



I. CHOOSE THE CORRECT ANSWER :

LN-1

- A living organism is differentiated from non-living structure based on
 - Reproduction
 - Growth
 - Metabolism
 - All the above
- A group of organisms having similar traits of a rank is
 - Species
 - Taxon
 - Genus
 - Family
- Every unit of classification regardless of its rank is
 - Taxon
 - Variety
 - Species
 - Strain
- Which of the following is not present in same rank?
 - Primata
 - Orthoptera
 - Diptera
 - Insecta
- What taxonomic aid gives comprehensive information about a taxon?
 - Taxonomic Key
 - Herbarium
 - Flora
 - Monograph
- Who coined the term biodiversity?
 - Walter Rosen
 - AG Tansley
 - Aristotle
 - AP de Candole
- Cladogram considers the following characters
 - Physiological and Biochemical
 - Evolutionary and Phylogenetic
 - Taxonomic and systematic
 - None of the above
- Molecular taxonomic tool consists of
 - DNA and RNA
 - Mitochondria and Endoplasmic reticulum
 - Cell wall and Membrane proteins
 - All the above

LN-2

- The symmetry exhibited in cnidarians is
 - Radial
 - Bilateral
 - Pentamerous radial
 - Asymmetrical
- Sea anemone belongs to phylum
 - Protozoa
 - Porifera
 - Coelenterata
 - Echinodermata
- The excretory cells that are found in platyhelminthes are
 - Protonephridia
 - Flame cells
 - Solenocytes
 - All of these
- In which of the following organisms, self fertilization is seen.
 - Fish
 - Round worm
 - Earthworm
 - Liver fluke
- Nephridia of Earthworms are performing the same functions as
 - Gills of prawn
 - Flame cells of Planaria
 - Trachea of insects
 - Nematoblasts of Hydra
- Which of the following animals has a true coelom ?
 - Ascaris*
 - Pheretima*
 - Sycon*
 - Taenia solium*
- Metameric segmentation is the main feature of
 - Annelida
 - Echinodermata
 - Arthropoda
 - Coelenterata
- In *Pheretima* locomotion occurs with the help of
 - circular muscles
 - longitudinal muscles and setae
 - circular, longitudinal muscles and setae
 - parapodia
- Which of the following have the highest number of species in nature?
 - Insects
 - Birds
 - Angiosperms
 - Fungi
- Which of the following is a crustacean?
 - Prawn
 - Snail
 - Sea anemone
 - Hydra
- The respiratory pigment in cockroach is

- a. Haemoglobin b. Haemocyanin c. Haemoerythrin d. None of the above
20. Exoskeleton of which phylum consists of chitinous cuticle?
a. Annelida b. Porifera c. Arthropoda d. Echinodermata
21. Lateral line sense organs occur in
a. Salamander b. Frog c. Water snake d. Fish
22. The limbless amphibian is
a. Ichthyophis b. Hyla c. Rana d. Salamander
23. Four chambered heart is present in
a. Lizard b. Snake c. Scorpion d. Crocodile
24. Which of the following is not correctly paired?
a. Humans – Ureotelic b. Birds – Uricotelic c. Lizards – Uricotelic d. Whale – Ammonotelic
25. Which of the following is an egg laying mammal?
a. *Delphinus* b. *Macropus* c. *Ornithorhynchus* d. *Equus*
26. Pneumatic bones are seen in
a. Mammalia b. Aves c. Reptilia d. Sponges
27. Match the following columns and select the correct option.

Column – I	Column – II	
(p) Pila	(i) Devil fish	a. p – (ii), q – (i), r – (iii), s – (iv)
(q) Dentalium	(ii) Chiton	b. p – (iii), q – (iv), r – (ii), s – (i)
(r) Chaetopleura	(iii) Apple snail	c. p – (ii), q – (iv), r – (i), s – (iii)
(s) Octopus	(iv) Tusk shell	d. p – (i), q – (ii), r – (iii), s – (iv)

28. In which of the following phyla, the adult shows radial symmetry but the larva shows bilateral symmetry?
a. Mollusca b. Echinodermata c. Arthropoda d. Annelida
29. Which of the following is correctly matched?
a. Physalia – Portuguese man of war b. Pennatula – Sea fan
c. Adamsia – Sea pen d. Gorgonia – Sea anemone

LN-3

30. The main function of the cuboidal epithelium is
a. Protection b. Secretion c. Absorption d. Both (b) and (c)
31. The ciliated epithelium lines the
a. Skin b. Digestive tract c. Gall bladder d. Trachea
32. What type of fibres are found in connective tissue matrix?
a. Collagen b. Areolar c. Cartilage d. Tubular
33. Prevention of substances from leaking across the tissue is provided by
a. Tight junction b. Adhering junction c. Gap junction d. Elastic junction
34. Non-shivering thermogenesis in neonates produces heat through
a. White fat b. Brown fat c. Yellow fat d. Colourless fat

LN-4

35. The clitellum is a distinct part in the body of earthworm *Lampito mauritii*, it is found in?
a. Segments 13 – 14 b. Segments 14 – 17 c. Segments 12 – 13 d. Segments 14 - 16
36. Sexually, earthworms are
a. Sexes are separate b. Hermaphroditic but not self - fertilizing
c. Hermaphroditic and self – fertilizing d. Parthenogenic

37. State whether the statement is true or false

To sustain themselves, earthworms must guide their way through the soil using their powerful muscles. They gather nutrients by ingesting organic matter and soil, absorbing what they need into their bodies. State whether the statement is true or false: The two ends of the earthworm can equally ingest soil.

a. True b. False

38. The head region of Cockroach pairs of and shaped eyes occur.

- a. One pair, sessile compound and kidney shaped b. Two pairs, stalked compound and round shaped
c. Many pairs, sessile simple and kidney shaped d. Many pairs, stalked compound and kidney shaped

39. The location and numbers of malpighian tubules in *Periplaneta*.

- a. At the junction of midgut and hindgut, about 150. b. At the junction of foregut and midgut, about 150.
c. Surrounding gizzard, eight. d. At the junction of colon and rectum, eight.

40. The type of vision in Cockroach is

- a. Three dimensional b. Two dimensional c. Mosaic d. Cockroach do not have vision

41. How many abdominal segments are present in male and female Cockroaches?

- a. 10, 10 b. 9, 10 c. 8, 10 d. 9, 9

42. Which of the following have an open circulatory system?

- a. Frog b. Earthworm c. Pigeon d. Cockroach

43. Buccopharyngeal respiration in frog

- a. is increased when nostrils are closed b. Stops when there is pulmonary respiration
c. is increased when it is catching fly d. stops when mouth is opened.

44. Kidney of frog is

- a. Archinephros b. Pronephros c. Mesonephros d. Metanephros

45. Presence of gills in the tadpole of frog indicates that

- a. fishes were amphibious in the past b. fishes evolved from frog-like ancestors
c. frogs will have gills in future d. frogs evolved from gilled ancestor

46. Choose the wrong statement among the following:

- a. In earthworm, a pair of male genital pore is present. b. Setae help in locomotion of earthworms.
c. Muscular layer in the body wall of earthworm is made up of circular muscles and longitudinal muscles.
d. Typhlosole is part of the intestine of earthworm.

47. Which of the following are the sense organs of Cockroach?

- a. Antennae, compound eyes, maxillary palps, anal cerci
b. Antennae, compound eye, maxillary palps and tegmina
c. Antennae, ommatidia, maxillary palps, sternum and anal style
d. Antennae, eyes, maxillary palps, tarsus of walking legs and coxa

LN-5

48. Choose the incorrect sentence from the following:

- a. Bile juice emulsifies the fat. b. Chyme is a digestive acidic food in stomach.
c. Pancreatic juice converts lipid into fatty acid and glycerol.
d. Enterokinase stimulates the secretion of pancreatic juice.

49. What is chyme....?

- a. The process of conversion of fat into small droplets.

- | | |
|-------------|---------------|
| (Q) Pepsin | (ii) Cassein |
| (R) Renin | (iii) Protein |
| (S) Ptyalin | (iv) Lipid |

- a. (P-iv) (Q -ii) (R- i) (S – iii) b. (P-iii) (Q -iv) (R- ii) (S – i)
 c. (P-iv) (Q -iii) (R- ii) (S – i) d. (P-iii) (Q -ii) (R- iv) (S – i)

61. Which of the following is not the function of liver?

- a. Production of insulin b. Detoxification c. Storage of glycogen d. Production of bile

62. Assertion : (A) Large intestine also shows the presence of villi like small intestine.

Reason: (B) Absorption of water takes place in large intestine.

- a. Both A and B are true and B is the correct explanation of A
 b. Both A and B are true but B is not the correct explanation of A
 c. A is true but B is false d. A is false but B is true

63. Which of the following is not true regarding intestinal villi?

- a. They possess microvilli. b. They increase the surface area.
 c. They are supplied with capillaries and the lacteal vessels.
 d. They only participate in digestion of fats.

Ln-6

64. Breathing is controlled by

- a. cerebrum b. medulla oblongata c. cerebellum d. pons

65. Intercostal muscles are found between the

- a. vertebral column b. sternum c. ribs d. glottis

66. The respiratory structures of insects are

- a. tracheal tubes b. gills c. green glands d. lungs

67. Asthma is caused due to

- a. inflammation of bronchus and bronchioles. b. inflammation of bronchione
 c. damage of diaphragm. d. infection of lungs

68. The Oxygen Dissociation Curve is

- a. sigmoid b. straight line c. curved d. rectangular hyperbola

69. The Tidal Volume of a normal person is

- a. 800 mL b. 1200 mL c. 500 mL d. 1100 – 1200 mL

70. During inspiration, the diaphragm

- a. expands. b. unchanged c. relaxes to become domed-shaped. d. contracts and flattens

71. CO₂ is transported through blood to lungs as

- a. carbonic acid b. oxyhaemoglobin c. carbamino haemoglobin d. carboxy haemoglobin

72. When 1500 mL air is in the lungs, it is called

- a. vital capacity b. tidal volume c. residual volume d. inspiratory reserve volume

73. Vital capacity is

- a. TV + IRV b. TV + ERV c. RV + ERV d. TV + IRV + ERV

74. After a long deep breath, we do not respire for some seconds due to

- a. more CO₂ in the blood b. more O₂ in the blood c. less CO₂ in the blood d. less O₂ in the blood

75. Which of the following substances in tobacco smoke damage the gas exchange system?

- a. carbon monoxide and carcinogens b. carbon monoxide and nicotine
 c. carcinogens and tar d. nicotine and tar

76. Column I represents diseases and column II represents their symptoms. Choose the correctly paired option

Column I	Column II
(P) Asthma	(i) Recurring of bronchitis
(Q) Emphysema	(ii) Accumulation of W.B.C in alveolus
(R) Pneumonia	(iii) Allergy

a. P = iii, Q = ii, R = i b. P = iii, Q = i, R = ii c. P = ii, Q = iii, R = i d. P = ii, Q = i, R = iii

77. Which of the following best describes the process of gas exchange in the lungs?

- Air moves in and out of the alveoli during breathing.
- Carbon dioxide diffuses from deoxygenated blood in capillaries into the alveolar air.
- Oxygen and carbon dioxide diffuse down their concentration gradients between blood and alveolar air.
- Oxygen diffuses from alveolar air into deoxygenated blood.

78. Make the correct pairs.

Column-I	Column-II
(P) IC	i. maximum volume of air breathed in after forced inspiration.
(Q) EC	ii. Volume of air present after expiration in lungs.
(R) VC	iii. Volume of air inhaled after expiration.
(S) FRC	iv. Volume of air present after inspiration in lungs.
(a) P – i , Q – ii , R – iii , S – iv	(b) P – ii , Q – iii , R – iv , S – i
(c) P – ii , Q – iii , R – i , S – iv	(d) P – iii , Q – iv , R – i , S – ii

79. Make the correct pairs.

Column-I	Column-II
(P) Tidal volume	i. 1000 to 1100 ml
(Q) Residual volume	ii. 500 ml
(R) Expiratory reserve volume	iii. 2500 to 3000 ml
(S) Inspiratory reserve volume	iv. 1100 to 1200 ml
(a) P – ii , Q – iv , R – i , S – iii	(b) P – iii , Q – ii , R – iv , S – i
(c) P – ii , Q – iv , R – iii , S – I	(d) P – iii , Q – iv , R – i , S – ii

Ln-7

80. What is the function of lymph?

- Transport of O₂ into brain
- Transport of CO₂ into lungs
- Bring interstitial fluid in blood
- Bring RBC and WBC in lymph node

81. Which one of the following plasma proteins is involved in the coagulation of blood?

- Globulin
- Fibrinogen
- Albumin
- Serum amylase

82. Which of the following is not involved in blood clotting?

- c. The urine will be more concentrated d. The urine will be more dilute
96. What will happen if the stretch receptors of the urinary bladder wall are totally removed?
- a. Micturition will continue b. Urine will be continue to collect normally in the bladder
- c. There will be micturition d. Urine will not collection the bladder
97. The end product of Ornithine cycle is
- a. carbon dioxide b. uric acid c. urea d. ammonia
98. Identify the wrong match
- a. Bowman's capsule Glomerular filtration
- b. DCT Absorption of glucose
- c. Henle's loop Concentration of urine
- d. PCT Absorption of Na⁺ and K⁺ ions
99. Podocytes are the cells present on the
- a. Outer wall of Bowman's capsule b. Inner wall of Bowman's capsule
- c. Neck of nephron d. Wall glomerular capillaries
100. Glomerular filtrate contains
- a. Blood without blood cells and proteins b. Plasma without sugar
- c. Blood with proteins but without cells d. Blood without urea
101. Kidney stones are produced due to deposition of uric acid and
- a. silicates b. minerals c. calcium carbonate d. calcium oxalate
102. Animal requiring minimum amount of water to produce urine are
- a. ureotelic b. ammonotelic c. uricotelic d. chemotelic
103. Aldosterone acts at the distal convoluted tubule and collecting duct resulting in the absorption of water through
- a. Aquaporins b. spectrins c. GLUT d. Chloride channels
104. The hormone which helps in the reabsorption of water in kidney tubules is
- a. cholecystokinin b. angiotensin II c. antidiuretic hormone d. pancreaseozym
105. Malpighian tubules remove excretory products from
- a. mouth b. oesophagus c. haemolymph d. alimentary canal.
- LN-9
106. Muscles are derived from
- a. ectoderm b. mesoderm c. endoderm d. neuro ectoderm
107. Muscles are formed by
- a. myocytes b. leucocytes c. osteocytes d. lymphocytes
108. The muscles attached to the bones are called
- a. skeletal muscle b. cardiac muscle c. involuntary muscle d. smooth muscles
109. Skeletal muscles are attached to the bones by
- a. tendon b. ligament c. pectin d. fibrin
110. The bundle of muscle fibres is called
- a. Myofibrils b. fascicle c. sarcomere d. sarcoplasm
111. The pigment present in the muscle fibre to store oxygen is
- a. myoglobin b. troponin c. myosin d. actin
112. The functional unit of a muscle fibre is

- a. sarcomere b. sarcoplasm c. myosin d. actin
113. The protein present in the thick filament is
a. myosin b. actin c. pectin d. leucin
114. The protein present in the thin filament is
a. myosin b. actin c. pectin d. leucin
115. The region between two successive Z-discs is called a
a. sarcomere b. microtubule c. myoglobin d. actin
116. Each skeletal muscle is covered by
a. epimysium b. perimysium c. endomysium d. hypomysium
117. Knee joint is an example of
a. saddle joint b. hinge joint c. pivot joint d. gliding joint
118. Name of the joint present between the atlas and axis is
a. synovial joint b. pivot joint c. saddle joint d. hinge joint
119. ATPase enzyme needed for muscle contraction is located in
a. actinin b. troponin c. myosin d. actin
120. Synovial fluid is found in
a. Ventricles of the brain b. Spinal cord c. immovable joint d. freely movable joints.
121. Inflammation of joints due to accumulation of uric acid crystals is called as
a. Gout b. myasthenia gravis c. osteoporosis d. osteomalacia
122. Acetabulum is located in
a. collar bone b. hip bone c. shoulder bone d. thigh bone
123. Appendicular skeleton is
a. girdles and their limbs b. vertebrae c. skull and vertebral column d. ribs and sternum
124. The type of movement exhibits by the macrophages are
a. flagellar b. ciliary c. muscular d. amoeboid
125. The pointed portion of the elbow is
a. acromion process b. glenoid cavity c. olecranon process d. symphysis

Ln-10

126. Which structure in the ear converts pressure waves to action potentials?
a. Tympanic membrane b. Organ of Corti c. Oval window d. Semicircular canal
127. Which of the following pairings is correct?
a. Sensory nerve – afferent b. Motor nerve – afferent c. Sensory nerve – ventral d. Motor nerve – dorsal
128. During synaptic transmission of nerve impulse, neurotransmitter (P) is released from synaptic vesicles by the action of ions (Q). Choose the correct P and Q.
a. P = Acetylcholine, Q = Ca⁺⁺ b. P = Acetylcholine, Q = Na⁺
c. P = GABA, Q = Na⁺ d. P = Cholinesterase, Q = Ca⁺⁺
129. Examine the diagram of the two cell types A and B given below and select the correct option.



- a. Cell-A is the rod cell found evenly all over retina
b. Cell-A is the cone cell more concentrated in the fovea centralis
c. Cell-B is concerned with colour vision in bright light
d. Cell-A is sensitive to bright light intensities

130. Assertion: The imbalance in concentration of Na^+ , K^+ and proteins generates action potential.

Reason: To maintain the unequal distribution of Na^+ and K^+ , the neurons use electrical energy.

- Both Assertion and Reason are true and Reason is the correct explanation of the Assertion.
- Both Assertion and Reason are true but the Reason is not the correct explanations of Assertion.
- Assertion is true, but Reason is false.
- Both Assertion and Reason are false.

131. Which part of the human brain is concerned with the regulation of body temperature?

- Cerebellum
- Cerebrum
- Medulla oblongata
- Hypothalamus

132. The respiratory centre is present in the

- Medulla oblongata
- Hypothalamus
- Cerebellum
- Thalamus

133. Match the following human spinal nerves in column I with their respective number in column II and choose the correct option

column I	column II
P. Cervical nerves	i. 5 pairs
Q. Thoracic nerve	ii. 1 pair
R. Lumbar nerve	iii. 12 pair
S. Coccygeal nerve	iv. 8 pair

- (P-iv),(Q-iii),(R-i),(S-ii)
- (P-iii), (Q-i), (R-ii), (S-iv)
- (P-iv),(Q-i),(R-ii),(S-iii)
- (P-ii), (Q-iv), (R-i), (S-iii)

134. The abundant intracellular cation is

- H^+
- K^+
- Na^+
- Ca^{++}

135. Which of the following statements is wrong regarding conduction of nerve impulse?

- In a resting neuron, the axonal membrane is more permeable to K^+ ions and nearly impermeable to Na^+ ions.
- Fluid outside the axon has a high concentration of Na^+ ions and low concentration of K^+ , in a resting neuron.
- Ionic gradients are maintained by Na^+ K^+ pumps across the resting membrane, which transport 3Na^+ ions outwards for 2K^+ into the cell.
- A neuron is polarized only when the outer surface of the axonal membrane possess a negative a charge and its inner surface is positively charged.

136. All of the following are associated with the myeline sheath except

- Faster conduction of nerve impulses
- Nodes of Ranvier forming gaps along the axon
- Increased energy output for nerve impulse conduction
- Saltatory conduction of action potential

137. Several statements are given here in reference to cone cells which of the following option indicates all correct statements for cone cells ?

Statements

- Cone cells are less sensitive in bright light than Rod cells
- They are responsible for colour vision
- Erythropsin is a photo pigment which is sensitive to red colour light
- They are present in fovea of retina

- (iii), (ii) and (i)
- (ii), (iii) and (iv)
- (i), (iii) and (iv)
- (i), (ii) and (iv)

138. Which of the following statement concerning the somatic division of the peripheral neural system is incorrect?
- a. Its pathways innervate skeletal muscles b. Its pathways are usually voluntary
c. Some of its pathways are referred to as reflex arcs d. Its pathways always involve four neurons
139. When the potential across the axon membrane is more negative than the normal resting potential, the neuron is said to be in a state of
- a. Depolarization b. Hyperpolarization c. Repolarization d. Hypopolarization

Ln-11

140. The maintenance of constant internal environment is referred as
- a. Regulation b. homeostasis c. co-ordination d. hormonal control
141. Which of the following are exclusive endocrine glands?
- a. Thymus and testis b. adrenal and ovary c. parathyroid and adrenal d. pancreas and parathyroid
142. Which of the following hormone is not secreted under the influence of pituitary gland?
- a. thyroxine b. insulin c. oestrogen d. glucocorticoids
143. Spermatogenesis in mammalian testes is controlled by
- a. Luteinising hormone b. Follicle stimulating hormone c. FSH and prolactin d. GH and prolactin
144. Serum calcium level is regulated by
- a. Thyroxine b. FSH c. Pancreas d. Thyroid and parathyroid
145. Iodised salt is essential to prevent
- a. rickets b. scurvy c. goitre d. acromegaly
146. Which of the following gland is related with immunity?
- a. Pineal gland b. adrenal gland c. thymus d. parathyroid gland
147. Which of the following statement about sex hormones is correct?
- a. Testosterone is produced by Leydig cells under the influence of luteinizing hormone
b. Progesterone is secreted by corpus luteum and softens pelvic ligaments during child birth
c. Oestrogen is secreted by both sertoli cells and corpus luteum
d. Progesterone produced by corpus luteum is biologically different from the one produced by placenta.
148. Hypersecretion of GH in children leads to
- a. Cretinism b. Gigantism c. Graves disease d. Tetany
149. A pregnant female delivers a baby who suffers from stunted growth, mental retardation, low intelligence quotient and abnormal skin. This is the result of
- a. Low secretion of growth hormone b. Cancer of the thyroid gland
c. Over secretion of pars distalis d. Deficiency of iodine in diet.
150. The structure which connects the hypothalamus with anterior lobe of pituitary gland is the
- a. Dendrites of neuro hypophysis b. Axons of neurohypophysis
c. Bands of white fibers from cerebellar region d. Hypophysial portal system
151. Which one of the following statement is correct
- a. Calcitonin and thymosin are thyroid hormones b. Pepsin and prolactin are secreted in stomach
c. Secretin and rhodopsin are polypeptide hormones d. Cortisol and aldosterone are steroid hormones
152. which of the given option shows all wrong statements for thyroid gland

Statements

- (i) It inhibits process of RBC formation (ii) It helps in maintenance of water and electrolytes
(iii) Its more secretion can reduce blood pressure (iv) It Stimulates osteoblast
- (a) (i) and (ii) (b) (iii) and (iv) (c) (i) and (iv) (d) (i) and (iii)

LN-12

153. Which one of the following is not related to vermiculture?

