

**Topic :- Chemical Coordination & Integration**

- 1 **(a)**  
*Functions of Parathyroid Hormone (PTH) are*  
(i) Regulate calcium and phosphate level in blood  
(ii) Increase rate of calcium absorption from intestine in children to elevate blood level of calcium  
(iii) Start bone dissolution (osteoclastic action) and stimulates excretion of calcium in blood  
(iv) It affects the growth of bones, membrane permeability, nerve functioning and muscular activity of body
- 2 **(d)**  
The thyroid gland is composed of two lobes, which are located on either side of trachea. Both the lobes are interconnected with a thin flap of connective tissue called isthmus
- 3 **(c)**  
A bull is docile because of lower levels of blood testosterone
- 4 **(d)**  
Antidiuretic hormone is also called vasopressin
- 5 **(d)**  
*Four major hormones of GI tract are*  
(i) **Gastrin** Acts on gastric gland and stimulates the secretion of HCl and pepsinogen  
(ii) **Secretin** Acts on exocrine pancreas and stimulates secretion of water and bicarbonate ions  
(iii) **CCK** (Cholecystokinin) Acts on both pancreas and gall bladder and stimulates the secretion of pancreatic enzyme and bile juice  
(iv) **GIP** (Gastric Inhibitory Peptide) Inhibits gastric secretion and mortality
- 6 **(b)**  
**Liver** is endodermal in origin and is the largest gland in human body. It is the busiest and largest chemical factory in the body.
- 7 **(b)**  
The hormones of pituitary (posterior part) are synthesised in the hypothalamus; packaged in secretory granules and are transported down the axons to be stored for release by posterior lobe. The posterior pituitary is under the direct neural regulation of the hypothalamus
- 8 **(b)**

Pars intermedia is almost merged with the pars distalis commonly called anterior lobe of pituitary

9 **(a)**

Hyposecretion of parathormone from parathyroid gland leads to tetany disorder. It causes the lowering of blood calcium level. Insulin deficiency leads to disease diabetes mellitus (hypoglycemia). Hypersecretion of growth hormone results of gigantism in children. Relaxin deficiency prevents the process of parturition. Low secretion of thyroid hormone results of cretinism in infants and children. Deficiency of prolactin hinders the development of mammary glands and secretion of lactin.

10 **(d)**

The neurosecretory cells of hypothalamus secrete hormones called releasing factors. These are adrenocorticotrophic Releasing hormone, TRH, SRH, GTH, GRH etc.

11 **(b)**

**Thymus** is prominent gland at the time of birth but it gradually atrophies in adult. It is a soft pinkish bilobed mass of lymphoid tissue.

12 **(b)**

**Endocrine glands** are also called holocrine glands or ductless gland. *e.g.*, thyroid, parathyroid, adrenals pituitary, etc.

Invertebrate possess very simple endocrine systems with few hormones, whereas a large number of chemicals act as hormones and provide coordination in the vertebrates

13 **(a)**

*Characters of prostaglandins are*

(i) Prostaglandins are fatty acid derivatives

(ii) They are secreted by many organs (kidney, gonads, seminal vesicle, thymus, etc.) into their tissue

(iii) It was first reported in semen of man and produced by prostate gland

(iv) It controls either contraction/relaxation of smooth muscle or dilation **contraction of blood capillaries**

14 **(c)**

Almost all secretion by the pituitary gland are controlled by hormonal signal from hypothalamus. The neurohormones are secreted and accumulated by hypothalamus.

15 **(a)**

Erythropoietin or EPO, is a glycoprotein hormone that controls erythropoiesis or red blood cell production. It is a cytokine (protein signaling molecule) for erythrocyte (red blood cell) precursors in the bone marrow. Human EO has a molecular weight of 34 kDa.

When exogenous EPO is used as a performance-enhancing drug, it is classified as an erythropoiesis-stimulating agent (ESA). Exogenous EPO can often be detected in blood, due to slight differences from the endogenous protein

16 **(b)**

A-androgenic, B-adrenal

17 **(b)**

Vasopressin or pitressin or antidiuretic hormone (ADH) is secreted from neurohypophysis of pituitary gland. Hyposecretion of this hormone causes diabetes insipidus. Addison's

disease is a condition of chronic adrenal cortex insufficiency caused due to hyposecretion of all adrenal cortex hormones. Deficiency disorder of parathormone, secreted by parathyroid glands, is tetany and deficiency of calcitonin, secreted from thyroid gland results in disturbance of calcium level.

18 **(b)**

Neurohypophysis (pars nervosa) also known as posterior lobe of pituitary, stores and releases two hormones called oxytocin and vasopressin. Which are actually synthesised by hypothalamus and are transported axonally to neurohypophysis

19 **(c)**

The corticoids which are involved in carbohydrate metabolism are called glucocorticoids. In our body, cortisol is the main glucocorticoids.

Glucocorticoids stimulate, gluconeogenesis lipolysis and proteolysis. So, they are involved in carbohydrate, fat and protein metabolism

20 **(d)**

Both (a) and (c).

Hormones produce their effects on target tissue by binding to specific proteins called hormone receptors which are located in the target tissue only. Hormone receptors present on the cell membrane of the target cells are called membrane bound receptors and receptors present inside the target cell are called intracellular receptors. Intracellular receptors are mostly nuclear receptors (present in the nucleus)

ANSWER-KEY										
<b>Q.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>A.</b>	<b>A</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>D</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>A</b>	<b>D</b>
<b>Q.</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
<b>A.</b>	<b>B</b>	<b>B</b>	<b>A</b>	<b>C</b>	<b>A</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>D</b>