10th Science Lesson 16 Questions in English

16] Plant And Animal Hormones

1. What does the word 'Hormone'?

a) Message
b) Messenger
c) To excite
d) To react

Explanation

The word hormone is derived from the Greek word "hormon" meaning "to excite". Both Plants and animals have hormone.

2. Which of the following statement is correct?

1) The function of control and coordination in plants is performed by chemical substances produced by the plants called plant hormones.
2) In plants several cells are capable of producing hormones
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

The function of control and coordination in plants is performed by chemical substances produced by the plants called **plant hormones**. In plants **several cells are capable of producing hormones**. The **phytohormones** are transported to different parts of the plants to perform various physiological functions.

3. ____ acts through chemical messengers, which are produced by specialized glands

a) Endocrine
b) Exocrine
c) Both a and b
d) None

Explanation

Endocrine glands in vertebrate animals possess a diversified communication system to co-ordinate physiological and metabolic functions by chemical integration. The endocrine system acts through **chemical messengers** known as **hormones** which are **produced by specialized glands**.

4. Which of the following process are controlled by hormones?

1) Digestion
2) Metabolism
3) Growth
4) Reproduction
    a) 1, 2, 4
    b) 2, 3, 4
    c) 1, 2, 3
    d) All the above

Explanation

Physiological processes such as **digestion, metabolism, growth, development and reproduction** are controlled by hormones.

5. Which of the following responses in plants are controlled by plant hormones?

1) Morphology
2) Physiology
3) Biochemical response
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Plant hormones are organic molecules that are produced at extremely low concentration in plants. These molecules control **morphological, physiological and biochemical responses**.

6. How many major classes of plant hormones are there?

a) 5
b) 6
c) 3
d) 9

Explanation

There are **five major classes of plant hormones**. They are:

- Auxins
- Cytokinin
- Gibberellins
- Abscisic Acid (ABA)

- Ethylene

7. Which of the following plant hormone inhibit plant growth?

1) Auxins
2) Abscisic acid
3) Ethylene
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Among all these plant hormones auxins, cytokinin and gibberellins promote plant growth while **abscisic acid and ethylene inhibit plant growth**.

8. Which of the following was the 1st plant hormone to be discovered?

a) Auxin
b) Ethylene
c) Cytokinin
d) Abscisic acid

Explanation

Auxins (Gk. auxein = to grow) were the **first plant hormones discovered**. The term auxin was introduced by Kogl and HaagenSmith (1931).

9. Where does the Auxin are produced?

1) Petals
2) Tip of root
3) Tip of stem
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Auxins are produced at the **tip of stems and at the tip of roots** from where they migrate to the zone of elongation.

10. Who concluded that some 'influence' was transmitted from tip of the coleoptile to basal region?

a) Darwin

b) Einstein
c) Went
d) Mendel

Explanation

Charles Darwin (1880), observed unilateral growth and curvature of canary grass (Phalaris canariensis) coleoptiles. He **came to the conclusion that some 'influence' was transmitted from the tip of the coleoptile to the basal region**. This 'influence' was later identified as Auxin by Went.

11. Who demonstrated the effect of auxin in plants?

a) Darwin
b) Einstein
c) Went
d) Mendel

Explanation

Frits Warmolt Went (1903– 990), a Dutch biologist **demonstrated the existence and effect of auxin in plants**. He did a series of experiments in Avena coleoptiles.

12. What does the term "Auxin" mean?

a) To grow
b) To move
c) To elongate
d) To reach

Explanation

From his experiments Went concluded that a chemical diffusing from the tip of coleoptiles was responsible for growth, and he named it as "**Auxin" meaning 'to grow".**

13. How many types of Auxins are there?

a) 2
b) 5
c) 4
d) 3

Explanation

Types of Auxins: Auxin is a growth hormone. **Auxins are classified into two types**, namely **natural auxins and synthetic auxins**.

14. Which of the following statement is correct?

1) Auxins produced by the plants are called natural auxins
2) 2, 4 D (2,4 Di-chloro-phenoxy Acetic Acid) is natural auxins
    a) **1 alone**
    b) 2 alone
    c) 1, 2
    d) None

Explanation

Natural Auxins: Auxins produced by the plants are called natural auxins. Example: **IAA (Indole – 3 - Acetic Acid)**

Synthetic Auxins: Artificially synthesized auxins that have properties like auxins are called as synthetic auxins. Example: **2, 4 D (2,4 Dichlorophenoxy Acetic Acid).**

15. Which of the following are the effects produced by Auxin?

1) Formation of seed
2) Elongation of stems
3) Apical dominance
4) Formation of abscission layer
    a) 1, 2, 3
    b) 1, 3, 4
    c) 2, 3, 4
    d) All the above

Explanation

Auxins bring about a variety of physiological effects in different parts of the plant body. Auxins promote the **elongation of stems and coleoptile**s which makes them to grow. Auxins induce root formation at low concentration and inhibit it at higher concentration. The auxins produced by the apical buds suppress growth of lateral buds. This is called apical dominance. Auxins **prevent the formation of abscission layer**.

16. Which of the following fruit cannot be produced by Parthenocarpy method?

1) Watermelon
2) Lime
3) Grapes
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Seedless fruits without fertilization are induced by the external application of auxins. (Parthenocarpy). Examples: **Watermelon, Grapes, Lime** etc.

17. Which of the following are synthetic acetic acid?

1) Phenyl Acetic Acid
2) Indole 3 Butyric Acid
3) α-Naphthalene Acetic Acid
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Phenyl Acetic Acid (PAA), and Indole 3 Acetonitrile (IAN) are natural auxins. **Indole 3 Butyric Acid (IBA), Indole-3- Propionic Acid, α-Naphthalene Acetic Acid (NAA), 2, 4, 5-T (2,4,5 Tri-chloro-phenoxy Acetic Acid)** are some of the **synthetic auxins.**

18. Which plant hormones that promote cell division?

a) Auxin
b) Renin
c) Cytokinin
d) Pepsin

Explanation

Cytokinin (Cytos - cell; kinesis - division) are the plant hormones that **promote cell division or cytokinesis** in plant cells. It was first isolated from Herring fish sperm

19. Zeatin was the cytokinin isolated from_____

a) Rice
b) Wheat
c) Zea Mays
d) Coconut

Explanation

Zeatin was the **cytokinin isolated from Zea mays**. **Cytokinin** is **found abundantly in coconut milk**.

20. Which of the following are the effects of Cytokinin?

1) Cell division in absence of Auxin
2) It delays the process of ageing in plants
3) It promotes the growth of lateral buds even in the presence of apical bud

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

Physiological effects of Cytokinins:

- Cytokinin **induces cell division (cytokinesis) in the presence of auxins**.
- Cytokinin also causes cell enlargement
- Cytokinin promote the growth of lateral buds even in the presence of apical bud
- Application of cytokinin delays the process of ageing in plants. This is called Richmond Lang effect.

21. Which of the following hormones in plant are essential for Morphogenesis?

1) Auxin
2) Renin
3) Cytokinin

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

Both **auxins and cytokinin** are **essential for the formation of new organs** from the callus in tissue culture (**Morphogenesis**).

22. Kurosawa (1926) observed Bakanae disease in____ crops

a) Rice
b) Wheat
c) Maize
d) None

Explanation

Gibberellins are the most abundantly found plant hormones. Kurosawa (1926) observed Bakanae disease or foolish seedling disease in **rice crops**

23. Internodal elongation in rice was caused by_____

a) Virus
b) Fungus
c) Bacteria

d) All the above

Explanation

The **internodal elongation in rice** was caused by **fungus Gibberella fujikuroi**. The active substance was identified as Gibberellic acid.

24. Application of which of the following stimulate extraordinary elongation of internode?

a) Auxin
b) Cytokinin
c) Renin
d) Gibberellins

Explanation

Application of gibberellins on plants **stimulate extraordinary elongation of internode**. e.g.Corn and Pea.

25. Treatment of rosette plants with ____ induces sudden shoot elongation

a) Auxin
b) Cytokinin
c) Renin
d) Gibberellins

Explanation

Treatment of rosette plants with gibberellin induces sudden shoot elongation followed by flowering. This is called bolting.

26. _____ is a growth inhibitor

a) Auxin
b) Cytokinin
c) Abscisic acid
d) Gibberellins

Explanation

Abscisic acid (ABA) is a growth inhibitor which regulates abscission and dormancy. It increases tolerance of plants to various kinds of stress.

27. Which of the following is called as stress hormone?

a) Auxin
b) Cytokinin

c) Abscisic acid
d) Gibberellins

Explanation

Abscisic Acid is also called as **stress hormone**. It is found in the chloroplast of plants. ABA promotes the process of abscission (separation of leaves, flowers and fruits from the branch). During water stress and drought conditions ABA causes stomatal closure.

28. As the banana continues to ripen, it produces_____ gas

a) Methane
b) Ethylene
c) Methylene
d) Nitrogen

Explanation

Banana is placed in first bag. Tomato is placed in second bag. As the **banana continues to ripen in the first bag, it produces ethylene gas**. The gas trapped in the bag will cause tomatoes to ripen. The tomatoes remain unripe in the second bag.

29. Which of the following are the effects of Abscisic acid?

a) Promotes senescence
b) Induces bud dormancy
c) Inhibitor of lateral bud growth
d) All the above

Explanation

ABA **promotes senescence** in leaves by causing loss of chlorophyll. ABA i**nduces bud dormancy** towards the approach of winter in trees like birch. ABA is a **powerful inhibitor of lateral bud growth** in tomato.

30. _____ is a gaseous plant hormone.

a) Methane
b) Ethylene
c) Methylene
d) Nitrogen

Explanation

Ethylene is a gaseous plant hormone. It is a growth inhibitor. It is mainly concerned with maturation and ripening of fruits.

31. Maximum synthesis of ethylene occurs during ripening of fruits like_____

a) Apples
b) Melons
c) Bananas
d) All the above

Explanation

Maximum synthesis of ethylene occurs during ripening of fruits like apples, bananas and melons.

32.Which of the following are the effects of ethylene?

1) Promotes the ripening of fruits
2) Inhibits the elongation of stem and root in dicots
3) Breaks the dormancy of buds, seeds and storage organs
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Physiological effects of ethylene:

- Ethylene **promotes the ripening of fruits**. e.g Tomato, Apple, Mango, Banana, etc.
- Ethylene **inhibits the elongation of stem and root in dicots**.
- Ethylene hastens the senescence of leaves and flowers.
- Ethylene stimulates formation of abscission zone in leaves, flowers and fruits. This leads to premature shedding
- Ethylene **breaks the dormancy of buds, seeds and storage organs**.

33. Which of the following statement is correct?

1) Endocrine glands in animals possess a versatile communication system to coordinate biological functions
2) Exocrine glands and endocrine glands are two kinds of glands found in animals.
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

Endocrine glands in animals possess a versatile communication system to coordinate biological functions. **Exocrine glands and endocrine glands are two kinds of glands found in animals.**

34. Which of the following statement is correct about Endocrine gland?

1) Endocrine glands are found in different regions of the body of animals as well as human beings.
2) They are ductless glands
3) Their secretions are called hormones which are produced in minute quantities
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Endocrine glands are found in different regions of the body of animals as well as human beings. These glands are called ductless glands. Their secretions are called hormones which are produced in minute quantities. They **act on specific organs which are referred as target organs**.

35. Who is the father of 'Endocrinology'?

a) Thomas Hardy
b) Thomas Addison
c) E.H. Starling
d) W. M. Bayliss

Explanation

Th e branch of biology which deals with the study of the endocrine glands and its physiology is known as 'Endocrinology'. **Thomas Addison** is known as **Father of Endocrinology.**

36. Which was the first hormone discovered?

a) Prolactin
b) Vasopressin
c) Secretin
d) GTH

Explanation

English physiologists W. M. Bayliss and E. H. Starling introduced the term hormone in 1909. They **first discovered the hormone secretin**.

37. Which of the following is/are exocrine gland?

a) Salivary gland
b) Sweat gland
c) Mammary gland

d) All the above

Explanation

Exocrine glands have specific ducts to carry their secretions e.g **salivary glands, mammary glands, sweat glands**.

38. Which of the following is not an Endocrine gland?

a) Pituitary gland
b) Pancreas
c) Gonads
d) Sweat gland

Explanation

Endocrine glands present in human and other vertebrates are:

- Pituitary gland
- Thyroid gland
- Parathyroid gland
- Pancreas (Islets of Langerhans)
- Adrenal gland (Adrenal cortex and Adrenal medulla)
- Gonads (Testes and Ovary)
- Thymus gland

39. Pituitary gland is attached to the base of_____

a) Thalamus
b) Hypothalamus
c) Cerebrum
d) Cerebellum

Explanation

Th e **pituitary gland or hypophysis** is a pea shaped compact mass of cells **located at the base** of the midbrain attached to the **hypothalamus** by a pituitary stalk.

40. How many lobes does pituitary gland have?

a) 2
b) 4
c) 5
d) 1

Explanation

Th e pituitary gland is **anatomically composed of two lobes** and perform different functions. They are the anterior lobe (adenohypophysis) and the posterior lobe (neurohypophysis). Th e intermediate lobe is non-existent in humans.

41. Which of the following gland is known as master gland?

a) Pineal gland
b) Pancreas
c) Pituitary gland
d) Liver

Explanation

The **pituitary gland** forms the major endocrine gland in most vertebrates. It regulates and controls other endocrine glands and so is called as the "**Master gland**".

42. Hormones secreted by ____ lobe of pituitary

a) Anterior
b) Posterior
c) Both a and b
d) None

Explanation

Hormones secreted by the anterior lobe (Adenohypophysis) of pituitary. Pituitary gland are the anterior lobe (adenohypophysis) and the posterior lobe (neurohypophysis). The intermediate lobe is non-existent in humans.

43. Which of the following hormone is not secreted by pituitary gland?

a) Prolactin
b) Growth Hormone
c) Melatonin
d) Adrenocorticotropic hormone

Explanation

The hormones secreted by anterior pituitary are:

- Growth Hormone
- Thyroid stimulating Hormone
- Adrenocorticotropic Hormone
- Gonadotropic Hormone which comprises the Follicle Stimulating Hormone and Luteinizing Hormone
- Prolactin

44. Which of the following statement is correct?

1) The anterior pituitary is composed of different types of cells
2) They secrete hormones which stimulates the production of hormones by other endocrine glands
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

The anterior pituitary is composed of different types of cells and secrete hormones which **stimulates** the **production of hormones by other endocrine glands.**

45. Which of the following organ growth are stimulated by Growth Hormone?

1) Muscles
2) Bones
3) Long bones
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

GH promotes the development and enlargement of all tissues of the body. It **stimulates the growth of muscles, cartilage and long bones**. It controls the cell metabolism.

46. Which of the following statement is correct?

1) Dwarfism is caused by over-secretion of growth hormone
2) The characteristic features are stunted growth, delayed skeletal formation and mental disability
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

Dwarfism is caused by **decreased secretion of growth hormone** in children. The characteristic features are **stunted growth, delayed skeletal formation and mental disability**.

47. Which of the following statement is incorrect?

1) Over-secretion of growth hormone leads to gigantism in adult
2) Individuals attain abnormal increase in height.

a) 1 alone
b) 2 alone
c) 1, 2
d) None

Explanation

Over-secretion of growth hormone leads to gigantism in **children**. It is characterised by overgrowth of all body tissues and organs. Individuals attain abnormal increase in height.

48. Which causes abnormal enlargement of head, face, hands and feet in adult?

a) Dwarfism
b) Gigantism
c) Acromegaly
d) None

Explanation

Acromegaly:

Excess secretion of growth hormone in adults may lead to abnormal enlargement of head, face, hands and feet.

49. ____ controls the growth of thyroid gland

a) GT
b) ACTH
c) TSH
d) GTH

Explanation

Thyroid stimulating hormone (TSH) controls the **growth of thyroid gland**, coordinates its activities and hormone secretion.

50. _____ stimulates adrenal cortex of the adrenal gland for the production of its hormones

a) GT
b) ACTH
c) TSH
d) GTH

Explanation

Adrenocorticotropic hormone (ACTH) stimulates **adrenal cortex of the adrenal gland** for the production of its hormones. It also influences protein synthesis in the adrenal cortex.

51. ____ hormones are follicle stimulating hormone and luteinizing hormone.

a) GT
b) ACTH
c) TSH
d) GTH

Explanation

The **gonadotropic hormones** are **follicle stimulating hormone and luteinizing hormone** which are essential for the normal development of gonads.

52. _____ stimulates the germinal epithelium of testes for formation of sperms

a) Follicle stimulating hormone
b) Luteinizing hormone
c) Melatonin
d) Oxytocin

Explanation

In male, **Follicle stimulating hormone (FSH) stimulates the germinal epithelium of testes** for formation of sperms. In female it initiates the growth of ovarian follicles and its development in ovary.

53. ____ causes ovulation in female

a) Follicle stimulating hormone
b) Luteinizing hormone
c) Melatonin
d) Oxytocin

Explanation

In male, Luteinizing hormone promotes the Leydig cells of the testes to secrete male sex hormone testosterone. In **female, it causes ovulation (rupture of mature graafian follicle**), responsible for the development of corpus luteum and production of female sex hormones oestrogen and progesterone.

54. _____ is also called lactogenic hormone

a) Follicle stimulating hormone
b) Luteinizing hormone
c) Melatonin
d) Prolactin

Explanation

Prolactin (PRL) is also called **lactogenic hormone**. This hormone initiates development of mammary glands during pregnancy and stimulates the production of milk after child birth.

55. _____ is known as a 'time messenger'.

a) Follicle stimulating hormone
b) Luteinizing hormone
c) Melatonin
d) Prolactin

Explanation

Melatonin is a hormone produced by the pineal gland. It is **known as a 'time messenger'**. It signals night time information throughout the body.

56. Exposure to light of____ at night can decrease melatonin production

a) Short wavelength
b) Long wavelength
c) Medium wavelength
d) All the above

Explanation

Exposure to light at night, especially **short-wavelength light**, can decrease melatonin production interrupting sleep. Suppression of melatonin has been implicated in sleep disturbances and related metabolic disorders.

57. Which of the following hormones are produced by posterior lobe (Neurohypophysis) of pituitary?

a) Vasopressin
b) Melatonin
c) Oxytocin
d) Both a and c

Explanation

Hormones secreted by the posterior lobe (Neurohypophysis) of pituitary:

The hormones secreted by the posterior pituitary are:

- **Vasopressin or Antidiuretic hormone**
- **Oxytocin**

58. _____ increases reabsorption of water in kidney tubules

a) Vasopressin
b) Melatonin
c) Oxytocin
d) Both a and c

Explanation

In **kidney tubules it increases reabsorption of water**. It reduces loss of water through urine and hence the name antidiuretic hormone or **Vasopressin**.

59. Deficiency of ADH causes_____

a) Diabetes insipidus
b) Diabetes mellitus
c) Both a and b
d) Renal failure

Explanation

Deficiency of ADH reduces reabsorption of water and causes an increase in urine output (polyuria). This deficiency disorder is called **Diabetes insipidus**.

60. _____ helps in the contraction of the smooth muscles of uterus at the time of child birth

a) Vasopressin
b) Melatonin
c) Oxytocin
d) Both a and c

Explanation

Oxytocin helps in the **contraction of the smooth muscles of uterus** at the time of child birth and milk ejection from the mammary gland after child birth.

61. How many lobes does thyroid gland have?

a) 2
b) 3
c) 4
d) 5

Explanation

The **thyroid gland is composed of two distinct lobes** lying one on either side of the trachea. The two lobes are connected by means of a narrow band of tissue known as the isthmus.

62. Which of the following are involved in thyroid formation?

1) Iodine
2) Calcium
3) Amino acid tyrosine
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

An amino acid tyrosine and iodine are involved in the **formation of thyroid hormone**. The hormones secreted by the thyroid gland are

- Triiodothyronine (T3)
- Tetraiodothyronine or Thyroxine (T4)

63. Which of the following about thyroid hormone is correct?

1) Increases oxygen consumption in tissues
2) Influences the activity of central nervous system.
3) Production of energy by maintaining the Basal Metabolic Rate (BMR) of the body
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Functions of thyroid hormones:

- Increases **oxygen consumption in tissues**
- Production of energy by maintaining the **Basal Metabolic Rate (BMR) of the body**.
- Helps to maintain normal body temperature.
- Influences the activity of central nervous system.
- Controls the growth of body, bone formation and development of gonads.

64. Which of the following regulates carbohydrate, protein and fat metabolism?

a) Thyroid Gland
b) Thymus gland
c) Adrenal gland
d) Parathyroid gland

Explanation

The functions of thyroid hormones are:

- Essential for normal physical, mental and personality development. It is also known as personality hormone.
- Regulates carbohydrate, protein and fat metabolism.

65. Who among the following first crystallised thyroxine hormone?

a) Edward C. Kendal
b) George Barger
c) Charles Harrington
d) Charles Hammlock

Explanation
Edward C. Kendal in 1914 first crystallised thyroxine hormone. Charles Harrington and George Barger identified the molecular structure of thyroxine in 1927. Thyroid gland requires "120 µg" of iodine every-day for the production of thyroxine.

66. Which of the following are the abnormal conditions are simple goitre?

1) Simple goitre
2) Cretinism
3) Myxoedema
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Hypothyroidism is caused due to the decreased secretion of the thyroid hormones. The **abnormal conditions** are **simple goitre, cretinism and myxoedema**.

67. In which of the following region of India Goitre is mostly prevalent?

a) Western ghats
b) Eastern ghats
c) Deccan Plateau
d) Himalayan region

Explanation

Goitre is caused due to the **inadequate supply of iodine** in our diet. This is commonly prevalent in **Himalayan regions due to low level of iodine** content in the soil. It leads to the enlargement of thyroid gland which protrudes as a marked swelling in the neck and is called as goitre.

68. Cretinism is caused in_____

a) Adults
b) Children
c) Old age people
d) All the above

Explanation

Cretinism is caused due to **decreased secretion of the thyroid hormones in children**. The conditions are stunted growth, mental defect, lack of skeletal development and deformed bones. They are called as cretins.

69. Myxoedema is caused in____

a) Adults
b) Children
c) Old age people
d) All the above

Explanation

Myxoedema is s caused by deficiency of thyroid hormones in **adults**. They are mentally sluggish, increase in body weight, puffiness of the face and hand, oedematous appearance.

70. Which of the following statement about Hyperthyroidism?

1) It is caused due to the excess secretion of the thyroid hormones which leads to Grave's disease
2) The symptoms are protrusion of the eyeballs, profuse sweating, loss of body weight and nervousness.
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

Hyperthyroidism is caused due to the excess secretion of the thyroid hormones which leads to **Grave's disease**. The symptoms are protrusion of the eyeballs (Exopthalmia), increased metabolic rate, high body temperature, profuse sweating, loss of body weight and nervousness.

71. In Which surface of thyroid, parathyroid glands are located?

a) Anterior
b) Posterior
c) Dorsal
d) Ventral

Explanation

The **parathyroid glands are four small oval bodies** that are situated on **the posterior surface of the thyroid lobes**. The chief cells of the gland are mainly concerned with secretion of parathormone.

72. Which of the following metabolism are regulated by parathormone?

1) Calcium
2) Iron
3) Phosphorous
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

The **parathormone regulates calcium and phosphorus** metabolism in the body. They act on bone, kidney and intestine to maintain blood calcium levels.

73. Which of the following statement is correct?

1) Removal of parathyroid glands during thyroidectomy (removal of thyroid) causes decreased secretion of parathormone
2) Muscle spasm known as Tetany (sustained contraction of muscles in face, larynx, hands and feet)
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

The secretion of parathyroid hormone can be altered due to the following conditions. Removal of parathyroid glands during thyroidectomy (removal of thyroid) causes decreased secretion of parathormone. The conditions are:

- Muscle spasm known as **Tetany** (sustained contraction of muscles in face, larynx, hands and feet).
- **Painful cramps of the limb muscles**.

74. Which of the following statement is correct?

1) Pancreas is an elongated, yellowish gland situated in the loop of stomach and Ileum
2) It is exocrine and endocrine in nature
3) The endocrine portion is made up of Islets of Langerhans.

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

Pancreas is an elongated, yellowish gland **situated in the loop of stomach and duodenum**. It is exocrine and endocrine in nature. The exocrine pancreas secretes pancreatic juice which plays a role in digestion while, the endocrine portion is made up of Islets of Langerhans.

75. Human insulin was first discovered by____

a) Fredrick Banting
b) Charles Best
c) MacLeod
d) All the above

Explanation

Human insulin was first **discovered by Fredrick Banting, Charles Best and MacLeod** in 1921. Insulin was first used in treatment of diabetes on 11th January 1922.

76. The Islets of Langerhans consists of___ types of cells

a) 2
b) 3
c) 4
d) 7

Explanation

The **Islets of Langerhans consists of two types of cells namely alpha cells and beta cells**. The alpha cells secrete glucagon and beta cells secrete insulin.

77. A balance between____ and____ production is necessary to maintain blood glucose

1) Insulin
2) Glucagon
3) Thyroxine

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

A **balance** between **insulin and glucagon** production is necessary to **maintain blood glucose** concentration.

78. Which of the following statement about Insulin is correct?

1) It promotes the transport of glucose into the cells.
2) Insulin helps in the conversion of glucose into glycogen which is stored in Bile
3) It decreases the concentration of glucose in blood.

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

Insulin:

- **Insulin** helps in **the conversion of glucose into glycogen which is stored in liver** and skeletal muscles
- It promotes the transport of glucose into the cells.
- It decreases the concentration of glucose in blood.

79. _____ helps in the breakdown of glycogen to glucose in the liver

a) Insulin
b) Glucagon
c) zona glomerulosa
d) zona fasciculata

Explanation

Glucagon:

- **Glucagon** helps in the **breakdown of glycogen to glucose in the liver**.
- It increases blood glucose levels.

80. Match the following:

I.	Hyper-glycemia	1. Increase in appetite
II.	Polyuria	2. Frequent urination
III.	Polydipsia	3. Increase in blood sugar level
IV.	Polyphagia	4. Increased thirst

a) 2, 1, 3, 4
b) 4, 1, 2, 3
c) 3, 2, 4, 1
d) 3, 4, 2, 1

Explanation

- **Increase in blood sugar level (Hyper-glycemia**).
- Excretion of excess glucose in the urine (Glycosuria).
- Frequent urination (Polyuria).
- Increased thirst (Polydipsia).
- Increase in appetite (Polyphagia).

81. Which gland also called supra renal glands?

a) Thyroid
b) Pancreas
c) Adrenal
d) Gonads

Explanation

The **adrenal glands** are located **above each kidney**. They are also called **supra renal glands**. The outer part is the adrenal cortex and the inner part is the adrenal medulla. The two distinct parts are structurally and functionally different.

82. How many layers are there in adrenal cortex?

a) 2
b) 4
c) 3
d) 5

Explanation

The **adrenal cortex consists of three layers of cells**. They are zona glomerulosa, zona fasciculata and zona reticularis.

83. The glucocorticoids secreted by_____

a) Zona glomerulosa
b) Zona fasciculata
c) Zona reticularis
d) All the above

Explanation

The **glucocorticoids secreted by the zona fasciculata** are cortisol and corticosterone

- They regulate carbohydrate, protein and fat metabolism.
- It stimulates the formation of glucose from glycogen in the liver.
- It is an anti-inflammatory and anti-allergic agent.

84. The mineralocorticoids secreted by_____

a) Zona glomerulosa
b) Zona fasciculata
c) Zona reticularis
d) All the above

Explanation

The **mineralocorticoids** secreted by **zona glomerulosa** is aldosterone

- It helps to reabsorb sodium ions from the renal tubules.
- It causes increased excretion of potassium ions.
- It regulates electrolyte balance, body fluid volume, osmotic pressure and blood pressure

85. _____ hormones of adrenal cortex serve to maintain the body in living condition

a) Cortisol
b) Corticosterone
c) Epinephrine
d) Norepinephrine

Explanation

The **cortisol hormones of adrenal cortex serve to maintain the body in living condition** and recover it from the severe effects of stress reactions. Thus, an increased output of cortisol is "life-saving" in "shock conditions". It is also known as life-saving hormone

86. _____ is composed of chromaffin cells

a) Pancreas
b) Kidney
c) Adrenal Medulla
d) Adrenal Cortex

Explanation

The **adrenal medulla is composed of chromaffin cells**. They are richly supplied with sympathetic and parasympathetic nerves.

87. Which of the following hormone is not secreted by adrenal medulla?

a) Glucocorticoids
b) Adrenaline
c) Noradrenaline
d) All the above

Explanation

Hormones of Adrenal Medulla:

- Epinephrine (Adrenaline)
- Norepinephrine (Noradrenaline)

88. Which of the following hormones are called as Emergency hormones?

1) Glucocorticoids
2) Adrenaline
3) Noradrenaline
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Adrenaline and Noradrenaline are together called as "**Emergency hormones**". It is produced during conditions of stress and emotion. Hence it is also referred as "flight, fright and fight hormone".

89. Which of the following are the functions of Epinephrine?

1) It promotes the conversion of glycogen to glucose in liver and muscles.
2) It decreases blood flow through the skin
3) It increases heart beat and blood pressure.
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Functions of adrenal medullary hormones:

Epinephrine (Adrenaline):

• It promotes the **conversion of glycogen to glucose in liver and muscles**. • It increases heart beat and blood pressure. • It increases the rate of respiration by dilation of bronchi and trachea. • It causes dilation of the pupil in eye. • It decreases blood flow through the skin.

Norepinephrine (Noradrenalin): Most of its actions are similar to those of epinephrine.

90. Which of the following statement is incorrect?

1) The sex glands are of two types the testes and the ovaries

2) The testes are present in male, while the ovaries are present in female.
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

The sex glands are of two types the testes and the ovaries. The testes are present in male, while the ovaries are present in female.

91. Which of the following statement is correct?

1) Testes are the reproductive glands of the males.
2) They are composed of seminiferous tubules, Leydig cells and Sertoli cells
3) They secrete the male sex hormone called progesterone
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Testes are the reproductive glands of the males. They are composed of seminiferous tubules, Leydig cells and Sertoli cells. Leydig cells form the endocrine part of the testes. They secrete the male sex hormone called **testosterone**

92. Which of the following are the functions of testosterone?

1) It influences the process of spermatogenesis.
2) It stimulates protein synthesis and controls muscular growth.
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

Functions of testosterone:

- It influences the **process of spermatogenesis**.
- It stimulates **protein synthesis and controls muscular growth**.
- It is responsible for the development of secondary sexual characters (distribution of hair on body and face, deep voice pattern, etc).

93. Which of the following hormone is not secreted by Ovary?

a) Estrogen
b) Prolactin
c) Progesterone
d) None

Explanation

The ovaries are the female gonads located in the pelvic cavity of the abdomen. They secrete the female sex hormones:

- Estrogen
- Progesterone

Prolactin is secreted by Pituitary gland.

94. Which of the following statement is incorrect?

1) Estrogen is produced by the Graafian follicles of the ovary
2) Progesterone from the corpus luteum that is formed in the ovary
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

Estrogen is produced by the Graafian follicles of the ovary and progesterone from the corpus luteum that is formed in the ovary from the ruptured follicle during ovulation.

95. Which of the following are the functions of Estrogen?

1) It brings about the changes that occur during puberty.
2) It stimulates the maturation of ovarian follicles in the ovary.
3) It promotes the development of secondary sexual characters
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Functions of estrogens:

- It brings about the changes that occur during puberty.
- It initiates the process of oogenesis.
- It stimulates the maturation of ovarian follicles in the ovary.

- It **promotes the development of secondary sexual characters** (breast development, high pitched voice etc).

96. Which of the following gland is partly an endocrine gland and partly a lymphoid gland?

a) Thyroid
b) Parathyroid
c) Thymus
d) Testes

Explanation

Thymus is **partly an endocrine gland and partly a lymphoid gland**. It is located in the upper part of the chest covering the lower end of trachea. Thymosin is the hormone secreted by thymus.

97. Which of the following are the functions of Thymosin?

1) It has a stimulatory effect on the immune function
2) It stimulates the production and differentiation of lymphocytes
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

Functions of Thymosin:

- It has a **stimulatory effect on the immune function**.
- It stimulates the **production and differentiation of lymphocytes**.