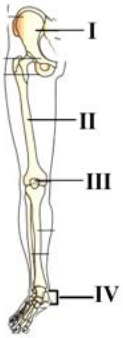
Q1 What is the name of joint between ribs and sternum?
(A) Cartilaginous joint
(B) Angular joint
(C) Gliding joint
(D) Fibrous joint

Q2 Which of the following labelled bones in the given below diagram is a longest bone?



(A) I (B) II
(C) III (D) IV

Q3 Which of the following pairs is correctly matched?
(A) Cartilaginous joint - Skull bones
(B) Hinge joint - Between vertebrae
(C) Fibrous joint - Between phalanges
(D) Gliding joint- Between the carpals

Q4 Which of the following is incorrect about skeletal muscles?
(A) Striped appearance under microscope hence called striated muscle
(B) They are voluntary muscles
(C) Primarily involved in locomotory actions and changes the body postures
(D) They are Involuntary muscles

Q5 Find the **incorrect** statement.
(A) Only skeletal muscle contains many nuclei in their sarcoplasm.
(B) The matrix of bones has calcium salts in it and that of cartilage has chondroitin salts.
(C) White fibres have higher amounts of myoglobin than red fibres.
(D) Bones and cartilages constitute our skeletal system.

Q6 During skeletal muscle contraction, which of the following events occur?
I. H-zone disappears
II. A-band widens
III. I-band reduces in length
IV. M-line and Z-line come closer
Choose the **correct** answer from the options given below:
(A) I, III and IV only
(B) I, II and IV only
(C) II and IV only
(D) I, II and III only

Q7 Choose the incorrect pair.
(A) Globular head of meromyosin – Active ATPase enzyme
(B) Thin fibrous membrane holding – M-line thick filaments in A-band
(C) Dark bands – Isotropic band
(D) None of the above

Q8 Match **List-I** with **List-II**.

List-I		**List-II**	
(A)	Wrist bones	(I)	7 in number
(B)	Palm bones	(II)	14 in number
(C)	Ankle bones	(III)	8 in number
(D)	Digits	(IV)	5 in number

Choose the **correct** answer from the options given below:

(A) A-I, B-IV, C-II, D-III

(B) A-III, B-IV, C-I, D-II

(C) A-II, B-I, C-III, D-IV

(D) A-IV, B-I, C-III, D-II

Q9 Myofibrils appear striated due to the presence of

(A) Actin in lighter region and myosin in darker region

(B) Actin throughout the length of myofibril

(C) Myosin in lighter region and actin in darker region

(D) Myosin throughout the length of myofibril

Q10 Pelvic girdle consists of two coxal bones and each coxal bone consists

I. Ilium II. Incus III. Ischium IV. Pubis

Choose the correct option containing all correct bones.

(A) I, II and III (B) II, III and IV

(C) I, III and IV (D) I, II and IV

Q11 Bowman's glands are found in

(A) juxtamedullary nephrons

(B) olfactory epithelium

(C) external auditory canal

(D) cortical nephrons only

Q12 During transmission of nerve impulse through a nerve fibre, the potential on the inner side of the plasma membrane has which type of electric charge?

(A) First positive, then negative and continue to be negative

(B) First negative, then positive and continue to be positive

(C) First positive, then negative and again back to positive

(D) First negative, then positive and again back to negative

Q13 The correct sequence of meninges from inner to outer side is

(A) Duramater arachnoid membrane piamater

(B) Duramater piamater arachnoid membrane

(C) Piamater arachnoid membrane duramater

(D) Arachnoid membrane duramater piamater

Q14 Cerebrospinal fluid

(A) Is slightly acidic

(B) Creates pressure inside the cranium

(C) Helps to exchange nutrients and wastesbetween blood and brain tissue

(D) Is not generated continuously

Q15 Which of the following statement is correct for node of Ranvier of nerve?

(A) Neurilemma is discontinuous.

(B) Myelin sheath is discontinuous.

(C) Both neurilemma and myelin sheath arediscontinuous.

(D) Covered by myelin sheath

Q16 Read the following statements carefully and choose the option which contain all the correct ones only.

(a) Parasympathetic neural signal decreases the rate of heartbeat.

(b) A canal called the cerebral aqueduct passes through the midbrain.

(c) The medulla contains centres which can only control respiration.

(d) Function of heart can be moderated by neural and hormonal mechanisms.

(A) (a), (b) and (c)

(B) (b), (c) and (d)

(C) (a), (c) and (d)

(D) (a), (b) and (d)

Q17 Which of the following is an **incorrect** match?

(A) Synapse- Close proximity between axon terminal of one neuron and the dendrite of another.

(B) Cerebellum- Provide the additional space for many more neurons.

(C) Medulla oblongata- Controls respiration and gastric secretion.

(D) Pons- Interconnect different regions of spinal cord.

Q18 Which of the following structure or region is incorrectly paired with its function?

(A) Hypothalamus - Production of releasing hormones and regulation of temperature, hunger and thirst

(B) Limbic system - Consists of fibre tracts that interconnect different regions of brain; controls movement

(C) Medulla oblongata - Controls respiration and cardiovascular reflexes

(D) Corpus callosum - Band of fibres connecting left and right cerebral hemispheres

Q19 A person entering an empty room suddenly finds a snake right in front on opening the door.

Which one of the following is likely to happen in his neuro-hormonal control system?

(A) Hypothalamus activates the parasympatheticdivision of brain

(B) Sympathetic nervous system is activatedreleasing epinephrin and norepinephrin fromadrenal cortex

(C) Sympathetic nervous system is activatedreleasing epinephrin and norepinephrin fromadrenal medulla

(D) Neurotransmitters diffuse rapidly across thecleft and transmit a nerve impulse

Q20 Match the **List-I** with **List-II** to find out the **correct** option

List-I		**List-II**	
(I)	Cerebrum	(A)	Controls the pituitary.
(II)	Cerebellum	(B)	Memory and communication .
(III)	Hypothalamus	(C)	Controls the rate of heart beat.
(IV)	Medulla oblongata	(D)	Provides additional space for more neurons.

(A) I-D, II-A, III-B, IV-C

(B) I-C, II-D, III-B, IV-A

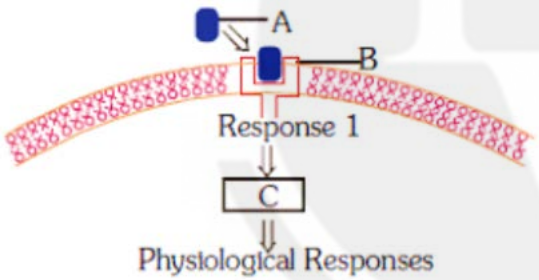
(C) I-D, II-C, III-A, IV-B

(D) I-B, II-D, III-A, IV-C

Q21 The posterior pituitary gland is not a true endocrine gland because
(A) It is provided with a duct
(B) It only stores and releases hormones
(C) It is under the regulation of hypothalamus
(D) It secretes enzymes

Q22 GnRH, a hypothalamic hormone, needed in reproduction, acts on
(A) Anterior pituitary gland and stimulates secretion of LH and oxytocin
(B) Anterior pituitary gland and stimulates secretion of LH and FSH
(C) Posterior pituitary gland and stimulates secretion of oxytocin and FSH
(D) Posterior pituitary gland and stimulates secretion of LH and relaxin

Q23 Identify **A , B** and **C** in the diagrammatic representation of the mechanism of hormone action.



Select the **correct** option from the following:
(A) A-Steroid hormone; B-hormone-receptor complex; C-Protein
(B) A-Protein hormone; B-Receptor; C-Cyclic AMP
(C) A-Steroid hormone; B-Receptor, C-Second messenger
(D) A-Protein hormone; B-Cyclic AMP; C-Hormone-receptor complex

Q24 Blood calcium level is regulated by:
(A) Triiodothyronine and thyroxine.
(B) Triiodothyronine and thyrocalcitonin.
(C) Thyrocalcitonin secreted by thyroid gland.
(D) Thyrocalcitonin secreted by parathyroid gland.

Q25 Assertion : Neurohypophysis (pars nervosa) also known as posterior pituitary, stores and releases two hormones called oxytocin and vasopressin.
Reason : In males, LH stimulates the synthesis and secretion of hormones called androgens from testis.
(A) Both Assertion & Reason are True and the Reason is the correct explanation of the Assertion
(B) Both Assertion & Reason are True but the Reason is not the correct explanation of the Assertion
(C) Assertion is True statement but Reason is false
(D) Both Assertion and Reason are False statements

Q26 Assertion (A) In old persons, there is gradually weakening of immune system.
Reason (R) It is because of degeneration of thymus gland.
(A) If both A and R are true and R is the correct explanation of A
(B) If both A and R are true and R is not the correct explanation of A
(C) If A is true, but R is false
(D) If A is false, but R is true

Q27 Which of the following statements regarding glucagon is false?
(A) It is secreted by alpha cells of Langerhans
(B) It acts antagonistically to insulin.
(C) It decreases blood sugar level.
(D) The gland responsible for its secretion is heterocrine gland.

Q28 ACTH stimulates the synthesis and secretion of steroid hormones called __**A**__ from the __**B**__. Choose the option **correctly** filling the value of **A** and **B**.
(A) A-glucocorticoids, B-adrenal medulla
(B) A-mineralocorticoids, B-adrenal medulla
(C) A-glucocorticoids, B-adrenal cortex
(D) A-androgen, B-adrenal medulla

Q29 Which of the following hormones can play a significant role in osteoporosis?
(A) Oestrogen and parathyroid hormone
(B) Progesterone and aldosterone
(C) Aldosterone and prolactin
(D) Parathyroid hormone and prolactin

Q30 A temporary endocrine gland in the human body is
(A) corpus cardiacum
(B) corpus luteum
(C) corpus allatum
(D) pineal gland

Answer Key

Q1	A
Q2	B
Q3	D
Q4	D
Q5	C
Q6	A
Q7	C
Q8	B
Q9	A
Q10	C
Q11	B
Q12	D
Q13	C
Q14	C
Q15	B
Q16	D
Q17	D
Q18	B
Q19	C
Q20	D
Q21	B
Q22	B
Q23	B
Q24	C
Q25	B
Q26	A
Q27	C
Q28	C
Q29	A
Q30	B

Hints & Solutions

Note: scan the QR code to watch video solution

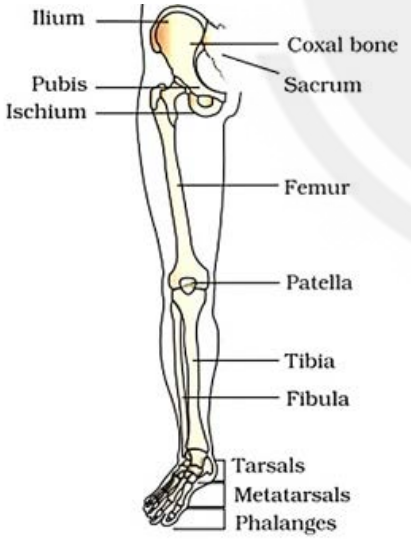
Q1 Text Solution:

Cartilaginous joint is present between ribs and sternum. It allows only limited movement. An angular joint allows movement in two directionsside to side and back and forth. Wrist and metacarpophalangeal joints are of this type. Gliding joint permits sliding movements of two bones over each other, e.g. joints between sternum and clavicles. Fibrous joints do not allow movement and are present between the bones of cranium.

Video Solution:

Q2 Text Solution:

Femur (thigh bone) is the longest bone.



Video Solution:

Q3 Text Solution:

Ball and socket joint (between humerus and pectoral girdle), hinge joint (knee joint), pivot joint (between atlas and axis), gliding joint (between the carpals) and saddle joint (between carpal and metacarpal of thumb) are some examples.

Video Solution:

Q4 Text Solution:

They are Involuntary muscles

Video Solution:

Q5 Text Solution:

Myoglobin content is high in some of the muscles which gives a reddish appearance. Such muscles are called the Red fibres.

Video Solution:

Q6 Text Solution:

During the shortening of the skeletal muscle, i.e., contraction, the 'I' bands get reduced, whereas the 'A' bands retain the length and the H zone disappears.

Video Solution:

Q7 Text Solution:

A detailed study of the myofibril has established that the striated appearance is due to the distribution pattern of two important proteins – Actin and Myosin. The light bands contain actin and is called I-band or Isotropic band, whereas the dark band called 'A' or Anisotropic band contains myosin.

Video Solution:

Q8 Text Solution:

List-I	List-II
Wrist bones	8 in number
Palm bones	5 in number
Ankle bones	7 in number
Digits	14 in number

Video Solution:

Q9 Text Solution:

The striated appearance is due to the distribution pattern of two important proteins – Actin and Myosin. The light bands contain actin and is called I-band or Isotropic band, whereas the dark band called 'A' or Anisotropic band contains myosin.

Video Solution:

Q10 Text Solution:

Pelvic girdle consists of two coxal bones. Each coxal bone is formed by the fusion of three bones – ilium, ischium and pubis. At the point of fusion of the above bones is a cavity called acetabulum to which the thigh bone articulates. The two halves of the pelvic girdle meet ventrally to form the pubic symphysis containing fibrous cartilage.

Video Solution:

Q11 Text Solution:

olfactory epithelium

Video Solution:

Q12 Text Solution:

During the transmission of nerve impulse through a nerve fibre, the potential on the inner side of the plasma membrane has first negative charge, due to the high concentration of potassium ions inside high concentration of sodium outside. This state is known as resting phase and the potential is known as rest potential. The nerve cells are stimulated by nerve signals the voltage-gated sodium channels reverse the membrane polarity which makes the inner side of the membrane positive while outer turns negative. The potential generated at this phase is known as the action potential. As the action potential reaches its maximum value it again causes the reversal of membrane potential which by closing the sodium channels and opening the potassium channels. This state of the neuron is known as repolarization.

Video Solution:

Q13 Text Solution:

The human brain is well protected by the skull. Inside the skull, the brain is covered by cranial meninges consisting of an outer layer called dura mater, a very thin middle layer called arachnoid and an inner layer (which is in contact with the brain tissue) called pia mater.

Video Solution:

Q14 Text Solution:

CSF acts as a shock absorber to protect the brain and spinal cord from injury caused by sudden movements of the head or skull. It also reduces the brain's effective weight, which reduces the force applied to the brain during mechanical injury.

Video Solution:

Q15 Text Solution:

At the level of the junction between two Schwann's cells myelin can not be formed and thus a gap appears. At the level of node of Ranvier the myelin sheath is discontinuous but not the neurilemma lining.

Video Solution:

Q16 Text Solution:

(a), (b) and (d)

Video Solution:

Q17 Text Solution:

- **Incorrect match** **Pons** interconnects **different regions of the brain**, not the spinal cord.

Video Solution:

Q18 Text Solution:

The inner parts of cerebral hemispheres and a group of associated deep structures like amygdala, hippocampus, etc., form a complex structure called the limbic lobe or limbic system. Along with the hypothalamus, it is involved in the regulation of sexual behaviour, expression of emotional reactions (e.g., excitement, pleasure, rage and fear), and motivation.

Video Solution:

Q19 Text Solution:

Sympathetic nervous system is activated releasing epinephrin and norepinephrin from adrenal medulla

Video Solution:

Q20 Text Solution:

- The cerebral cortex contains motor areas, sensory areas and large regions that are neither clearly sensory nor motor in function. These regions called as the association areas are responsible for complex functions like intersensory associations, memory and communication.
- The medulla contains centres which control
  respiration, cardiovascular reflexes and gastric
- Cerebellum has very convoluted surface in order to provide the additional space for many more neurons.
- Hypothalamus is the basal part of diencephalon, forebrain and it regulates a wide spectrum of body functions. It contains several groups of neurosecretory cells called nuclei which produce hormones. These hormones regulate the synthesis and secretion of pituitary hormones.

Video Solution:

Q21 Text Solution:

Neurohypophysis (pars nervosa) also known as posterior pituitary, stores and releases two hormones called oxytocin and vasopressin.

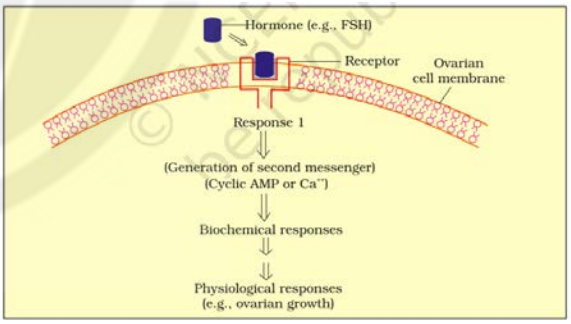
Video Solution:

Q22 Text Solution:

A hypothalamic hormone called Gonadotropin-releasing hormone (GnRH) stimulates the pituitary synthesis and release of gonadotropins. LH and FSH stimulate gonadal activity and hence are called gonadotropins. In males, LH stimulates the synthesis and secretion of hormones called androgens from the testis. In males, FSH and androgens regulate spermatogenesis. In females, LH induces ovulation of fully mature follicles (Graafian follicles) and maintains the corpus luteum, formed from the remnants of the Graafian follicles after ovulation. FSH stimulates the growth and development of the ovarian follicles in females.

Video Solution:

Q23 Text Solution:



FSH (follicle-stimulating hormone) is a peptide hormone released by the pituitary gland.

Video Solution:

Q24 **Text Solution:**

Thyroid gland also secretes a protein hormone called thyrocalcitonin (TCT) which regulates the blood calcium levels.

Video Solution:

Q25 **Text Solution:**

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

In males, LH stimulates the synthesis and secretion of hormones called androgens from testis.

Both statements are true, but R is not the correct explanation for A.

Video Solution:

Q26 **Text Solution:**

In old persons, there is gradually weakening of immune system because of degeneration of thymus gland. Thymus secretes a hormone named thymosin which stimulates the development of certain kinds of WBCs involved in generating immunity. It is prominent at the time of birth, but it gradually atrophies in adults and its disappearance causes ageing.

Video Solution:

Q27 **Text Solution:**

The α-cells secrete a hormone called glucagon. Glucagon acts mainly on the liver cells (hepatocytes) and stimulates glycogenolysis resulting in an increased blood sugar (hyperglycemia). In addition, this hormone stimulates the process of gluconeogenesis which also contributes to hyperglycemia.

Video Solution:

Q28 **Text Solution:**

Adrenocorticotropic hormone (ACTH) stimulates the synthesis and secretion of steroid hormones called glucocorticoids from the adrenal cortex. ACTH is a tropic hormone produced by anterior pituitary.

Video Solution:

Q29 **Text Solution:**

Oestrogen and parathyroid hormones can play a significant role in osteoporosis. It is caused due to the deficiency of oestrogen and excessive activity of parathormone. Oestrogen helps to promote the activity of osteoblasts (helps in the formation of bone cells) and inhibits osteoclast activity. On the other hand, parathormone promotes the mobilisation of calcium from bones into blood and hence, causes demineralisation.

Video Solution:

Q30 **Text Solution:**

Corpus luteum is a temporary endocrine gland in human females. It secretes progesterone which stimulates the uterine glands to produce increased amount of watery mucus and is also essential for maintenance of endothelium. In absence of fertilisation, corpus luteum disintegrate leading to Menstruation.

Video Solution: