

UNIVERSITY OF FORT HARE

**INTRODUCTION TO ANIMAL
DIVERSITY
ZOO 121**

SUPPLEMENTARY EXAMINATIONS

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This paper consists of 13 pages including the cover page

Internal Examiners

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INSTRUCTIONS

**Answer ALL questions in Section A and Section B.
Answer Section A in the Multiple Choice Answer Sheet.
Answer Section B in the Examination Answer Book.
Submit this question paper together with the Multiple Choice Answer Sheet and
your Examination Answer Book.**

Answer ALL questions.

Use **ONLY** an HB-pencil to complete

- 1) The two-word naming system uses _____
 - a) Latin/Hebrew words.
 - b) Latin/English words.
 - c) Latin/Greek words.
 - d) Latin/ Xhosa words.
 - e) Latin/Portuguese words.
- 2) What is taxanomy?
 - a) Science of naming organisms.
 - b) Science of studying organisms.
 - c) Science of classifying organisms.
 - d) Science of calling organisms.
 - e) Science of collecting organisms.
- 3) When classifying organisms, Order comes before _____
 - a) Class.
 - b) Kingdom.
 - c) Species.
 - d) Family.
 - e) Genus
- 4) _____ is a fluid-filled space that surrounds the gut.
 - a) Cavity.
 - b) Coelom.
 - c) Blastocoelomate
 - d) Acoelomate.
 - e) Eucoelomate.
- 5) _____ is a serial repetition of similar body segments along the longitudinal axis of the body.
 - a) Metamerism
 - b) Cephalisation
 - c) Metameres
 - d) Repetition
 - e) Somite
- 6) True segmentation is found in only three phyla; _____
 - a) Annelida, Arthropoda and Apicomplexa.
 - b) Annelida, Arthropoda and Rhizopoda.
 - c) Annelida, Arthropoda and Ciliophora.
 - d) Annelida, Arthropoda and Chordata.
 - e) Annelida, Arthropoda and Cnidaria.
- 7) In _____ formation the coelom comes from the pouches of archenteron, or primitive gut.
 - a) enterocoelous
 - b) blastocoelomate
 - c) schizocoelous
 - d) acoelomate
 - e) eucoelomate
- 8) All Ciliates have a _____ for locomotion and generation of feeding currents
 - a) 9+0 cilia
 - b) 9+1 cilia
 - c) 9 +2 cilia
 - d) 9+3 cilia
 - e) 9+4 cilia
- 9) *Paramecium* uses _____ for protection, which are rodlike or oval structures that can be discharged and stuck to predators
 - a) nematocysts
 - b) blastocysts
 - c) trichocysts
 - d) triggercysts
 - e) pellicle
- 10) The *Paramecium* belongs to the Kingdom _____ and the Phylum _____
 - a) Protista; Rhizopoda.
 - b) Protista; Ciliophora.
 - c) Protista; Apicomplexa.
 - d) Protista; Sporozoa.
 - e) Protista; Sarcostigophora.
- 11) Polymorphism refers to _____
 - a) pseudopodia and sessile.

- b) cilia and flagellum.
 c) polyps and medusae.
 d) epidermis and gastrodermis.
 e) polyps and hydra.
- 12) An infected female mosquito bites a human, injecting saliva that contains *Plasmodium* _____.
 a) merozoites.
 b) sporozoites.
 c) gametozoites.
 d) spermatozoites.
 e) zygozoites.
- 13) General characteristics of the Phylum Ciliophora include the the following:
 a) flexible pellicle; distinct cytostome and dimorphic nuclei
 b) no pellicle; distinct cytostome and dibloblastic layer
 c) flexible pellicle; distinct cytostome and flagella
 d) no pellicle; distinct cytostome and eye spot
 e) rigid pellicle; distinct cytostome and dimorphic nuclei
- 14) The cilia of *Paramecium* sweep food particles down the oral groove toward the _____ where a food vacuole forms.
 a) cytoproct
 b) cytoplasm
 c) phagocytic
 d) cytophyge
 e) cytopharynx
- 15) Cnidarians are diploblastic; with two layers _____.
 a) epidermis and gastrodermis, with tentacles.
 b) epidermis and gastrovascular, with mesoglea.
 c) endodermis and gastrodermis, with mesoglea.
 d) endodermis and exodermis, with mesoglea.
- e) epidermis and gastrodermis, with mesoglea.
- 16) Nematodes (roundworms) possess a cavity called as pseudocoel that is derived from the blastocoel of the embryo and represents persistent _____.
 a) acoelomate.
 b) pseudocoelom.
 c) coelom
 d) blastocoel
 e) eucoelomate.
- 17) Examples in Class Hydrozoa, include____
 a) *Hydra, Obelia, Physalia, Tubularia*
 b) *Hydra, Obelia, Carybdea, Physalia*
 c) *Hydra, Obelia, Tubularia, Metridium*
 d) *Hydra, Obelia, Physalia, Telia*
 e) *Hydra, Obelia, Tubularia, Chironex*
- 18) The function of the micronucleus in *Paramecium* is _____.
 a) to regulate daily metabolic activities
 b) to remove waste from the organism
 c) for genetic reserve of the cell
 d) for synthesis of cell membrane components
 e) for detoxification of foreign substances
- 19) Kingdom _____ has organisms that demonstrate both animal and plant-like characteristics.
 a) Protista
 b) Animalia
 c) Moneran
 d) Plantae
 e) Fungi

- 20) Name two diseases caused by animal like Apicomplexan protists
- Malaria and Trypanichella
 - Malaria and Trypanosomias
 - Malaria and Dysentery
 - Malaria and sleeping sickness
 - Malaria and Trypanosomes
- 21) Some ciliates even possess a _____ which is used to remove waste from the organism
- cytoproct
 - cytoplasm
 - cytopyge
 - cytopharynx
 - cytophagy
- 22) _____ is used for protection, rodlike or oval structures that can be discharged and stuck to predators
- Pseudopodia
 - Cilia
 - Flagellum
 - Nematocysts
 - Trichocysts
- 23) The fluid-filled coelom also serves as a hydrostatic skeleton in some forms, e.g. many worms, aiding in _____ and _____.
- attachment; burrowing.
 - crawling; burrowing.
 - creeping; burrowing.
 - crawling; digging.
 - movements; burrowing
- 24) Class Oligochaeta are usually _____
- oligoecious.
 - acoloecious.
 - polyecious.
 - dioecious.
 - monoecious.
- 25) Pearls are formed in _____ and _____
- oysters and snails.
 - snails and clams.
 - slugs and clams.
 - oysters and slugs.
 - oysters and clams.
- 26) Class _____ does not have septa between metameres.
- Polychaeta
 - Cestoda
 - Hirudinea
 - Oligochaeta
 - Ceaphalopoda
- 27) Class Cephalopoda includes _____
- octopuses, squid, nautilus and scallops.
 - octopuses, squid, nautilus and oysters.
 - octopuses, squid, nautilus and clams.
 - octopuses, squid, nautilus and cuttlefish.
 - octopuses, squid, nautilus and limpets.
- 28) Monogenetic flukes have attachment organs at both ends, the _____ at hind end with barbed suckers.
- opisthaptor
 - ocelli
 - tegument
 - scolex
 - proglottid
- 29) Monogenic flukes have _____ host.
- no
 - one
 - two
 - three
 - many
- The Life Cycle of *Clonorchis sinensis*: Liver fluke. In the First intermediate host: (For Question 30 to 36)**
- 30) The egg of a *Clonorchis* which contains the _____ that

- develops into the adult form, floats in freshwater until it is eaten by a snail.
- redia.
 - cercariae.
 - oncomiracidium.
 - miracidium.
 - Metacercariae
- 31) Once inside of the snail body; _____ hatches from the egg, and parasitically grows inside of the snail.
- redia.
 - cercariae.
 - oncomiracidium.
 - miracidium.
 - metacercariae.
- 32) The miracidium penetrates the tissues of the snail where it develops into a _____.
- redia
 - cercariae
 - oncomiracidium
 - sporocyst
 - metacercariae
- 33) Sporocyst reproduces asexually to yield more sporocyst or a number of _____
- redia.
 - cercariae.
 - oncomiracidium.
 - miracidium.
 - metacercariae.
- 34) Redia reproduces asexually to yield more redia or to produce free-swimming _____
- cercariae
 - redia
 - oncomiracidium
 - miracidium
 - metacercariae
- 35) This system of asexual reproduction allows for an exponential
- multiplication of cercariae individuals from one _____
- redia
 - miracidium
 - oncomiracidium;
 - sporocyst
 - metacercariae
- 36) In Monogentic flukes the adult releases encapsulated embryos which hatch into the first larval stage known as _____
- redia.
 - cercariae.
 - oncomiracidium.
 - miracidium.
 - metacercariae.
- 37) The highest centres in the Cephalopod brain, (absent in _____) concern learning and long-term memory.
- Loligo*
 - Sepia*
 - Octopods
 - Squids
 - Nautilus*
- 38) When present, the calcareous Molluscan shell is secreted by the _____ and is lined by it.
- horny rod
 - pen
 - mantle
 - visceral mass
 - plates
- 39) Nematode sperms _____, aided by a specially secreted protein.
- swim
 - crawl
 - glide
 - creep
 - fly
- 40) Conjugation occurs at intervals in _____
- amoeboids.

- b) protists.
 c) ciliates.
 d) flagellates.
 e) diatoms.
- 41) In what class are insects found?
 a) Arachnida
 b) Insecta
 c) Hemiptera
 d) Arthropoda
 e) Coleoptera
- 42) All insects have _____
 a) Four pair of legs, no wings, 2 body regions, antenna
 b) Four legs, 2 pairs of wings, exoskeleton.
 c) Six pair of legs, antenna, flattened bodies
 d) Six legs, chewing mouthparts, antenna.
 e) 3 pair of legs, three body regions, exoskeleton
- 43) To enable growth, insect shed their hardened exoskeleton in a process called _____.
 a) Metamorphosis
 b) Dimorphism
 c) Myiasis
 d) Molting
 e) Diapause
- 44) In what part of the insect body are its legs found?
 a) Head
 b) Thorax
 c) Ovipositor
 d) Abdomen
 e) Wing
- 45) True bugs are part of order _____.
 a) Hemiptera
 b) Thysanura
 c) Diptera
 d) Hymenoptera
 e) Orthoptera
- 46) What does the term elytra refer to?
 a) The hardened forewing of Hemiptera
 b) The hardened hindwing of Hemiptera
 c) The fore and hindwings of Diptera
 d) The hardened forewing of Coleoptera
 e) The hardened hindwing of Coleoptera
- 47) Insect undergoing incomplete development do not undergo the _____ stage.
 a) Egg
 b) Nymph
 c) Larva
 d) Pupa
 e) Adult
- 48) What are halteres?
 a) Reduced wings & balancing organs of Diptera
 b) Organs of reproduction in Diptera
 c) Sap-sucking mouthparts of Diptera
 d) The larval stages of Diptera
 e) The membranous wings of Diptera
- 49) The protein capsule used in sperm transfer by insects is called _____.
 a) Spermbank
 b) Spermatheca
 c) Spermatozoa
 d) Spermatophore
 e) Sperm capsule
- 50) Development of insect young from unfertilised eggs is called _____.
 a) Oogenesis
 b) Parthenogenesis
 c) Ovigenesis
 d) Larvagenesis

- e) Pupagenesis
- 51) Which three organs are central in performing gaseous exchange in insects?
- Nose, lungs, anus
 - Antenna; diaphragm, wings
 - Mouth, lungs, hemoglobin
 - Head, thorax, abdomen
 - Spiracles, trachea, tracheoles
- 52) Siphonaptera refers to insects with _____ and _____ that are commonly known as _____.
- Tube-like mouthparts, 2 wings, fleas
 - Tube-like mouthparts, 4 wings, fleas
 - Tube-like mouthparts, no wings, fleas
 - Tube-like mouthparts, 2 wings, lice
 - Tube-like mouthparts, 4 wings, lice
- 53) Biological transfer of diseases *differs* from mechanical transfer in that:
- A pathogen is vectored
 - A successful transfer to host is necessary
 - Mostly occurs in tropics and subtropics.
 - The pathogen increases inside vector
 - An arthropod acts as a vector
- 54) The term given to the symptoms of malaria is _____.
- Paroxites
 - Parasitoids
 - Pariah
 - Paroxysm
 - Parochial
- 55) Why do we use insects as biological control agents?
- They are numerous in numbers
 - They have chewing mouthparts
 - They are small and easy to handle
 - They are specialists (monophagous)
 - They are able to fly
- 56) Adult flies lay their eggs _____
- Anywhere on a body
 - In natural openings or wounds
 - On the hair
 - On the legs
 - In other insects
- 57) Fly larvae are called _____
- Nymphs
 - White grubs
 - Maggots
 - Larvae
 - Diptera
- 58) In Forensic Entomology, _____ and _____ are the most common
- Calliphorids; Histeridae
 - Calliphorids; Cleridae
 - Sarcophagidae; Calliphoridae
 - Calliphoridae; beetles
 - Sarcophagidae; Histeridae
- 59) Fly larvae can be distinguished by:
- Their colourful wings
 - Their size
 - Spiracular slits
 - Their age
 - Their ability to feed on carrion
- 60) An organism that spends a significant portion of its life history attached to or within a single host organism is called a _____
- Predator
 - Scavenger
 - Weevil
 - Pest
 - Parasitoid
- 61) Which of the following is not a characteristic of the Infraclass Elasmobranchii?

- a) Gill slits.
 b) Cartilaginous endoskeleton.
 c) Ventrally located mouth.
 d) Ctenoid scales.
 e) Spiral valve intestine.
- 62) Type of temporal opening on reptile skull:
 a) Synapsid.
 b) Euryapsid.
 c) Anapsid.
 d) Diapsid.
 e) All of the above.
- 63) Which one of the following phrases/words does not describe Class Amphibia?
 a) Tetrapod.
 b) Land-water animal.
 c) Amniote.
 d) Notochord absent in adult.
 e) External gills in larvae.
- 64) Snake movement:
 a) Concertina.
 b) Serpentine.
 c) Rectilinear.
 d) Sidewinding.
 e) All of the above.
- 65) Era of Geologic times _____
 a) Cenozoic.
 b) Jurassic.
 c) Mesozoic.
 d) Paleozoic.
 e) a, c & d.
- 66) Main function of the amnion to the developing embryo is:
 a) Feeding it.
 b) Providing oxygen.
 c) Facilitating gas exchange.
 d) Collecting metabolic waste.
 e) Cushioning it.
- 67) Rays _____
- a) Are freshwater species.
 b) Are members of Osteichthyes.
 c) Have prominent tails.
 d) Have flap of skin over gill region.
 e) None of the above.
- 68) Which of the following statements is **FALSE**?
 a) Coelacanth is a marine species.
 b) Coelacanth skeleton mostly bone.
 c) Coelacanth discovered in 1939.
 d) Coelacanth is a crossopterygian.
 e) Coelacanth has a large brain case.
- 69) A fish once thought to be extinct:
 a) African lungfish.
 b) Ostracoderm.
 c) Lamprey.
 d) Coelacanth.
 e) Skate.
- 70) Which of the following statements is **FALSE** of coelacanth:
 a) Typically live in deep marine waters.
 b) Bone makes most of the skeleton.
 c) Discovered off the Chumbe River in South Africa in 1939.
 d) A crossopterygian.
 e) Has a large brain case.
- 71) Membrane of amniotic egg:
 a) Embryo.
 b) Shell.
 c) Allantois.
 d) Yolk sac.
 e) Albumen.
- 72) Which of the following statements is **FALSE** of Class Osteichthyes?
 a) The notochord has been completely replaced by the bony vertebrate column.
 b) Gills protected by bony operculum.
 c) Has spiracle

- d) Thin dermal mucus-covered ctenoid scales.
- e) The lateral line on each side of the body has a row of minute pores that are sensory receptors for low frequency vibration.
- 73) Belonging to Protochordata:
- Jawless fish.
 - Lobbed-finned fish.
 - Acorn worm.
 - a & b above.
 - All of the above.
- 74) Hagfishes _____
- Are only marine.
 - Lay eggs in the sea.
 - Develop in the sea as young.
 - a, b & c above.
 - None of the above.
- 75) Openings behind each chimaera eye:
- Gill slits.
 - Opercula.
 - Nares.
 - Nostrils.
 - Spiracles.
- 76) Cutaneous respiration in Amphibia requires the skin to be _____
- Dry and leathery.
 - Dry and covered with scales.
 - Moist and covered with scales.
 - Moist and richly vascularized.
 - Dry and richly vascularized.
- 77) Which of the following phrases is not **TRUE** of crocodiles:
- The ruling reptiles.
 - Are amphibious.
 - Feature resemble bipedal dinosaurs.
 - Lower teeth not visible when mouth closed.
 - Lay eggs in sand or mud.
- 78) Development of tetrapods perhaps aided amphibians in:
- Swimming.
 - Finding mates.
 - Running on land
 - Moving between bodies of water.
 - Feeding.
- 79) The difference between characteristics of crocodiles and alligators are _____
- Shape of snout.
 - Habitat preference.
 - Nesting sites.
 - Position of the lower jaw teeth.
 - All of the above.
- 80) Characteristic of Chordata:
- Dorsal nerve cord.
 - Notochord.
 - Hollow nerve cord.
 - a & b above.
 - b & c above.
- 81) What birdlike characteristics does Archaeopteryx possess?
- Teeth
 - A long tail
 - Feathers
 - Claws on their front appendages
 - None of the above
- 82) Birds are closely related to the
- Saurapods
 - Theropods
 - Cynodons
 - Pelycosaurs
 - Pleiosaurs
- 83) Birds differ from earlier vertebrates by
- Their lack of scales
 - Producing eggs
 - The ability to maintain a relatively constant body temperature
 - The ability to fertilize eggs internally
 - Their possession of a dorsal nerve cord

- 84) What is the purpose of the ceca in bird digestion in herbivorous birds?
- storage
 - Grinding food
 - Fermentation chamber
 - excretory
 - None of the above
- 85) Respiration in Birds requires _____ numbers of respiratory cycles
- one
 - two
 - five
 - seven
 - ten
- 86) Which muscle raises the wing during flight in birds
- Pectoralis
 - Triceps
 - Biceps
 - Supracoracoideus
 - Forearm
- 87) Stenophagous means
- Wide eating or omnivorous.
 - Narrow eating or specialized.
 - The regurgitation of food for chicks
 - The storage process of grinding food in birds stomachs.
 - The storage of food in the crop.
- 88) The single middle ear bone found in birds is called the
- columella
 - incus
 - stapes
 - malleus
 - None of the above
- 89) Birds that cannot fly belong to the group
- Neognathae
 - Hawks
 - Paleognathae
 - None of the above
 - All of the above
- 90) What distinctive feature in the eye of birds provides nutrients and oxygen to the eye
- lens
 - Sclerotic ring
 - choroid
 - pecten
 - fovea
- 91) Which of the following evolved from a group of carnivorous pelycosaurs?
- Therapsids
 - Labyrinthodonts
 - Anurans
 - Theropds
 - Sauropods
- 92) The mammalian skull may be characterized as _____.
- Anapsid
 - Diapsid
 - Biaspid
 - Synapsid
 - Monoapsid
- 93) Which of the following features was not found in the cynodonts
- Heterodont teeth
 - Turbinate bones in the nasal cavity
 - Secondary bony palette
 - Loss of the lumber vertebrae
 - Middle ear with three ossicles
- 94) Which of the following features below are the unique characteristics of the Class Mammalia?
- The body is covered with hair
 - Possession of fleshy external ears called Pinnae
 - Possession of mammary gland
 - Possession of non-nucleated red blood corpuscles
 - All of the above
- 95) The two Subclasses of the Class Mammalia are _____ and _____

- a) Prototheria and Theria
- b) Rodentia and Carnivora
- c) Monotremata and Marsupialia
- d) Lagomorpha and Chiroptera
- e) None of the above
- c) Cenozoic
- d) Cretaceous
- e) Permian

96) The following are the mode of feeding in the Class Mammalia except

[100 MARKS]

- a) Carnivory
- b) Herbivory
- c) Sanguinivory
- d) Nectarivory
- e) Liquivory

97) Which of these structures is not found in ruminants

- a) Ruman
- b) Omasum
- c) Crop
- d) Reticulum
- e) Abomasum

98) Which of the following statements is true regarding mammary glands

- a) They are used for scent marking
- b) Mammary glands shrink when females reach maturity
- c) All mammals have nipples associated with the mammary glands
- d) They are of epidermal origin
- e) They are associated with hair follicles and secrete sebum

99) Mammals possess a _____ set of teeth in their life stages which are the milk and permanent teeth

- a) Diphyodont
- b) Homophyodont
- c) Triphyodont
- d) Quadruodont
- e) None of the above

100) The adaptive radiation of the mammals occurred during the ____ .

- a) Triassic
- b) Jurassic

Section B

QUESTION ONE

1.1. Tabulate differences between a male and female common roundworm *Ascaris*.
(10 marks)

QUESTION TWO

2.1 Name the four *Plasmodium* species and the type of malaria each one of them causes
(05 marks)

2.2 Name the five stages of carrion decomposition according to the order they occur.
(05 marks)

QUESTION THREE

3.1 What are the technical names of the five Classes of the Subphylum Vertebrata? Using common and/or scientific names in your answer include existing representatives.
(10 marks)

QUESTION FOUR

4.1 What are the two contrasting hypotheses of how flight evolved in birds and explain

4.2 What is the difference between precocial and altricial? (02 marks)

4.3 List four shared characteristics between reptiles and birds (04 marks)

QUESTION FIVE

5.1.1 Do tapeworms have a digestive tract? (Yes/No) (01 marks)

5.1.2. What is the head of the adult tapeworm called? (01 marks)

5.2 Name two insect orders that have members with an aquatic juvenile stages.(02 marks)

5.3 What are the distinct characteristics the tails of Actinopterygian groups? (02 marks)

5.4 Name the two types of sweat glands and provide a morphological difference between them? (02 marks)

[50 MARKS]