1. Insects that pass through the egg, larva, pupa, and adult stages in their life cycle have ____________________.
   A incomplete metamorphosis  
   B no metamorphosis  
   C complete metamorphosis  
   D gradual metamorphosis

2. A parsley worm is in the order ____________________ and the adult turns into a ____________________.
   A Lepidoptera, cabbage looper  
   B Coleoptera, weevil  
   C Lepidoptera, swallowtail  
   D Diptera, mosquito

3. Axillary sclerites form points of attachment for muscles that control the:
   A wings  
   B legs  
   C mouthparts  
   D antennae

4. A ______________ is the stage of development of an insect between the immature form and the adult in holometabolous insects (those insects that go through complete metamorphosis).
   A pupa  
   B third instar  
   C subimago  
   D larva  
   E imago

5. Which structures would be found in an eruciform larva, but not in a scarabaeiform larva?
   A prolegs  
   B mandibles  
   C spiracles  
   D ocelli

6. Which structure is NOT part of the head capsule of insects?
   A antennae  
   B tentorium  
   C vertex  
   D pronotum

7. A legless, eyeless, vermiform larva that is approximately 5 mm in length would probably belong to what insect order?
   A Ephemeroptera  
   B Orthoptera  
   C Odonata  
   D Siphonaptera  
   E Blattodea
8. In cicadas and other sucking insects, movement of liquid to the mouth results from the action of a _____.
   A corneal pump
   B corneagen cell
   C cibarial pump
   D cuticle

9. In centipedes, the "fangs" are what type of structure?
   A mandibles
   B modified legs
   C maxilla
   D modified mouthparts

10. A ______________ is the immature, aquatic stage of a dobsonfly.
    A hellbender
    B ant lion
    C hellgrammite
    D grub

11. If an insect's subesophageal ganglion were paralyzed, it would be unable to _________.
    A eat
    B fly
    C walk
    D see

12. Which of these following components are not part of integrated pest management (IPM)?
    A biological control
    B application of pesticides based only on calendar dates
    C information on the pest's life cycle and habitat
    D economic thresholds

13. Blister beetles have what substance in their bodies that can be toxic to livestock?
    A serotonin
    B chitin
    C cantharadin
    D resilin

14. The fireflies belong to which insect order?
    A Coleoptera
    B Diptera
    C Neuroptera
    D Megaloptera

15. Which part of the exoskeleton lies between the exocuticle and the wax layer?
    A procuticle
    B cement layer
    C cuticulin layer
    D endocuticle
16. The dorsal sclerite of each abdominal segment is called a _______________.
   A sternite
   B tergite
   C coxite
   D pleurite

17. The eastern population of monarch butterflies overwinter in ______________.
   A Florida
   B Central Mexico
   C Baja California
   D Texas

18. _______ is the appropriate concentration of ethanol to preserve most insects.
   A 60%
   B 70%
   C 100%
   D 50%

19. The majority of native bees nest in what type of habitat?
   A flowering plants
   B bamboo stems
   C trees
   D soil

20. The order Phthiraptera contains _________________.
    A roaches and mantids
    B chewing and sucking lice
    C bristletails and silverfish.
    D dragonflies and damselflies

21. Which structures of insects are part of the ovipositor?
    A paraprocts
    B cerci
    C aedeagus
    D valvulae

22. Which part of an insect’s antenna articulates with its head capsule?
    A arista
    B pedicel
    C flagellum
    D scape

23. The eyes of caterpillars are called _________________.
    A tegmina
    B ocelli
    C hamuli
    D stemmata
24. The plague, or "black death," is a disease of rodents and is transmitted by the ________.
   A human body louse
   B Oriental rat flea
   C western tarnished plant bug
   D Asian lady beetle

25. What order of insects is generally considered most important from a medical and veterinary standpoint?
   A Pthiraptera
   B Zoraptera
   C Hymenoptera
   D Diptera

26. Monarch butterflies depend on which plant for their survival?
   A red clover
   B daisies
   C trumpet vine
   D milkweed

27. ________ are thought to be one of the first arthropods.
   A Trilobites
   B Trichoptera
   C Flies
   D Thysanura

28. Which abdominal structures of insects are primarily sensory in function?
   A sternites
   B valvulae
   C paraprocts
   D cerci

29. Which of the following orders of insects is most closely related to Diptera?
   A Siphonaptera
   B Hymenoptera
   C Thysanura
   D Mantodea

30. Honey bees are valuable agricultural pollinators worth an estimated ____ annually in the United States.
    A $7.5 Billion
    B $25 Million
    C $15 Billion
    D $98.8 Million

31. A/an ______________ is used by female insects to lay eggs.
    A spermatheca
    B ovum
    C cerci
    D ovipositor
32. In what order of insects are the front and hind wings held together by hamuli?
   A  Lepidoptera
   B  Hemiptera
   C  Diptera
   D  Hymenoptera

33. Insects have evolved over a period of approximately ____________ years.
   A  400 million
   B  100 million
   C  2 million
   D  50 million

34. ______________ belong to the order Hymenoptera.
   A  grasshoppers and crickets
   B  beetles and weevils
   C  wasps and ants
   D  flies and mosquitoes

35. Ground beetles and cockroaches have ____________ legs used for running.
   A  Fossorial
   B  Saltatorial
   C  Cursorial
   D  Raptorial

36. Which of the following arthropods is not an insect
   A  scorpion
   B  fly
   C  cockroach
   D  dragonfly

37. ______________ can be used as biological control agents to help control pests.
   A  lacewings
   B  parasitic wasps
   C  all of these
   D  ladybird beetles

38. The absolute minimum information that must be associated with insect specimens after collection include ________________.
   A  location and trap type
   B  location and date
   C  trap type and collector
   D  date and collector

39. A ____________ is a trap used to separate insects from soil or leaf litter.
   A  berlese funnel
   B  sweep net
   C  ultraviolet light trap
   D  pitfall trap.
40. A caterpillar of the cabbage butterfly is a common pest of ____________.
   A flowers
   B turfgrass
   C vegetables
   D shrubs

41. What material do solitary female bees provision for their offspring in cell chambers?
   A pollen
   B honey
   C fruit
   D rotting meat

42. Dichotomous keys are primarily based on differences and similarities in insect ____________.
   A pest status
   B morphology
   C behavior
   D physiology

43. The butterfly pupa is known as a ____________.
   A caterpillar
   B chrysalis
   C cocoon
   D naiad

44. ____________ is the largest professional society dedicated to the study of insects.
   A Chinese Academy of Sciences
   B European Entomological Society
   C American Society for the Study of Insects
   D Entomological Society of America

45. Most digestion in insects occurs in the:
   A hindgut
   B foregut
   C crop
   D midgut

46. Cochineal is a natural product produced from:
   A grasshoppers
   B scales
   C beetles
   D mites

47. If an insect is described as having haustellate mouthparts, it means that the insect consumes ____________.
   A solid food
   B blood only
   C grasses only
   D liquid food
48. What is a hematophagous insect?
A One that feeds on saliva
B One that feeds on bone
C One that feeds on blood
D One that feeds on hair

49. Katydid belong to which insect order?
A Orthoptera
B Hemiptera
C Embioptera
D Zoraptera

50. A caterpillar does not have ________.
A mandibles
B compound eyes
C prolegs
D claws

51. Which of the following common name and order combination is correct?
A Mecoptera—lacewing
B Psocoptera—leafhopper
C Blattodea—cockroaches
D Hemiptera—wasps

52. An insect’s head is specialized for _____________________.
A reproduction and digestion
B orientation and locomotion
C ingestion and perception
D adaptation and respiration

53. The father of modern taxonomy who created the binomial system of nomenclature was ________.
A Carl Linnaeus
B Charles Darwin
C Thomas Say
D May Berenbaum

54. A beating tray or beat sheet is best used to collect which type of insects?
A none of the above
B insects that frequent plants and are reluctant to fly or run
C insects that are nocturnal and attracted to light
D insects that scurry across the ground rather than fly

55. Immature scale insects are called _____.
A sliders
B walkers
C crawlers
D gliders
56. Numerous families in the order ___________ can transmit plant diseases with their piercing-sucking mouthparts.
   A  Strepsiptera
   B  Plecoptera
   C  Hemiptera
   D  Psocodea

57. Which structure never occurs on an abdominal segment?
   A  spine
   B  apodeme
   C  spiracle
   D  pleural suture

58. Which of the following arthropods are not insects?
   A  all of these are not insects
   B  daddy long leg
   C  isopod
   D  tardigrade

59. What is the visible characteristic that can be used to separate male and female mosquito adults?
   A  females have smaller compound eyes
   B  elongated mouthparts in males, shorter in females
   C  hairy legs in male, females without hairy legs
   D  males generally with plumose antennae, females with only a few short hairs

60. How many abdominal segments are found in a typical insect?
   A  more than 15
   B  less than 5
   C  12 or 13
   D  6 to 11

61. Which of this information is not common on insect specimen labels?
   A  soil type
   B  state
   C  collector’s name
   D  county

62. An insect heart is best described as a ______________.
   A  four-chambered
   B  closed circulation
   C  dorsal vessel
   D  lymphatic system

63. Which insect structure develops from embryonic ectoderm?
   A  brain
   B  muscle
   C  heart
   D  midgut
64. The butterfly that mimics the monarch in coloration because of the distastefulness of monarchs to predators is the __________.
   A  Tiger  
   B  Viceroy  
   C  Swallowtail  
   D  Cabbage Looper  

65. Some insect eggs hatch inside the mother’s body before exiting. An insect with this type of reproduction is called _________.
   A  oviparous  
   B  ametabolous  
   C  viviparous  
   D  none of the above  

66. The prime cause of insect extinctions, at least of local populations if not species, is ___.
   A  climate change  
   B  habitat loss  
   C  predation from other insects  
   D  humans capturing insects for research  

67. Which structure lies between the crop and the gastric caecae in the insect digestive system?
   A  pyloric valve  
   B  colon  
   C  proventriculus  
   D  esophagus  

68. In what two states would one be most likely to contract rabbit fever, a disease that can be carried by ticks?
   A  Arkansas and Missouri  
   B  Ohio and Illinois  
   C  California and Nevada  
   D  Texas and Oklahoma  

69. Junctions between abdominal segments are best described as _______________.
   A  telescoping  
   B  hinged  
   C  dovetailed  
   D  ball and socket  

70. A measure of insect dispersion gives an indication of _________________.
   A  the ability of insects to detoxify pesticides  
   B  the random, clumped, or uniform distribution of individuals across a given area  
   C  the short or long distances of insect migration  
   D  the length of the segmented bodies of insects  

71. Which insect orders are exclusively herbivorous?
   A  Lepidoptera and Hemiptera  
   B  Psocoptera and Trichoptera  
   C  Thysanoptera and Neuroptera  
   D  Orthoptera and Phasmatodea  

72. Imaginal discs are best described as:
   A control centers for embryonic development.
   B underdeveloped legs and wings.
   C groups of undifferentiated cells.
   D vestigial reproductive organs.

73. ______ determines whether bee larvae become a queen or worker.
   A food
   B type of wings
   C morphology
   D gender

74. What structure protects the midgut from abrasion by food particles and acts as a sieve?
   A pyloric valve
   B peritrophic membrane
   C intima
   D proventriculus

75. Which of the following describes the jumping legs of grasshoppers.
   A saltatorial
   B cursorial
   C raptorial
   D natatorial

76. The hypopharynx separates the mouth opening or food canal from the _____________.
   A mandibles
   B cibarium
   C salivarium
   D labrum

77. Which structure is not part of an insect’s tracheal system?
   A spiracle
   B tracheole
   C taenidia
   D sinus

78. Approximately _____ species of insects are used as food in many parts of the world.
   A 200
   B 100
   C 500
   D 400

79. Widely used pesticides that have been in the spotlight recently for being toxic to honey bees include ____________.
   A neonicotinoids
   B diamides
   C neem oil
   D spinosyns
80. In which of the following insects do only the females suck blood?
   A louse
   B bedbug
   C mosquito
   D flea

81. Approximately how many species of insects have been described to date?
   A 1 million
   B 5 million
   C 500 thousand
   D 12 million

82. About ____ percent of people that get stung by stinging insects suffer serious reactions.
   A 3%
   B 1%
   C 10%
   D 4%

83. Which of these events occurs first during insect egg development?
   A differentiation of germ layers
   B segregation of the germ cells
   C migration of the cleavage nuclei
   D enlargement of the germ band

84. The majority of honey bees in a colony are females and called ____________.
   A alates
   B workers
   C queens
   D drones

85. As juvenile hormone levels fall in the hemolymph, what reaction is triggered in insects?
   A the corpora allata start to release more 23-hydroxy ecdysone
   B immatures remain immature
   C immature forms start to change towards adulthood.
   D none of the above

86. The “scales” of butterflies are ________________.
   A frons
   B flattened setae
   C campaniform sensilla
   D halteres

87. Predaceous diving beetles belong to what insect order?
   A Dermaptera
   B Diptera
   C Siphonaptera
   D Coleoptera
88. The word “coleoptera” is derived from two Greek words, coleo coming from the word koleos, meaning ____ , and ptera coming from the word pteron, meaning ____.
   A  shield; appendage
   B  hard; wing
   C  shell; appendage
   D  sheath; wing

89. ________ secrete a bubbly liquid-covering on plants to conceal themselves or their eggs.
   A  spittle bugs
   B  scale insects
   C  wax moths
   D  aphids

90. What is the function of an aeropyle of an insect's egg?
   A  absorb moisture
   B  gas exchange
   C  excrete nitrogenous wastes
   D  prevent water loss

91. The internal organ system of insects that is analogous to the liver in mammals (In insects, it serves to actively transport water and ions from the hemolymph) is the ____________.
   A  malpighian tubules
   B  prothoracic gland
   C  tritocerebrum
   D  peritrophic membrane

92. Approximately how many native bee species are known in North America?
   A  4,000
   B  500
   C  800
   D  1,000

93. ________ is the order of walkingsticks and leaf insects.
   A  Mantodea
   B  Mantophasmatodea
   C  Phasmatodea
   D  Orthoptera

94. Malaria was eradicated in the U.S. in the mid 20th century in part because of the widespread use of ________.
   A  Sevin
   B  DDT
   C  Deet
   D  Malathion

95. What does it mean when an insect is described as hemimetabolous?
   A  The insect has a larval stage.
   B  The insect has a pupal stage.
   C  The insect has a nymphal and pupal stage.
   D  The insect has a nymphal stage.
96. Honeybees use the _______________ dance to communicate the location of food sources from hive.
   A    waggle
   B    square
   C    round
   D    figure eight

97. Some insects are considered _____ because loss of their contributions to critical ecological functions could collapse a broader ecosystem.
   A    keystone Species
   B    base Species
   C    fundamental Species
   D    cornerstone Species

98. Dermestid beetles that feed on dry and pinned specimens are commonly repelled with ______________
   A    ethyl acetate
   B    plaster of Paris
   C    acetone
   D    naphthalene

99. The following is the genus of the “yellow fever mosquito” and “Asian tiger mosquito” that vectors dengue, chikungunya and zika viruses.
   A    Heterosternuta
   B    Culex
   C    Aedes
   D    Anopheles

100. The frons and the clypeus, located on the head, are separated by the _________________.
    A    gena
    B    labrum
    C    subgenal suture
    D    epistomal suture

101. An insect’s cuticle is primarily made of ________________, which has also been studied for its medicinal properties.
    A    chitin
    B    melatonin
    C    hemolymph
    D    melanin

102. Which part of the leg lies between the femur and the tarsus?
    A    trochanter
    B    tibia
    C    coxa
    D    arolium

103. The “powder” left over from being in contact with moths or butterflies is actually tiny ____________.
    A    wax crystals
    B    scales
    C    filaments
    D    trichomes
104. What was a major arthropod borne disease that resulted in great losses for Napoleon on his campaign to Russia?
   A epidemic typhus fever  
   B plague  
   C yellow fever  
   D malaria

105. The feces of triatomid bugs harbor the causative agent for what disease in humans?
   A Chagas disease  
   B Malaria  
   C Pierce’s disease  
   D Dengue

106. The snakeflies belong to the order ________________________.
   A Coleoptera  
   B Neuroptera  
   C Raphidioptera  
   D Megaloptera  
   E Odonata

107. Rigid, inflexible structures of the exoskeleton are called __________.
   A segments  
   B apodemes  
   C sclerites  
   D sutures

108. The state insect of Texas is the __________________.
   A Texas checkered spot butterfly  
   B lady bird beetle  
   C monarch butterfly  
   D honey bee

109. A dun is a fly fishing term used to describe what type of insect?
   A a caddisfly sub-adult  
   B a mayfly sub-adult  
   C a mayfly adult  
   D a stonefly nymph

110. In many insects, three light-sensitive “simple” eyes, or _____, are situated of the anterior vertex between the compound eyes.
   A ocelli  
   B oligopod  
   C ostium  
   D obtect

111. An apodeme could NOT be described as ____________.
   A a brace to strengthen the exoskeleton.  
   B an internal ridge of the exoskeleton.  
   C a point of attachment for muscles.  
   D a flexible joint in the exoskeleton.
112. These insects typically hold their wings together above and over their abdomen when resting.
   A dragonflies
   B moths
   C butterflies
   D stoneflies

113. Which structure is not part of an insect's antenna?
   A scape
   B pedicel
   C flagellum
   D coxa

114. Mole crickets have _______________ legs used for digging.
   A Fossorial
   B Raptorial
   C Cursorial
   D Saltatorial

115. Where do the larva of horse flies occur?
   A in turf
   B in brush piles
   C in flower beds
   D in aquatic or marshy environments

116. What is the branch of science concerned with describing, naming, and classifying organisms?
   A Speciation
   B Taxonomy
   C Phylogeny
   D Zoology

117. ______ are not considered a biological control agent for killing insect pests.
    A microbes
    B predators or parasites
    C pheromones
    D parasitoids

118. The furca is best described as:
    A An internal brace for the legs.
    B A fulcrum for the wings.
    C A springing organ.
    D A hinge for the neck.

119. Water boatmen have _______________ legs used for swimming.
    A Natatorial
    B Raptorial
    C Fossorial
    D Cursorial
120. ____________ is where digestive enzymes are secreted and most food absorption occurs in the insect gut.
   A proctodeum
   B proventriculum
   C stomodeum
   D mesenteron

121. This best choice for a chemical to use in an insect kill jar is ________________.
   A naphthalene
   B ethyl acetate
   C paradichlorobenzene
   D potassium cyanide

122. Which of these is not a longitudinal wing vein?
   A costa
   B radius
   C cubitus
   D furca

123. Collophore and furcula are morphological terms associated with which order of insects?
   A Odonata
   B Collembola
   C Lepidoptera
   D Ephemeroptera

124. The insect with one of the longest known migrations and that was petitioned in 2016 to be listed for threatened or endangered status per the U.S. Endangered Species Act is the ________________.
   A western tarnished plant bug
   B green darner
   C flame skimmer
   D monarch butterfly

125. A suture of the exoskeleton is best described as a ________.
   A membranous bridge.
   B point of attachment between segments.
   C line or junction between two sclerites.
   D thick ridge of cuticle.

126. The Latin word “Insectum” means:
   A segments
   B cut into pieces
   C small pieces
   D insect

127. The insect mouthparts include all of these structures except:
   A clypeus
   B hypopharynx
   C labium
   D maxillae
128. What order of insect vectors Chagas disease?
   A  Lepidoptera
   B  Diptera
   C  Hemiptera
   D  Orthoptera

129. Functions of the insect hemolymph includes:
   A  wasted removal to excretory organs
   B  hormone transport
   C  distribution of nutrients from the gut
   D  all of the above

130. __________ is an ability of insects to survive toxicity after chronic exposure to pesticides.
   A  resurgence
   B  resistance
   C  tolerance
   D  repellency

131. Ant lions belong to the order _____________.
   A  Diptera
   B  Coleoptera
   C  Neuroptera
   D  Isoptera

132. Caddisflies belong to the order _________________.
   A  Isoptera
   B  Lepidoptera
   C  Neuroptera
   D  Trichoptera

133. The ____________ civilization regarded dung beetles as sacred.
   A  Egyptian
   B  Syrian
   C  Aztec
   D  Roman

134. When and where were the first fire ants discovered in North America?
   A  Mobile, Alabama in the 1930s
   B  El Paso, TX in the 1920s
   C  Russellville, Arkansas in 1970s
   D  Pensacola, Florida in the 1960s

135. ______________ are the two orders of primitively wingless insects.
   A  Diplura and Collembola
   B  Protura and Microcoryphia
   C  Apterygota and Thysanura
   D  Archaeognatha and Thysanura
136. Which structures are not a component of the endocrine system in insects?
   A ventral ganglia  
   B corpora cardiac  
   C prothoracic glands  
   D salivary glands

137. What is the reservoir of louse-born typhus?
   A humans  
   B horses  
   C cats  
   D dogs

138. What is the name for the "shell" of an insect egg?
   A blástula  
   B serosa  
   C chorion  
   D morula

139. Which insect order contains the crickets and grasshoppers?
   A Lepidoptera  
   B Orthoptera  
   C Hymenoptera  
   D Blattodea

140. A hearing organ of an insect is the _____________.
   A labrum  
   B tympanum  
   C vertex  
   D frons

141. Which structure would not be found on an insect's leg?
   A arolium  
   B propodeum  
   C tarsomere  
   D coxa

142. Very few insects are found in this habitat.
   A trees  
   B lakes  
   C ocean  
   D soil

143. A mass of neural tissue that contains mostly nerve cell bodies and interneurons in an insect is called a _________________.
   A ganglion  
   B motor neuron  
   C synapse  
   D nerve
144. The boll weevil Anthonomus grandis was a severe cotton pest belonging to which family of beetles?
A Carabidae
B Curculionidae
C Meloidae
D Coccinellidae

145. Some factors contributing to the success of insects are:
A size, a protective cuticle, an efficient nervous system, four pair of legs
B high reproductive rate, the evolution of flight, size
C high reproductive rate, the evolution of flight, ability to live without a brain
D size, the evolution of flight, lack of wings

146. Which structure would not be found on an insect's prothorax?
A pronotum
B spiracle
C leg
D wing

147. An insect has a protective cuticle that allows it to _____________.
A produce biological defense compounds (immune response)
B use chemo-and mechano-receptors
C self-repair (if damaged)
D all of the above

148. What are some reasons that could have influenced the large size of insects prehistorically?
A lower oxygen levels in the atmosphere and fewer aerial predators
B higher oxygen levels in the atmosphere and more aerial predators
C higher oxygen levels in the atmosphere and fewer aerial predators
D lower oxygen levels in the atmosphere and more aerial predators

149. How does the honey bee queen decide the sex of her offspring?
A By laying haploid eggs into large cells for drones, and diploid eggs into small cells for workers
B By laying haploid eggs into small cells for drones, and diploid eggs into large cells for workers
C By laying diploid eggs into small cells for drones, and haploid eggs into large cells for workers
D By laying diploid eggs into large cells for drones, and haploid eggs into small cells for workers

150. What is the causal agent of pink eye in cattle that can be vectored by flies?
A Corethrella bovis
B Sarcoptes scabiei
C Trypanosoma evansi
D Moraxella bovis

151. The body temperature of insects changes with ambient environmental temperatures. Therefore, most insects cannot efficiently change their internal body temperature above the temperature of the environment. The first sentence describes __________ while the second sentence describes __________.
A ectothermy and endothermy
B diapause and dormancy
C endothermy and ectothermy
D dormancy and diapause
152. What diseases do Culex pipiens pipiens and C. p. quinquefasciatus vector?
A  malaria
B  yellow fever
C  dengue fever
D  St. Louis encephalitis

153. What is the mouthpart called for feeding within the Lepidoptera?
A  pylorus
B  pronotum
C  proboscis
D  paranota

154. What is the primary function of the wax layer of the exoskeleton?
A  thermal insulation
B  muscle attachment
C  protection
D  water barrier

155. Dermaptera or earwigs are most closely related to which insect order?
A  Hymenoptera
B  Hemiptera
C  Orthoptera
D  Coleoptera

156. Insects use their olfactory system for _____________.
A  sucking
B  hearing
C  seeing
D  smelling

157. Which of the following insect groups has hemimetabolous development?
A  mayflies
B  house flies
C  ants
D  weevils

158. The phrase “endemic” insect refers to:
A  native to or limited to a certain region
B  invasive
C  occurrence in an unfavorable environment
D  occurrence in a desert habitat

159. Solitary bees build nests in what type of habitat?
A  all of the above
B  in existing small tree holes or cavities
C  in the soil
D  in hollow plant stems
160. The renowned myrmecologist ________________ established the field of sociobiology.
   A  C.V. Riley
   B  John Bell
   C  Carl Linneaus
   D  E.O. Wilson

161. During the __________, German cockroaches are very active.
   A  spring
   B  summer
   C  day
   D  night

162. The bed bug, Cimex lectularious, is an effective vector of what pathogenic microorganism?
   A  sporidia
   B  wolbachia
   C  none
   D  loa loa

163. What function do protein cross-linkages have in the insect exoskeleton?
   A  They make membranes more flexible.
   B  They make it impermeable to water.
   C  They make sclerites more rigid.
   D  They lighten the color of the exoskeleton.

164. The pleural suture lies just posterior to the ________________.
   A  episternum
   B  trochantin
   C  epimeron
   D  trochanter

165. What insects are included in the order Pthiraptera?
   A  cockroaches
   B  bed bugs
   C  flies
   D  lice

166. What was a major cotton pest that was successfully eradicated in the U.S.?
   A  boll weevil
   B  stink bug
   C  lygus bug
   D  sunflower head moth

167. The aquatic insect order whose immature stages sometimes create rock cases is _____.
   A  Ephemeroptera
   B  Diptera
   C  Odonata
   D  Trichoptera
168. _______ is a primary characteristic of the order Orthoptera and is the type of forewing of this group.
   A  tegmina  B  elytra  C  hemelytra  D  hamuli

169. Which of the followings is the common name of the order Mecoptera?
   A  dragonfly  B  firefly  C  caddisfly  D  scorpionfly

170. The reproductive organ in male insects for transferring sperm is the _____________
   A  paraproct  B  scape  C  aedeagus  D  gonopore

171. Which structure would not be found on an insect's pretarsus?
   A  trochanter  B  spines  C  sticky pads  D  claws

172. What order of insects usually have their wings covered in flattened setae or scales?
   A  Coleoptera  B  Lepidoptera  C  Diptera  D  Hemiptera

173. The following are groups of eusocial insects:
   A  termites  B  gall-forming aphids  C  All of these are eusocial insects  D  ants

174. Insects from this order do not act as pollinators:
   A  Hymenoptera  B  Diptera  C  Coleoptera  D  Phasmatodea

175. What is the principle energy source for most insects?
   A  vitamins  B  carbohydrates  C  cellulose  D  proteins
176. What are the larva of mosquitoes commonly referred to as?
   A dancers
   B crawlers
   C tumblers
   D wiggles

177. The insect cuticle is between _____ and ______ microns thick.
   A 100, 300
   B 120, 1000
   C 50, 75
   D 300, 400

178. Which of these occupies the largest volume in an unfertilized insect egg?
   A periplasm
   B nucleus
   C embryo
   D yolk

179. In Diptera, hindwings are modified into small, club-like structure called_______ that serves as
gyroscopes, informing the insect about rotation of the body during flight.
   A pronotum
   B proboscis
   C halteres
   D hamuli

180. __________ is a family in the order __________
   A Tortricidae, Hemiptera
   B Coleoptera, Chrysomelidae
   C Chrysomelidae, Coleoptera
   D Chrysomelidae, Collembola

181. Abdominal gills allow insects to utilize oxygen that is ________________.
   A dissolved in the surrounding water
   B generated by metabolic activity
   C atmospheric
   D trapped in the tissues of aquatic plants

182. All of the following insects have holometabolous development, except __________.
   A Thysanoptera
   B Coleoptera
   C Neuroptera
   D Mecoptera

183. Digging legs of mole crickets are what functional type?
   A raptorial
   B fossorial
   C cursorial
   D saltatorial
184. The insect abdomen contains:
   A all of the above
   B organs for excretion
   C the reproductive tract
   D the digestion tract

185. What percentage of flowering plants on Earth require insect pollination?
   A 95%
   B 75%
   C 30%
   D 50%

186. Webspinners belong to which insect order?
   A Embioptera
   B Psocoptera
   C Dermaptera
   D Orthoptera

187. One-way flow valves in the heart are called ____________.
   A pulsatile organs
   B spiracles
   C apodemes
   D ostia

188. __________ represents the most speciose order of insects, with approximately __________ species
   A Collembola, 450,000
   B Zoraptera, 500,000
   C Lepidoptera, 350,000
   D Coleoptera, 400,000

189. Which abdominal structure of an insect is unpaired?
   A valvifer
   B paraproct
   C cerci
   D epiproct

190. __________ are the individual light-sensing and image forming units of the insect's compound eye.
   A ocelli
   B Rhabdomeres
   C Cornea
   D ommatidia

191. A sperm cell enters the insect egg through the ____________.
   A oosome
   B micropyle
   C germ band
   D morula
192. The followings are the parts of the insect thorax:
A mesothorax, metathorax and semithorax
B metathorax, mesothorax and prothorax
C pirothorax, hexathorax and etathorax
D prothorax, mesothorax and entothorax

193. In what order of insects are the front wings known as "elytra?"
A Orthoptera
B Hemiptera
C Hymenoptera
D Coleoptera

194. What are two distinguishing features of the subphylum Hexapoda that separates them from other classes of arthropods?
A Having a three-part body and six legs
B A three-segmented body and the ability to molt
C Having three pairs of legs and an exoskeleton
D The ability to undergo metamorphosis and having a three-part body

195. A tool used to collect insects using your mouth or a hand bulb and a small vial is called a/an ____________.
A berlese funnel
B sweep net
C pitfall trap
D aspirator

196. What do the orders Mantodea and Blattodea have in common?
A eggs are produced inside a pouch or ootheca
B hind wings are modified into halteres
C blood suckers
D sucking mouthparts

197. An insect with tracheal gills would probably be found in ________________.
A a cold mountain stream
B a stagnant pond
C a sewage treatment lagoon
D an oceanic community

198. If you wanted to study entomology in college, what types of courses might you take at a university offering an undergraduate or graduate degree in entomology?
A Aquatic Entomology
B Urban Entomology
C Insect Ecology
D All of the above

199. What structure is found in Diptera, but NOT in Hymenoptera?
A stigma
B stinger
C cerci
D haltere
200. A ___________ is used to collect ground dwelling, crawling insects.
   A malaise trap
   B Berlese funnel
   C ultraviolet light trap
   D pitfall trap

201. Chemicals released from plants to attract parasitic or predaceous insects that combat herbivorous insects are called ________________.
   A tannins
   B kairomones
   C pheromones
   D steroids

202. ______ flour has been developed and marketed in recent years as a new form of supplemental protein and a cooking agent.
   A ant Lion
   B ground Beetle
   C Cockroach
   D cricket

203. Firebrats and silverfish are common household pests in the order ____________.
   A Mecoptera
   B Odonata
   C Thysanura
   D Hemiptera

204. To which body segment are the elytra attached?
   A first abdominal
   B metathorax
   C prothorax
   D mesothorax

205. The ____ is the ventral surface of the thorax of insects.
   A sternum
   B pleuron
   C front
   D notum

206. Squash bugs belong to what insect order?
   A Hemiptera
   B Diptera
   C Lepidoptera
   D Coleoptera

207. The Johnston’s organ ________________________________.
   A Is used to detect changes between antennal segments
   B Senses physical environmental stimuli (vibrations, wind, gravity)
   C Separates the Class Insecta from the Class Entognatha
   D all of the above
208. A tool that allows one to adjust the height and position of a pinned specimen and accompanying label is a ____________.
A spreading board
B pinning block
C point
D forceps

209. Insects have _________ pair of legs and _________ primary body regions.
A 6, 2
B 3, 2
C 4, 2
D 3, 3

210. The old shed skin left behind after an insect molts is known as the ________
A ecdysis
B sclerite
C excuvium
D stadium

211. After its second molt an insect is a ____________ instar.
A third
B first
C final
D second

212. To which family do hard ticks belong?
A Simuliidae
B Argasidae
C Ixodidae
D Heptageniidae

213. Which larval type does not have walking legs?
A eruciform
B Campodeiform
C scarabaeiform
D vermiform

214. The abdomen of insects is specialized for:
A feeding and locomotion
B locomotion and reproduction
C reproduction and digestion
D digestion and ingestion

215. The Hymenoptera from the list below that are not social are ____________
A honey bees
B hornets
C sweat bees
D leafcutter bees
216. Urticating hairs are associated with plants, tarantulas and what insect order?
   A  Blattodea
   B  Strepsiptera
   C  Mecoptera
   D  Lepidoptera

217. The developmental stage of an insect between molts is called a/an _____________.
   A  instar
   B  morph
   C  cocoon
   D  larva

218. The following sections are parts of an insect’s leg:
   A  coxa, trochanter, femur, tibia and tarsus
   B  Clypeus, corium, tegula and cornicle
   C  Coxa, femur, tibia and mentum
   D  Tegula, cornicle, frenulum, petiole

219. Oothecas, or egg cases, belonging to what insect order?
   A  Coleoptera
   B  Hemiptera
   C  Diptera
   D  Mantodea

220. You are hired as an extension entomologist for the state of Texas. Your first task in this job is to identify a pest in cotton. You go out to the cotton fields to collect specimens and find that this new pest is tiny (less than 1 mm long), has rasping-sucking mouthparts, and fringed wings. Based on this information this cotton pest is likely a:
   A  thrips
   B  scale
   C  pirate bug
   D  whitefly

221. The following are some of the major insect wing veins:
   A  coxal, radius, tibial
   B  anal, tibial, subcostal
   C  medial, coxal, femoral
   D  costa, radius, cubitus

222. When an insect has a vestigial mouthpart, that insect _________.
   A  can consume only solids
   B  can consume only liquids
   C  possesses both piercing-sucking and chewing mouthparts
   D  cannot eat

223. During a molt, which layer of the old exoskeleton is digested by molting fluid, reabsorbed by the epidermal cells, and reconstituted as new procuticle?
   A  epicuticle
   B  cuticulin layer
   C  exocuticle
   D  endocuticle
224. Rachel Carson published a book titled _______________ that highlighted pesticide issues and environmental contamination as a result of the overuse of DDT in the mid 20th century.

A  The Hungry Caterpillar  
B  A Bug’s Life  
C  Sand County Almanac  
D  Silent Spring

225. __________ are regarded as the most important group of insect pollinators.

A  Hymenoptera, Ichneumonidae  
B  Hymenoptera, Apoidea  
C  Diptera, Syrphidae  
D  Coleoptera, Cantharidae

226. What is the correct common name for Solenopsis invicta Buren?

A  painted lady butterfly  
B  German cockroach  
C  Japanese beetle  
D  red imported fire ant

227. A geniculate insect antenna is ______________________.

A  hairy  
B  elbowed  
C  serrated  
D  clubbed

228. The following are natural products derived from insects:

A  Silk, carmine and polysaccharides  
B  Silk, natural red 4, royal jelly and honey  
C  Carmine, silk, honey and blue dyes  
D  Natural green 6 and honey

229. Which insects never develop wings?

A  earwigs  
B  aphids  
C  book louse  
D  fleas

230. In integrated pest management, this is the point at which action must be taken to avoid economic damage from insect injury.

A  economic injury level  
B  economic threshold  
C  pest threshold  
D  plant health level

231. Puddling is a behavior in the _______________ where adults aggregate and drink from mud puddles or moist soil.

A  Lepidoptera  
B  Trichoptera  
C  Thysanoptera  
D  Phasmatodea
232. What structures regulate air flow into and out of the tracheal system in insects?
   A taenidia  
   B tracheoles  
   C ostia  
   D spiracles

233. The whirligig beetle has how many pairs of eyes?
   A two  
   B one  
   C three  
   D Four

234. Which insect order does not have aquatic stages of development?
   A Thysanoptera  
   B Hemiptera  
   C Neuroptera  
   D Coleoptera

235. The discoverer of mosquito transmission of malaria was ____________.
   A Carl Linnaeus  
   B Carlos Finlay  
   C E.O. Wilson  
   D Sir Ronald Ross

236. Which structures are innervated by the protocerebrum of an insect’s brain?
   A compound eyes and ocelli  
   B bursa copulatrix  
   C antennae  
   D mouthparts

237. Why do insects molt?
   A to grow  
   B to change from one instar to another  
   C all of the above  
   D to complete a step in metamorphosis

238. What are some characteristics of social insects?
   A reproductive division of labor  
   B All of these are characteristics of social insects  
   C usually associated with a confined space like a nest  
   D cooperative care of the young

239. The tracheal system of an insect is best described as _________________.
   A a method of anaerobic respiration  
   B a chain of interconnecting cells  
   C a radial pattern of filaments  
   D a network of hollow tubes
240. _____ is found as both a supporting element in fungal cell walls and a key component of arthropod exoskeletons.
   A  epicuticle
   B  chitin
   C  collophore
   D  epidermis

241. If an insect is described as zoophilic, that insect prefers ____ to ____.
    A  humans; animals
    B  plants; animals
    C  animals; humans
    D  animals; plants

242. Which part of the exoskeleton is formed by a single layer of epithelial cells?
    A  cuticulin layer
    B  procuticle
    C  epidermis
    D  basement membrane

243. Giant water bugs belong to the order Hemiptera and are in the family _____________.
    A  Belostomatidae
    B  Muscidae
    C  Dytiscidae
    D  Danaidae

244. Dutch elm disease is caused by a __________ that is carried by ____________.
    A  virus, aphids
    B  fungus, beetles
    C  virus, thrips
    D  mycoplasma, leafhoppers

245. The blood of insects is called _____________.
    A  hemoglobin
    B  hemolymph
    C  sebum
    D  hemocyanin

246. Dolbears law refers to what insect and environmental relationship?
    A  Predicting air temperature with cricket chirps
    B  Predicting rainfall with caterpillar growth
    C  Predicting snowfall with housefly abundance
    D  Predicting wind speed with dragonfly flight

247. The "vampire" mite that has been a serious pest of managed honey bees is the _____________.
    A  scabies mite
    B  varroa mite
    C  wax mite
    D  honey mite
248. _________ do not belong to the order Hemiptera
   A  bristletails
   B  aphids
   C  cicadas
   D  leafhoppers

249. What is the primary chemical component of the insect's egg shell?
   A  calcium
   B  lipid
   C  protein
   D  polysaccharide

250. The _____ are structures of the insect head that are responsible for grinding solid food.
   A  mandibles
   B  labrum
   C  calyx
   D  maxilla