

Chemical Coordination and Integration

- Assertion (A):** Posterior lobe of pituitary gland secretes ADH and oxytocin.
Reason (R): ADH and oxytocin are formed in hypothalamus also called neurohormones.

 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- Assertion (A):** Parathormone & thyrocalcitonin are antagonist to each other.
Reason (R): Parathormone maintains Ca^{+2} concentration in blood and it's receptors are present in osteoclast cells.

 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- Assertion (A):** Thymus gland has important role in both CMI & AMI (Immunity).
Reason (R): Thymus gland maintains BMR & growth of body.

 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- Assertion (A):** MSH & Melatonin are antagonistic hormones.
Reason (R): MSH help in the wide distribution of melanin in melanocytes while melatonin collects the melanin at one place in melanocyte.

 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- Assertion (A):** Adrenal gland have dual origin.
Reason (R): The adrenal cortex develop from endoderm while adrenal medulla develop from mesoderm.

 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- Assertion (A):** Pineal gland is found on the epithalamus of Diencephalon.
Reason (R): It is a type of exocrine gland which is active in later age of life.

 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- Assertion (A):** Pancreas is a heterocrine gland.
Reason (R): Pancreas secretes both protein & steroid hormones.

 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- Assertion (A):** Two pituitary hormones of the mother take part in feeding the infant on milk
Reason (R): Prolactin from anterior pituitary stimulates mammary glands for the formation of milk, and oxytocin from the posterior pituitary cause the release of milk when the infant sucks breast.

 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false



9. **Assertion (A):** Vasopressin is also called as antidiuretic hormone

Reason (R): Vasopressin reduces the loss of water in the urine by increasing water reabsorption in the nephrons.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

10. **Assertion (A):** Cortisol therapy is useful in organ transplantation

Reason (R): Cortisol act as immunosuppressant

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

11. **Assertion (A):** Catecholamines (adrenaline) are emergency hormones.

Reason (R): Catecholamines are released from adrenal cortex

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

12. **Assertion (A):** Thyrocalcitonin & Parathormone have antagonistic effect on blood calcium level.

Reason (R): Thyrocalcitonin lower the blood calcium level and parathormone raises the blood calcium level by removal of calcium from bone and reabsorption of calcium from nephrons.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

13. **Assertion (A):** Adrenal cortex can be removed without causing death.

Reason (R): Adrenal cortex is not vital for survival.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

14. **Assertion (A):** ADH is secreted by hypothalamus.

Reason (R): Changes in osmotic pressure are noted by osmoreceptors present in the hypothalamus.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

15. **Assertion (A):** FSH is also known as interstitial cell stimulating hormone.

Reason (R): It is because of the fact that FSH stimulates the interstitial cells of testis.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

16. **Assertion (A):** Thymus undergoes no change even in old age.

Reason (R): Thymus being a part of body's immune system, tends to persist throughout life

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false



17. **Assertion (A):** Aldosterone is a steroid hormone and is important in the control of sodium and potassium ion concentration in mammals.
Reason (R): Aldosterone upgrades sodium ion concentration in the ECF by promoting reabsorption of sodium ions from renal tubules and excretion of potassium ions in urine.
- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false

18. **Assertion (A):** PTH is a hypercalcemic hormone which increases blood Ca^{++} levels.
Reason (R): PTH acts on bones and stimulates reabsorption of bone demineralisation. PTH also stimulate reabsorption of Ca^{++} by renal tubules.
- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false



Directions: In the following questions, a statement of assertion is followed by a statement of reason.

Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

19. **Assertion:** Neurohypophysis is under the direct regulation of the hypothalamus.

Reason: Neurohypophysis stores and releases two hormones called oxytocin and vasopressin which are actually synthesized by the hypothalamus.

20. **Assertion:** Failure of secretion of hormone vasopressin causes diabetes mellitus in the patient.

Reason: Vasopressin increases the volume of urine by increasing the reabsorption of water from the urine.

21. **Assertion :** The person with diabetes insipidus feels thirsty.

Reason : A person with diabetes insipidus suffers from excess secretion of vasopressin.

22. **Assertion:** Oxytocin is also known as Anti Diuretic hormone (ADH).

Reason: It can cause an increase in the renal reabsorption of water.

23. **Assertion:** Hormone calcitonin has antagonistic effect to that of parathormone.

Reason : Calcitonin decreases blood calcium level while parathormone increases blood calcium level.

24. **Assertion:** PTH is a hypercalcemic hormone.

Reason: It stimulates the process of bone resorption.

25. **Assertion:** Adrenal medulla is called the gland for 'fight, fright and flight'.

Reason: The hormones adrenaline and noradrenaline help the body to combat against stress and emergency conditions.

26. **Assertion :** Our body secretes adrenaline in intense cold.

Reason : Adrenaline raises metabolic rate.

27. **Assertion :** Mammary glands are apocrine glands.

Reason : The distal part containing secretory granules break down and leaves as a secretion.

28. **Assertion:** Oxytocin is called as 'milk-ejection hormone'.

Reason: Oxytocin acts on the smooth muscles of our body and stimulates their contraction.

29. **Assertion:** Prolactin is also called the 'milk ejection hormone'.

Reason: It stimulates the smooth muscle contractions of the mammary glands.

30. **Assertion:** Adrenal cortex is not vital for survival and may be removed without subsequently leading to death.

Reason: It secretes a number of steroid hormones which have only cumulative effects on the hormones of other glands.

31. **Assertion:** Insulin is an anabolic hormone.

Reason: A fall in blood amino-acids also increases insulin secretion.

32. **Assertion:** A tumor of adrenal cortex may cause Addison's disease.

Reason: This happens due to over secretion of cortisol by the tumor.

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Ans.	2	2	3	1	3	3	3	1	1	1	3	1	4	2	4	4	1	1

19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.			
C	D	C	D	A	A	A	A	A	B	D	D	C	d			