (HRP)?

- a) To inhibit the applied substrate b) To activate natural inhibitors of the reaction in the tissue
c) To activate endogenous HRP d) To quench endogenous HRP activity

22- When is electrophoresis not used?

- a) Separation of proteins b) Separation of amino acids
c) Separation of Lipids d) Separation of nucleic acids

23- Serial transfers of primary cells, a gradual selection may occur until a particular cell type becomes predominant known as..... cultures

- a) Cell strains b) Continuous c) Secondary d) Primary

24-..... are Cell morphologies vary depending on cell type which attached to a substrate and appears flattened and polygonal in shape

- a) Epithelial like b) Lymphoblast like c) Fibroblast like d) chondrocyte like

25- Membrane Washing gently in western blot by.....

- a) TBS-Tw b) PBS c) powdered milk in TBS-Tw d) ECL

26- The correct sequence for western blotting is:

- 1) Proteins are denatured by sodium dodecyl sulfate (SDS), and by boiling
- 2) Performing the polyacrylamide gel electrophoresis (PAGE)
- 3) Transfer proteins to the nitrocellulose membrane
- 4) Incubate the nitrocellulose membrane to primary antibodies and Secondary antibodies subsequently

- a) 1,2,3,4 b) 4,1,3,2 c) 1,3,2,4 d) 1,3,2,4

II: Put (✓) OR (×) in the front of wrong or true answer

(24 marks)

- 27-Cytological fixative preserves layers of tissue & cells in relation to one another. ()
- 28-Cryostat is used in staining sections for study antigens. ()
- 29-Benzene is unhealthy in histological techniques. ()
- 30-Vaginal fluids are demonstrated by smear technique. ()
- 31-Diamond knife is used for cutting section in EM. ()
- 32-Chromic acid is oxidizing agent such as. ()
- 33-Lipids are stained by osmium tetroxide. ()
- 34- Duration of fixative is not important during tissues processes. ()
- 35-In vivo we can use supra vital stain for study living cells and tissues. ()
- 36- We use staining for tissues due to the tissues is colored in paraffin. ()
- 37- Methyl benzoate used for removal of water from tissues during dehydration. ()
- 38-Fixative must change the insoluble cell contents to soluble to save the original position. ()
- 39-Nitrocellulose membrane is less effective to be reused than (PVDF) membrane in western blot. ()
- 40-Blotting Membrane which separated proteins are transferred is characterized by high affinity with bind proteins. ()
- 41-The use of counterstain sections with hematoxylin to stains the nucleus blue in immunohistochemistry. ()
- 42-In SDS-PAGE Technique, Larger proteins will move through the gel faster than smaller proteins. ()
- 43-Protein detection requires the use of antibiotics. ()
- 44-In SDS-PAGE Technique, the proteins migrate through a gel towards the positive pole. ()
- 45-Secondary cells culture that derived from a primary culture. ()
- 46-In the cell culture Components Media is Phenol Red as pH Indicator. ()
- 47-TMED is considered Polymerization catalyst in gel electrophoresis. ()
- 48-The suitable heat Inactivation for Bovine Serum that is used in cell culture is 56° C in 1h. ()
- 49-Trypan blue dye is permeable to non-viable cells or death cells. ()
- 50- Suspension cells e.g. blood cells are anchorage-dependent. ()

Good Luck

Drs. Hanem Saad Abdel-Tawab & Mona M. Atia

Assiut University, Faculty of Science

Zoology Dept.

Zool & Zool-chem programs

Time allowed: 2hr



final exam, 8-03-2021

1st semester, 2020- 2021

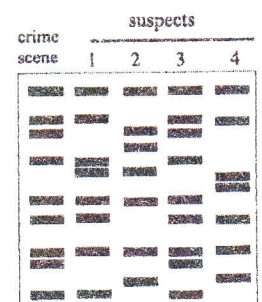
Molecular biology (311 Z)

50 marks

I- **Choose the correct answer. (30 marks, one mark for each)**

- 1- RNA..... in Eukaryotes makes mRNAs
a- polymerase I b- polymerase II c- polymerase III d- polymerase IV
- 2- Production of more than one protein from the same gene is known as.....
a- Translation b- splicing c- alternative splicing d- post-transcriptional modification
- 3- In DNA replication of prokaryotes, the RNA primers are removed by
a- DNA Polymerase I b- DNA Polymerase II c- DNA Polymerase III d- primase
- 4- Which of the following histones is not incorporated in nucleosome formation?
a- H3 b- H6 c- H4 d- H2B
- 5- Two turns of B-form DNA contain..... base pairs
a- 34 b- 43 c- 20 d- 10
- 6- If a stretch of DNA contains 10 twists and one negative supercoil, the linking number will be.....
a- Zero b- 11 c- 9 d- 10
- 7- Restriction enzymes are belonging to.....
a- endonucleases b- exonucleases c- polymerases d- telomerases
- 8- The name of the RNA nucleoside containing Cytosine base is.....
a- Cytidine-5' monophosphate b- deoxycytosine c- Cytidine d- deoxycytidine-5' monophosphate
- 9- are high copy number genes.
a- Transposons b- ribosomal genes c- pseudogenes d- none of the mentioned
- 10- Primase is belonging to.....

- a- DNA polymerases b- RNA polymerases c- helicases d- exonucleases
- 11- All of the following are correct concerning mitochondrial DNA except.....
- a- Circular molecule b- Maternal inheritance c- contains introns d- contains exons
- 12- In eukaryotes, the DNA polymerase that replicates the lagging strand is.....
- a- DNA pol β b- DNA pol III c- DNA pol α d- DNA pol δ
- 13- Concerning the genetic code, there are codons for amino acids and 3 for stop codons
- a- 64 b- 66 c- 61 d- 20
- 14- The amino acids attachment site of tRNA is
- a- AGC at the 3' end b- ACC at the 3' end c- ACC at the 5' end d- AGC at the 5' end
- 15- In the 60S ribosomal subunit there are.....rRNAs
- a- 5S b- 5.8S c- 28S d- all answers are correct
- 16-is a mobile genetic element that can change its location in the genome and may reverse a mutation or cause one
- a- Pseudogene b- satellite DNA c- introns d- transposon
- 17- In E. coli mismatch repair system..... recognizes single base mismatches
- a- mutS b- mutH c- helicase d- mutL
- 18- Which of the following is not correct for prokaryotic genes?
- a- grouped in operons b- introns is extremely rare c- transcribed separately d- all answers are correct
- 19- All the following are repetitive DNA sequence except.....
- a- Pseudogenes b- satellite DNA c- transposon d- ribosomal genes
- 20-are sequences of DNA that are related to known genes but no longer possessing the ability to code for a protein.
- a- Transposons b- Exons c- Histons d- Pseudogenes
- 21- The corresponding figure represents DNA fingerprinting from a crime scene, which suspect is more related to the crime.
- a- 1 b- 2 c- 3 d- 4



DNA fingerprinting

- 22- Plasmid vectors should have ...
 a- an origin of replication b- a multicloning site
 c-ampiciline resistant gene d- all answers are correct
- 23- RNA..... in vertebrates makes 18s rRNAs
 a- polymerase I b- polymerase II c- polymerase III d- polymerase IV
- 24- Eukaryotic topoisomerase 1b is characterized by....
 a- Binds to 3' end and requires MgCL2 b- binds to 3' end and requires ATP
 c- binds to 5' ends and does not require ATP d- binds to 3' end and does not require ATP
- 25- Which of the following enzymes has a helicase activity?
 a- DNA polymerase III b- DNA polymerase β c- RNA polymerase II
 d- Topoisomerase
- 26- The link between adjacent nucleosomes are..... base pair
 a- 166 b- 48 c- 66 d- 148
- 27- Most human somatic cells lack telomerase activity, so they have....
 a- Telomere shortening b- Senescence c- end-to-end chromosome fusion
 d- all answers are correct
- 28- Which of the following is the main reason of the production of more than one protein from the same gene?
 a- capping b- post-transcriptional modification c- alternative splicing
 d- poly a tail
- 29- The signal sequence of mRNA that will be translated on RER is characterized by
 a- 5-7 bp long b- 20-25 bp long c- found in 3' end d- b and c
- 30- is the formation of a protein molecule as a complex of more than one polypeptide chain
 a- primary structure b- secondary structure c- tertiary structure d- Quaternary structure

II- Choose (T) for the true sentences and (F) for the false sentences.

(20 marks, one mark for each)

- 31- The number of genes per million base pairs (Mb) in bacteria is bigger than that of Human.

- 32- Enhancers are DNA sequence found near the start of transcription.
- 33- All humans' genes contain introns except histone genes.
- 34- Eukaryotic mRNA contains no Shine-Dalgarno sequence.
- 35- Prokaryotes have a separate RNA polymerase for each type of RNA.
- 36- In prokaryotes, the newly synthesized mRNA is polygenic.
- 37- Hemoglobin genes are multifamily member genes.
- 38- When the ends of the restriction fragments are complementary it is called blunt ends.
- 39- Mutation rate is the number of times a particular mutation occurs in a population of cells or individuals.
- 40- A transversion mutation is a Point mutation where a purine-pyrimidine base pair is exchanged for the other purine-pyrimidine base pair.
- 41- Spliceosome is a cellular structure responsible for the degradation of proteins marked with ubiquitin.
- 42- Mammalian telomeres have a six-protein complex known as Shelterin.
- 43- Nonsense mutation is a type of mutation where base pair substitution results in a different amino acid.
- 44- Green fluorescent protein (GFP) gene is a common reporter gene.
- 45- Chemical method for gene delivery includes lipoplexe and polyplexe.
- 46- Expression vector cannot be expressed in a target cell.
- 47- Frameshift mutations are Indels which are divisible by 3.
- 48- Telomere does not contain satellite DNA.
- 49- Introns are transcribed into precursor mRNA.
- 50- Reverse transcriptase is engaged in pseudogenes processing.

Best wishes, Course coordinator and Examiner:

Prof. Abo bakr Eltayeb



Assiut University
Faculty of Science
Department of Zoology
Total Marks: 50

Vertebrate taxonomy
Course code Z433
Time: 2 hours

Final exam. 2020/2021

Answer the following questions:-

Put ✓ or x :

- 1- In *Hagfishes*, the mouth has 4 pairs of tentacles. ()
- 2- Pelvic fins are modified to form claspers in females of *Chondrichthyes*. ()
- 3- Gill slits are ventrally placed in *Pleurotremata*. ()
- 4- In *Bradyodonti*, gills are covered by flap of skin. ()
- 5- Paired fins have a fleshy lobe at their base in *Teleostei*. ()
- 6- A gular plate is present in *Halecomorphii*. ()
- 7- 7 pairs of gill pouches are presented in lampreys. ()
- 8- In *Coelacanthiformes*, there are two separate anal fins. ()
- 9- Members of *Chondrostei* have homocercal tail. ()
- 10- In *Hagfishes*, gill pouches open to exterior separately. ()
- 11- Skin of *Chondrichthyes*, is covered with cycloid scale. ()
- 12- Skin of *Polypteriformes* is covered with cosmoid scales. ()
- 13- The internal nostrils are present in living forms of *Crossopterygii*. ()
- 14- In *Chondrostei*, the skeleton is mainly cartilaginous. ()
- 15- In *Ginglymodi*, a gular plate is present. ()
- 16- In *Chimaeriformes* 3 flattened crushing plates are present one on the upper jaw and two on the lower jaw. ()
- 17- The quadrate is movable in *Crocodylian* skull. ()
- 18- The skull has no temporal fossae in *Chelonia*. ()
- 19- The frontal and parietal bones are not fused in *Apoda* skull. ()
- 20- The hind limbs are similar in length to the fore limbs in *Anura*. ()
- 21- Limbs and girdles are absent in *Apoda*. ()
- 22- In *Squamata*, the skull is basically diapsidian. ()
- 23- In *Anura*, there are 5 – 9 presacral vertebrae. ()
- 24- In *Reptilia*, the lower jaw consists of 3 to 9 bones. ()
- 25- In *Amphibia*, there is diaphragm separating thorax from abdomen. ()
- 26- In *Chelonia*, the body is enclosed in a shell composed of a dorsal plastron and a ventral carapace. ()

- 27- Many lizards have power of caudal autotomy and regeneration. ()
- 28- In *Crocodylia*, double headed ribs are present in most vertebrae. ()
- 29- In *Squamata*, the cloacal aperture is circular. ()
- 30- The gill slits are ventrally placed in *hypotremata*. ()
- 31- The paired fins have a fleshy lobe at their base in *Brachiopterygii*. ()
- 32- Skull of birds is dicondylic. ()
- 33- Skull of mammals is monocondylic. ()
- 34- In birds, vertebrae are with procoelus centra. ()
- 35- Mammary glands are without nipples in *Prototheria*. ()
- 36- In *Rhynchocephalia*, the cloacal aperture is circular. ()
- 37- In birds, sound production is from larynx. ()
- 38- In *Craniatae*, the terminal caudal vertebrae are fused to form pygostyle. ()
- 39- In Mammals, the quadrate bone is transformed into stapes. ()
- 40- In Mammals, neck with 9 vertebrae. ()
- 41- Corpus callosum connects the two cerebral hemispheres. ()
- 42- Aquatic Mammals have external ear pinna. ()
- 43- In *Eutheria*, testes are extra-abdominal. ()
- 44- In *Lagomorpha*, two pairs of canines present in the upper jaw. ()
- 45- In *Cetacea*, hairs are reduced in adults, only few bristles present on the snout. ()
- 46- In *Proboscidea*, fore limbs are modified into paddles for swimming. ()
- 47- In mammals, articular is transformed into incus. ()
- 48- *Ratitae* have massive and muscular leg. ()
- 49- Wings are well developed in *Carinatae*. ()
- 50- Sweat glands are present in mammalian skin. ()
- 51- Teeth are homodont in mammals. ()
- 52- Ribs are double headed in mammals. ()
- 53- Coracoid and precoracoid are present in *Monotremata*. ()
- 54- Cloaca is only present in *Monotremes*. ()
- 55- Most mammals are viviparous except *Monotermes*. ()
- 56- Well-developed marsupial pouch is present in male of *Metatheria*. ()
- 57- Incisor teeth 4 – 5 in upper jaw of *Marsupilia*. ()
- 58- Lion belongs to *Rodontia*. ()
- 59- *Hagfishes* belong to *Chondrichthyes*. ()
- 60- *Bradyodonti* belong to *Oseichthyes*. ()
- 61- *Chelonia* belongs to *Squamata*. ()
- 62- Toad and frog belong to *Urodela*. ()
- 63- *Brachiopterygii* belong to *Chondrichthyes*. ()
- 64- *Crossopterygii* belong to *Oseichthyes*. ()
- 65- Rabbit belongs to *Lagomorpha*. ()

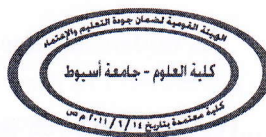
- 66- Elephant belongs to *Sirenia*. ()
- 67- *Tuatara* belongs to *Chelonia*. ()
- 68- *Geko gekka* belongs to *Sauria*. ()
- 69- Opossum belongs to *Marsupialia*. ()
- 70- *Talpa* belongs to *Insectivora*. ()
- 71- *Pteropus* belongs to *Dermoptera*. ()
- 72- Scaly ant eater belongs to *Edentata*. ()
- 73- Hare belongs to *Primates*. ()
- 74- Horse belongs to *Carnivora*. ()
- 75- Camel belongs to *Proboscidea*. ()
- 76- Lampreys belong to *Cyclostomata*. ()
- 77- Pigs belong to *Artiodactyla*. ()
- 78- *Nectocaecilia* belongs to *Anura*. ()
- 79- *Sphenodon* belongs to *Crocodylia*. ()
- 80- *Bipes* belongs to *Sauria*. ()
- 81- *Platypus* belongs to *Monotremata*. ()
- 82- Dolphin belongs to *Cetacea*. ()
- 83- The eyes are large and have movable eyelids in *Anura*. ()
- 84- In *Anura*, the frontal and parietal are fused. ()
- 85- In *Apoda*, left and right lungs are similar in size. ()
- 86- In *Urodela*, there is no voice. ()
- 87- In *Urodela*, the tympanum is large and prominent. ()
- 88- In *Reptilia*, the skin is covered with horny scales. ()
- 89- The skin is usually with epidermal glands in *Reptilia*. ()
- 90- Many reptiles produce sounds at times. ()
- 91- The long bones and vertebrae lack epiphyses in *Lizard*. ()
- 92- In Mammals, the erythrocytes are nucleated, biconcave and oval. ()
- 93- There is no diaphragm in *Crocodyles*. ()
- 94- In *Rhynchocephalia*, the ribs are double-headed in the cervical region. ()
- 95- In *Squamata*, there is tendency to viviparity in many forms. ()
- 96- In *Sauria*, there is a movable eyelid and an external ear. ()
- 97- In *Amphisbaenia*, the vertebrae lack accessory articulating facets. ()
- 98- In *Serpents*, the eyelids are fused to form a transparent spectacle over the eye. ()
- 99- In *Serpents*, the upper and lower temporal arcades are absent. ()
- 100- In *Carinatae*, there is a small and flat sternum, without keel. ()

Good Luck

Prof.Dr.Usama M.Mahmoud



Assiut University
Faculty of Science
Zoology Department



Exam of Reproductive Physiology
2021



Time: 3 hours
Level: Forth
Course Code: 411Z

Answer the following questions (50 marks)

1- Choose the correct answer: (25 marks)

- 1) Cryptorchidism is a condition in which
 - a) Male hormones are not reactive
 - b) Ovaries are removed
 - c) Sperms are not formed
 - d) Testes fail to descend in scrotal sacs
- 2) Acrosome is made up of
 - a) Ribosome
 - b) Mitochondria
 - c) Centrioles
 - d) Golgi bodies
- 3) Outside the seminiferous tubules are clusters of
 - a) Spermatogonia
 - b) Leydig cells
 - c) Spermatozoa
 - d) Spermatids
- 4) Sperm production and survival require temperature the body temperature.
 - a) Higher than
 - b) lower than
 - c) Equal
 - d) Much more than
- 5) Functionally, the is the site of sperm maturation.
 - a) Epididymis
 - b) Seminal vesicle
 - c) Prostate gland
 - d) Bulbourethral gland
- 6) When do the testes begin to descend?
 - a) At birth
 - b) In the Third month of pregnancy
 - c) Two months prior to birth
 - d) Two months after birth
- 7) What is the source of the male sex hormones?
 - a) Vas deferens
 - b) Interstitial cells
 - c) Seminiferous tubules
 - d) Seminal vesicle
- 8) The end of the vas deferens is a dilated sac called the
 - a) Seminal vesicle
 - b) Ejaculatory duct
 - c) Prostate gland
 - d) Seminiferous tubule
- 9) secrete alkaline fluid neutralize acidic PH and provide lubrication for sexual intercourse.
 - a) Cowper's glands
 - b) Seminal vesicle
 - c) Seminiferous tubule
 - d) Interstitial cells
- 10) Which hormone initiates the changes in puberty of male?
 - a) FSH
 - b) Progesteron
 - c) Testosterone
 - d) FSHRH
- 11) In the mammary glands, the alveoli are arranged in cluster.
 - a) Scattered randomly
 - b) Finger like
 - c) Grape like
 - d) lateral
- 12) The term.....in human, refers to a series of changes that occur in the endometrium of non-pregnant female.
 - a) Ovarian cycle
 - b) Oestrous cycle
 - c) Menstrual cycle
 - d) both a and b
- 13) Fertilization of ovum occurs in the first third of.....
 - a) Uterus
 - b) Uterine tube
 - c) Infundibulum
 - d) none of them
- 14) What is the first structure to receive the oocyte?
 - a) Fimbriae
 - b) Fallopian tube
 - c) Uterine wall
 - d) Uterus

انظر خلفه ←

- 15) In the uterus,regenerates each month.
 a) Basement layer b) Function layer c) Perimetrium d) Myometrium
- 16) Which hormone thickens the lining of the uterus?
 a) FSH levels b) LH levels c) estrogen d) progesterone
- 17) Most reptiles reproduce sexually through during mating, by which eggs leave the body of female.
 a) Penis b) Cloaca c) Oviduct d) None of them
- 18) Diploid individual resulted from..... through mitosis.
 a) Automixis parthenogenesis b) Apomixis parthenogenesis
 c) Sexual reproduction d) Both a and b
- 19) The ovary of fishes in relation with oviduct is distinguished into types.
 a) two b) three c) four d) five
- 20) The right oviduct is degenerated in.....
 a) Birds b) Fishes c) Reptiles d) Amphibia
- 21) Most of birds are breeding in theseason.
 a) Summer b) winter c) autumn d) spring
- 22)is an internal fertilization.
 a) Oviparous b) Viviparous c) Ovoviviparous d) both b and c
- 23)in the amniotic egg of reptiles aids in gas exchange inside and outside the egg.
 a) Amnion b) chorion c) Yolk sac d) Allantois
- 24)of amphibians is stimulated to produce sex cells in the spring by changes in external factors.
 a) Ovarian hormones b) Adrenal hormones c) Pituitary gland hormones d) None of them
- 25) Birds are classified asanimals.
 a) Oviparous b) Viviparous c) Ovoviviparous d) none of them

2- Put (✓) for the correct words and (X) for incorrect words: (25 marks)

- 1) Menarche is the last menstrual cycle ()
- 2) Progesterone prepares breasts to secrete milk ()
- 3) In the uterus, the branches of uterine arteries are arranged in a circular fashion that penetrates endometrium ()
- 4) A zygote with 46Xy chromosome is a female ()
- 5) Corpus luteum secretes female sex hormones ()
- 6) If the number of spermatozoa per milliliter semen is less than 20 million, this number leading to infertility ()
- 7) Placenta acts as respiratory, nutritive and excretory organ for the embryo ()
- 8) Female breast development and fat deposition during puberty, correlates with increased output of estrogen ()
- 9) Implantation of the blastocyst occurs in the endometrium ()
- 10) In the human, the fetus is expelled from the uterus after about 280 days after the last menstruation ()

- 11) The average volume of semen for each ejaculation is 2.5 – 6 ml ()
- 12) The acidity of vagina permits the growth of microbes ()
- 13) Graafian follicle mainly secretes progesterone ()
- 14) Squamates specialized by sexual reproduction ()
- 15) Morphologically, male and female Amphibia can be distinguished ()
- 16) Lizards usually engaged in some types of ritualized courtship before copulation begins ()
- 17) Chorion is a sac in the reptile's egg that collects the metabolic wastes ()
- 18) A male frog mounted on it's female in the amplexus mating position ()
- 19) Dancing from actions used by male birds to attract their females ()
- 20) Mesorchium is a structure in the female urogenital system of reptiles ()
- 21) Amphibians can produce amniotic egg ()
- 22) There is no internal fertilization in birds ()
- 23) Production of steroids is another function of the testes of fishes ()
- 24) The majority of reptile species give birth to live young ()
- 25) The cloaca in birds is absent ()

Good luck
Prof. dr/ Khadiga
Dr/ Hanan



Selected Topics in Zoology 1

الانتم طمس (تظليل) الاجابة المختارة باستخدام القلم الجاف فقط

هام جدا:-

Q1 Put ✓ or X in front of following sentences:-

(25 degree)

1	The catfish have three pairs of unbranched barbels	
2	The accessory air breathing organ allows the fish to survive only for many hours out of the water	
3	The male and females of <i>Clarias gariepinus</i> have a distinct sexual papilla	
4	<i>Clarias gariepinus</i> is considered as a slow-moving carnivorous fish	
5	The main function of recurved teeth in fish to prevent prey from escaping	
6	The development of the oocytes of the African catfish isn't related to temperature	
7	During Pre-vitello genesis, the oocytes are small and contain yolk	
8	The outer pectoral ray is in the form of a spine and the pelvic fin normally has six soft rays	
9	Natural reproduction is completed in July and the G.S.I. remains low till November	
10	Hormone-induced reproduction of the African catfish using deoxycorticosterone acetate only	
11	The main problem of fingerling production within ponds was fish survival rate	
12	The optimal density for larval catfish was 200/m ²	
13	Aquatic insects as water scorpions can be controlled with kerosene	
14	Monoculture of catfish can be carried out with high carbohydrate feed content	
15	The hatchling must be fed on external food for its further development and survival	
16	Liming increases the alkalinity of water	
17	After injection by hormones the oocyte undergoes spawning	
18	The ripe female makes up 15 -20% of their body weight gonad	
19	In general, the testis of male catfish is fully developed above 200 gram	
20	There is inversely relationship between rain fall, fecundity, and hatching percent	
21	In captivity the African catfish spawn spontaneously	
22	Induced propagation without hormone treatment is an artificial process	
23	The time between injection and stripping is independent upon water temperature	
24	Costs of monoculture are much higher than polyculture	
25	Over-feeding and vit. C deficiency are believed to be the main factor causing crack head disease	

Q2 Choose the best correct answer A, B, or C (25 degree)

26	<i>Clarias gariepinus</i> has a relatively dietary protein requirement		
	A. high	B. low	C. moderate
27	The best growth rates of catfishes are achieved with diet containing.....protein		
	A. 50-60%	B. 35-45%	C. 20-40%
28	Artificial formulated diets are supplemented with.....		
	A. protein	B. carbohydrates	C. vitamins and minerals
29	The growth rate and survival depends on many factors such as.....		
	A. Density	B. Temperature	C. A & B
30	The main problems encountered with intensive monoculture of catfishes, related to.....		
	A. water quality	B. predation	C. A & B
31	Is currently the most widely cultivated fish in Africa is.....		
	A. <i>Oreochromis niloticus</i>	B. <i>Clarias gariepinus</i>	C. <i>Hemichromis fasciatus</i>
32	is generally considered to be a lazy predator fish		
	A. Catfish	B. Carp	C. Salmon
33	After ovulation of the "ripe eggs" the majority of the oocytes found in the ovary consists again is.....		
	A. stage 1	B. stage 2	C. stage 3)
34	In <i>Clarias gariepinus</i> the number of gills rakers was rather low		
	A. 14 to 40	B. 20 to 100	C. 25 to 50
35	For successful nursing of catfish in ponds, we must protect it from.....		
	A. Tadpoles	B. Snakes	C. Turtles
36	Polyculture is to culture.....		
	A. One species	B. Two species only	C. Two or many species
37	What is the meaning of the brackishwater?		
	A. Sea water	B. freshwater	C. A & B
38	Which of the following is the first largest producer of the fish in the world?		
	A. China	B. Japan	C. Egypt
39	What should be the best PH value for the aquaculture?		
	A. 6.5-9	B. 5.5-10	C. none of the above
40	Mission fingerling is related to.....		
	A. Aquaculture	B. horticulture	C. sericulture
41	This form of aquaculture includes cultivation, propagation and marketing.....		
	A. commercial fishing	B. capture	C. culture
42	good predator but it is difficult to obtain fingerlings		
	A. <i>Lates niloticus</i>	B. <i>Ophiocephalus obscuris</i>	C. <i>Hemichromis fasciatus</i>
43	Diseases are not a problem in polyculture or monoculture of the African catfish at low densities.....		
	A. up to 5/m ²	B. up to 10/m ²	C. up to 15/1m ²
44	"Crack head" disease is an obvious catfish due to.....		
	A. Vitamin C deficiency	B. overfeeding	C. A & B
45	Myxobacteria was a major problem in a hatchery because it causes heavy.....		
	A. mortality	B. Body alterations	C. low growth
46	Yolk-sac oedema can cause heavy mortalities.....		
	A. up to 90%	B. up to 70%	C. up to 60%
47	The eggs are translucent, flat, with cytoplasm concentrated at the animal pole at stage.....		
	A. 5	B. 4	C. 3
48	There is parental care for ensuring the survival of the catfish offspring		
	A. no	B. low	C. high
49	is preceded by highly aggressive encounters between males.		
	A. Courtship	B. Spawning	C. Feeding
50	The sperm activity lost afterseconds		
	A. 60	B. 80	C. 100

Best wishes.....,