

Anekant Education Society's
Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati
Post Graduate Department of Zoology
M.Sc. I Zoology SEM-II: (Autonomous) 2019-20

Question bank for ZOO: 4203 (T) Comparative Animal Physiology&Endocrinology (4C)

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Define and explain

1. Enlist any Four hypothalamic hypophysiotropins
2. What is chemical messenger?
3. Enlist gastrointestinal hormone
4. What is the role of ADH.
5. What is signal transduction?
6. Enlist adenohypophysial hormones
7. Enlist hormones involved in calcium and phosphate metabolism
8. What is the role of PRL
9. Enumerate role of adrenal cortex as endocrine organ
10. Give the role of Estrogen hormone
11. What are mineralocorticoids?
12. Enlist pancreatic hormones
13. Give the role of pancreatic hormones
14. Explain the role of ACTH
15. Give the names of hormones related to insect larval development and metamorphosis
16. Define: Osmolarity
17. Enlist the hormones of adenohypophysis.
18. Define- GFR
19. Define physiology of excretion.
20. Give the significance of gastric digestion
21. Enlist any three sensory organs.
22. Enlist the hormones of adenohypophysis.
23. What is Sarcomere?
24. Role of Ca^{++} in muscle Contraction.
25. Enlist Respiratory Pigments.

Short Answer Questions

1. Write a detailed account on the role of pancreas in digestion.
2. Describe the ultrastructure of skeletal muscle.
3. Describe the physiology of hibernating animals.
4. Explain the regulation of cellular osmolarity & volume.
5. Write note on gastrointestinal hormones.
6. Describe renal pressure system
7. Describe chemical events during neuromuscular transmission
8. Difference between tolerance and resistance
9. Write a note on metabolic rate.
10. Give the role of haemoglobin
11. IP₃ acts as a Secondary messenger.
12. Give the role of mineralocorticoids, aldosterone
13. Explain the role of pituitary in regulating control of chromatophores.
14. Describe hypothalamo-hypophysiotropine
15. How do pancreatic islets regulate metabolism in vertebrate.
16. Write a note on digestion.
17. Effect of high temperature on poikilotherms.
18. Give the detailed structure of mammalian kidney.
19. Explain action of steroid hormones
20. Explain the role of pituitary hormones

Short notes

1. How does adrenal cortex act as an endocrine organ?
2. How is calcium and phosphate metabolism control achieved
3. Explain hormonal role in vitellogenesis of amphibians
4. Write a note on hypothalamic hypophysiotropins
5. What is the role of osmoregulatory hormone?
6. Explain hormonal regulation of protein and lipid metabolism.
7. Give the role of hormones in insect metamorphosis.
8. Describe cAMP as a secondary messenger.
9. Explain role of hormones in regulating reproduction in mollusks and echinoderms.
10. Write a note on insect metamorphosis with respect to hormonal regulation.
11. Explain the role of ACTH and STH
12. Describe hormonal regulation of yolk synthesis.
13. Describe endocrine mechanism in crustacean moulting.
14. Role of actin and myosin in muscle contraction.
15. Role of gas floats in buoyancy.
16. Write a note on Sensory organs.

17. Write note on the biokinetic zones.
18. Write note on Cardiac output.
19. Write note on Sarcoplasmic Reticulum and role of Ca^{++} in contraction.
20. Mechanism of thermoregulation in homeotherms.

Long answer questions

1. Describe mechanism of hormone action.
2. Explain hormone receptors on the plasma membrane.
3. Describe renin-angiotensin system.
4. Role of X and Y organs in regulation of metabolism, salt and water balance.
5. Describe second messenger system.
6. What are hormones? Explain different types of hormones with receptors.
7. Describe Role of JG complex in osmoregulation.
8. Explain hormonal regulation of carbohydrate metabolism.
9. Explain hormone receptors in cytoplasm and nucleus
10. Explain the calcium and phosphate metabolism.
11. Write an essay on the structural and functional properties of Hb and its role in gas transport.
12. Define reflexes and explain the principle of neural integration.
13. Explain the relation between metabolic rate and body size of birds and mammals.
14. Explain the regulatory mechanism to achieve homeostasis.
15. Describe the electron microscopic structure of skeleton muscle
16. Discuss various physiological strategies used to cope up with effect of high altitude.
17. What is resting potential? Add a note on Goldman-HodkinKatz potential.
18. Explain the structure of luminescent organs.
19. What are sense organs. Add note on photoreception.
20. Difference between tolerance and resistance.

Multiple Choice Questions

1. Which of the major portion of the brain involved in neuroendocrine bioregulation
 a) Adenohypophysis b) Neurohypophysis c) Kidney d) Hypothalamus
2. Vasopressin is secreted by which of the following
 a) Adrenal gland b) Anterior pituitary c) Posterior pituitary d) Hypothalamus
3. Inhibin blocks the release of....
 a) TRH b) STH c) ACTH d) FSH
4.is the region in which **chromaffin cells** are Located
 a) Adrenal cortex b) Adrenal Medulla c) pineal gland d) Muscle
5.is the organ in which Angiotensin-converting enzyme (ACE) is synthesized

- a) Heart b) Liver c) Lung d) Nephron
6. Synthesis of milk is carried out by....
 a) LH b) PRL c) FSH d) Oxytocin
7. Which of the following Hormone which decreases food intake
 a) CCK8 (Cholecystokinin) b) Leptin c) Somatostatin d) Gastrin
8. Which of the following is NOT Inhibitory neurotransmitter
 a) Glutamate b) GABA c) Glycine d) Taurine
9. Insulin can bind on.....
 a) GPCR b) RTK c) NRTK d) Patch receptor
10. PTH is secreted by.....
 a) Thyroid gland b) Adrenal gland c) Parathyroid gland d) Hypothalamus
- 11 Most of the fat digestion occur in
 a. Rectum c. Small intestine
 b. Duodenum d. Large intestine
12. Which of the following is the contractile protein of a muscle?
 a. tubulin c. troponin
 b. myosin d. all of above
13. Which of the following is component of actin filament of sarcomere?
 a. myosin and troponin c. actin and myosin
 b. troponin and actin d. troponin, tropomyosin and actin
14. Upon stimulation of skeletal muscle calcium is immediately made available for binding to troponin from –
 a. blood c. lymph
 b. sarcoplasmic reticulum d. bone
15. uric acid is chief nitrogen waste in
 a. frog c. fishes
 b. birds d. man
16. Freshwater bony fishes maintain water balance by
 a. excreting hypotonic urine c. excreting salt across their gills
 b. drinking small unit of water d. excreting waste in form of uric acid

17. Which one of the following characteristic is common both in human and adult frogs?

- a. four chambered heart
- b. internal fertilization
- c. nucleated RBC
- d. ureotelic mode of nutrition

18. Anaerobic respiration in mammals' produces

- a. CO₂
- b. lactic acid and H₂O
- c. Glucose and O₂
- d. C₂H₅OH and CO₂

19. During hibernation frog respire by

- a. only skin
- b. only lungs
- c. both a and b
- d. none of these

20. Open vascular system found in

- a. man
- b. fish
- c. prawns
- d. snakes