

CHEMICAL CONTROL & COORDINATION

1. Gull's diseases is caused due to deficiency of
(A) Calcitonin (B) Thyroxine
(C) Vasopressin (D) Glucagon
2. Function of thymosin hormone is to promote
(A) Growth of primary lymphoid organs
(B) Growth of bones and muscles
(C) Proliferation and maturation of T-lymphocytes
(D) Growth of secondary sex organs
3. Prolonged hyperglycemia leads to a complex disorder called diabetes mellitus which is associated with
(A) Glucosuria (B) Ketoacidosis
(C) Both (A) & (B) (D) Renal calculi
4. Which of the following hormones will interact with intracellular receptors and mostly regulate gene expression or chromosome function by the interaction of hormone receptor complex with the genome?
a. Hypothalamic hormones b. Cortisol
c. Iodothyronines d. Epinephrine
(A) a & c (B) a & b
(C) b & c (D) b, c & d

5. Match the hormones given in column I with their functions in column II

Column I Column II

a. Adrenaline (i) Child birth

b. Aldosterone (ii) Accelerates heart beat

c. Oxytocin (A)(iii) Saltwater balance

b(iii), c(i) (C) a(i), (B) a(iii), b(ii), c(i)

b(ii), c(iii) (D) a(ii), b(i), c(iii)

6. Tetany, that is rapid spasms in muscles due to low Ca^{++} in body fluid is caused due to deficiency of

(A) Thyroxine

(B) Parathormone

(C) Cortisol

(D) Aldosterone

7. Hyperactivity of thyroid gland leads to

(A) Cretinism

(B) Grave's disease

(C) Cushing syndrome

(D) Myxoedema

8. Which gland undergoes atrophy in response to adrenal glucocorticoids?

(A) Pineal gland

(B) Thymus gland

(C) Thyroid gland

(D) Pituitary gland

9. Placenta acts as an endocrine tissue and produces following hormones except

(A) Oxytocin

(B) Estrogen

(C) Progesterone

(D) HCG

10. Match Column I with Column II

Column I	Column II
a. Acromegaly	(i) Insulin
b. Diabetes mellitus	(ii) ADH
c. Diabetes insipidus	(iii) Growth hormone
d. Grave's disease	(iv) Thyroxine

(A) a(ii), b(i), c(iii), d(iv)
(B) a(iii), b(i), c(ii), d(iv)
(C) a(iv), b(iii), c(i), d(ii)
(D) a(iii), b(iv), c(ii), d(i)

11. Match the column I and column II

Column I	Column II
Sex pheromones	Example
a. Bombykol	(i) Musk deer
b. Queen substance	(ii) Cat
c. Civetone	(iii) Honey bee
d. Muskone	(iv) Silk moth

(A) a(iv), b(iii), c(ii), d(i)
(B) a(i), b(ii), c(iii), d(iv)
(C) a(iv), b(iii), c(i), d(ii)
(D) a(iv), b(ii), c(iii), d(i)

12. Which of the following hormones stimulates erythropoiesis?

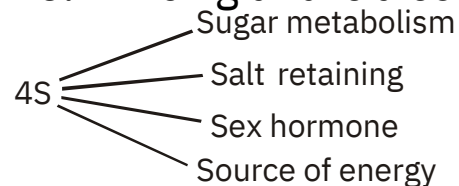
a. Erythropoietin	b. Cortisol
c. Testosterone	d. Thyroxine

(A) a only
(B) a & b
(C) a, b & c
(D) a, b, c & d

13. Failure of testosterone secretion in male causes
 (A) Aldosteronism (B) Eunuchoidism
 (C) Castration (D) Adrenal virilism
14. The hormone/s which interact with a surface receptor, usually a glycoprotein and thus initiates a chain of events within it is/are
 (A) Catecholamines (B) Peptide hormones
 (C) Protein hormones (D) All of these

15. Correctly matched pair w.r.t. hormone and its deficiency disorder is
 (A) Somatotropin – Goitre
 (B) Insulin – Diabetes insipidus
 (C) PTH – Tetany
 (D) Prolactin – Cretinism

16. Which gland is also known as 4S gland?



- (A) Thyroid gland (B) Adrenal gland
 (C) Pituitary gland (D) Pancreas

17. Oxytocin and vasopressin are transported
 (A) From hypothalamus to adenohypophysis through blood.
 (B) From hypothalamus to neurohypophysis through blood.
 (C) From hypothalamus to adenohypophysis through axon.
 (D) From hypothalamus to neurohypophysis through axon.

18. Which of the following is used to suppress the immune response?
- (A) Epinephrine and nor-epinephrine
 - (B) Mineralocorticoids
 - (C) Glucocorticoids
 - (D) Insulin and glucagon
19. Vasopressin hormone causes
- (A) Increase synthesis of milk
 - (B) Concentration of urine
 - (C) Dilution of urine
 - (D) Decrease blood pressure
20. What represent a link between the nervous and endocrine systems?
- (A) Cerebellum
 - (B) Medulla oblongata
 - (C) Pons
 - (D) Hypothalamus
21. A deficiency of calcium in the diet would lead to
- (A) An increase in calcitonin secretion.
 - (B) An increase in parathyroid hormone in blood.
 - (C) An increase in level of somatomedins in blood.
 - (D) Increased secretion of growth hormone.
22. In a second-messenger system, which of the following is not accurate?
- (A) The activating hormone interacts with a receptors site on the plasma membrane.
 - (B) Binding of the hormone activates an enzyme, often adenylate cyclase.

- (C) Activated adenylate cyclase catalyzes the transformation of AMP to cyclic AMP.
- (D) Cyclic AMP acts within the cell to alter cell function as a characteristics for that specific hormone.

23. The release of which of the following hormones will not be stimulated via the hypothalamic-hypophyseal tract?

- (A) ACTH
- (B) ADH
- (C) TSH
- (D) GH

24. Which of the following is not an accurate statement about hormones?

- (A) Not all hormones are transported by blood.
- (B) Most hormones move through the circulatory system to their destination.
- (C) Target cells have specific protein receptors for hormones.
- (D) Steroid hormones often function as neurotransmitters.

25. The best description of the difference between pheromones and hormones is that

- (A) Pheromones are small, volatile molecules, whereas hormones are steroids.
- (B) Pheromones are involved in reproduction, whereas hormones are not.
- (C) Pheromones are a form of neural communication; hormones are a form of chemical communication.
- (D) Pheromones are signals that function between animals, whereas hormones communicate among the parts within an animal.

26. Which one of the following hormones is incorrectly paired with its origin?

- (A) Releasing hormones : Hypothalamus
- (B) Growth hormone : Anterior pituitary
- (C) Progestins : Ovary
- (D) TSH : Thyroid

27. Which of the following is an example of a positive feedback mechanism?

- (A) The liver's production of insulin-like growth factors in response to growth hormone, which promotes skeletal growth.
- (B) The ability of the neurotransmitter acetylcholine to cause skeletal muscle to contract, heart muscle to relax, and cells of the adrenal medulla to secrete epinephrine.
- (C) Prostaglandins released from placental cells promoting muscle contraction during child-birth, with muscle contractions stimulating more prostaglandin release.
- (D) Elevated levels of stress resulting in neural stimulation of the adrenal medulla and hormonal stimulation of the adrenal cortex.

28. Antidiuretic hormone (ADH)

- (A) Is produced by cells in the kidney and liver in response to low blood volume or pressure.
- (B) Stimulates the reabsorption of Na^+ from the urine.
- (C) Is released from the posterior pituitary and increases the permeability of kidney collecting tubules to water.
- (D) Is part of the RAAS that regulates salt and water balance.

29. The anterior pituitary
- (A) Stores oxytocin and ADH produced by the hypothalamus.
 - (B) Receives releasing and inhibiting hormones from the hypothalamus through portal vessels connecting capillary beds.
 - (C) Produces several releasing and inhibiting hormones.
 - (D) Is responsible for nervous and hormonal stimulation of the adrenal glands.
30. Which of the following hormones is not involved with increasing the blood glucose concentration?
- (A) Glucagon
 - (B) Epinephrine
 - (C) Glucocorticoids
 - (D) Insulin
31. Which of the following is not true of norepinephrine?
- (A) It is secreted by the adrenal medulla.
 - (B) It maintains blood pressure and along with epinephrine, it increases the rate and volume of heartbeat and constricts selected blood vessels.
 - (C) Its release is stimulated by ACTH.
 - (D) It serves as a neurotransmitter in the nervous system.
32. A lack of iodine in the diet can lead to formation of a goiter because
- (A) Excess thyroxine production causes the thyroid gland to enlarge.
 - (B) With limited iodine available, triiodothyronine (T3) rather than thyroxine (T4) is produced.

(C) Iodine is a key ingredient of the growth hormones that control growth of the thyroid.

(D) Little thyroxine is produced, TRH and TSH production is not inhibited, and thyroid stimulation continues.

33. A tropic hormone is a hormone

(A) Whose target tissue is another endocrine gland

(B) That is produced by the hypothalamus but stored and released from the posterior pituitary.

(C) That acts by negative feedback to regulate its own level in the body.

(D) From the hypothalamus that regulates the synthesis and secretion of hormones of the posterior pituitary.

34. What is the best description of the mechanism of action of

steroid hormones?

(A) Transported by neurosecretory cells directly to target tissues.

(B) Form a hormone-receptor complex inside the cell that regulates gene expression.

(C) Amplified response using second messengers.

(D) Bind to membrane-bound receptors and initiate a signal-transduction pathway.

35. Which one of the following pairs of organs includes only the exclusively endocrine glands?

(A) Adrenal and Ovary

(B) Parathyroid and Adrenal

(C) Pancreas and Parathyroid

(D) Thymus and Testes

36. Which of the following hormones is a steroid?
 (A) Aldosterone (B) Epinephrine
 (C) Thymosin (D) Thyroxine

37. ICSH in a male mammal acts on
 (A) Spermatogonia (B) Sertoli cells
 (C) Leydig cells (D) Corpus luteum

38. Match List I with List II and select the correct answer using the codes given below the lists:

List I	List II
A. Dehydration	1. Aldosterone
B. Antidiuretic	2. Osmoreceptor
C. Reabsorption of Na in the kidney	3. Blood hyperosmotic urine
D. Water diuresis	4. Vasopressin
	5. Blood hyposmotic urine

	A	B	C	D
(A)	4	1	2	3
(B)	3	4	5	1
(C)	4	1	2	5
(D)	3	4	1	5

39. Water diuresis is commonly seen in patients suffering from
 (A) Eunuchoidism (B) Cushing syndrome
 (C) Addison's disease (D) Diabetes insipidus

40. The modern idea about ageing is that our body slowly loses the power of defence against the invasion of germs and pathogens. This process starts by the disappearance of which organ
- (A) Spleen (B) Thymus gland
(C) Pituitary gland (D) Parathyroid gland
41. Pyloric extract contains the hormone:
- (A) Gastrin (B) Secretin
(C) Pancreozymin (D) Cholecystokinin
42. The body is able to maintain a relatively constant level of thyroxine in the blood because
- (A) Thyroxine stimulates the pituitary to secrete thyroid stimulating hormone (TSH).
(B) Thyroxine inhibits the secretion of TSH-releasing hormone (TRH) from the hypothalamus.
(C) TRH inhibits the secretion of thyroxine by the thyroid gland.
(D) Thyroxine stimulates the hypothalamus to secrete TRH.
43. A typical animal hormone has different action on different tissue because
- (A) The various target cells have different genes.
(B) Hormones are directed to specific target by the circulatory system.
(C) The receptors on different target cells are linked to different cell mechanism.
(D) Different response is connected to a different receptor for the same hormone.

44. Which of the following statement is correct w.r.t. ANF (Atrial Natriuretic Factor)?
- (A) It is secreted by juxtaglomerular cells of the kidney
 - (B) It is promoting the synthesis of renin
 - (C) It is secreted by the walls of atria
 - (D) It directly promotes the secretion of aldosterone
45. Which of the following is not a derivative of tyrosine in vertebrates?
- (A) Melanin
 - (B) Thyroxine
 - (C) Insulin
 - (D) Adrenaline

ANSWER KEY

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|-----------|------------------------------|---------|
| 1. (B) 5. | 2. (C) 6. (C) 7. (B) 11. (A) | 4. (C) |
| (A) 9. | (B) 15. (C) 19. (B) 23. | 8. (B) |
| (A) 13. | (B) 24. 27. (C) 31. (C) | 12. (D) |
| (B) 17. | (D) 35. (B) 39. (D) 43. | 16. (B) |
| (D) 21. | (C) 22. | 20. (D) |
| (B) 25. | (C) 26. | 24. (D) |
| (D) 29. | (D) 30. | 28. (C) |
| (B) 33. | (D) 34. | 32. (D) |
| (A) 37. | (B) 38. | 36. (A) |
| (B) 41. | (B) 42. | 40. (B) |
| (A) 45. | (B) | 44. (C) |
| (C) | | |

SOLUTIONS

1. Gull's disease or myxedema is characterised by puffy appearance of face and lack of alertness.
2. Thymosin hormone is secreted from thymus gland.
3. In diabetes mellitus, due to non utilization of glucose as cellular fuel, more fats are metabolised resulting in dramatically increase level of fatty acid metabolites known as ketone bodies which decreases pH of blood, that's why ketoacidosis. Glycosuria means loss of glucose in urine.
4. Steroid and thyroid hormones are lipid soluble. They directly enter in cell and bind with intracellular receptors. Cortisol and iodothyronines are lipid soluble.
6. Tetany is caused due to deficiency of parathormone. It is characterised by sustained contractions of muscles of larynx, face, hands and feet.

7. Cretinism and myxoedema are due to hypothyroidism while Cushing syndrome is due to hypersecretion of glucocorticoids.
9. Oxytocin is synthesized in hypothalamus and released from posterior lobe of pituitary.
12. All hormones stimulate erythropoiesis.