

Topic :- Neural Control & Coordination

- 1 (a)
In human capacity of hearing is 16-20,000 cycles/second. The low frequencies sensitise the sensory cells of ear, near the tip of cochlea and high frequency towards the oval window.
- 2 (c)
The human neural system includes CNS and PNS.
Nervous system exercise control by sending electrical signals called nerve impulses. The endocrine system consists of specialized glands, which bring about control by sending chemical messengers termed as hormones.
For a quick coordination, it is neural system that provides an organised network of point to point connections. In lower invertebrates, the neural organization is very simple
- 3 (b)
Cerebrum forms the major part of the human brain. A deep cleft divided the cerebrum longitudinally into two halves-left and right cerebral hemispheres. The hemispheres are connected by a tract of nerve fibres called **corpus callosum**.
- 4 (a)
The function of **eustachian tube** is to equalize air pressure on both sides (external and middle ear) or tympanic membrane. Thus, it connects middle ear with external ear.
- 5 (d)
Spinal cord is an elongated cylindrical structure which lies in the neural canal of the vertebral column and is continued with the medulla oblongata through foramen magnum of the skull. It has an H-shaped central area of grey matter surrounded by an outer layer of white matter.
- 6 (c)
Both (a) and (b).
The knee-jerk reflex is an example of spinal reflex, which involves only control of spinal cord. Brain is not involved in this process
- 7 (b)
Medulla oblongata controls involuntary functions of body through a number of centres like cardiac centre, respiratory centre, vasomotor centres (contraction of blood vessels) salivary centres etc.
- 8 (c)

- Olfactoreceptors are smell senses.
- 9 **(c)**
Three key functions of myelin sheath are:
(i) Protection of nerve fibre.
(ii) Insulation of nerve fibre
(iii) Increases the rate of transmission of nerve impulses.
Key functions of nodes of Ranvier include:
(i) Allowing nutrients and waste products to enter/leave the neuron.
(ii) Allowing nerve impulses to move along the neuron through a process of de-polarization and re-polarization of the nerve membrane.
- 10 **(c)**
Both (a) and (b)
- 11 **(d)**
Syrinx is the sound producing organ of birds, containing typically a resonating chamber with elastic vibrating membranes of connective tissue (vocal cords); situated at points where trachea splits into bronchi.
- 12 **(a)**
A functional unit consisting of a receptor neural pathway and effector neuron.
Pneumotaxic centre is present in the pons varolli, which can moderate the functions of respiratory rhythm centre. Neural signals from this centre can reduce the duration of inspiration and thereby, after the respiratory rate
- 13 **(d)**
Salivation is controlled by **medulla oblongata**. Respiratory centre are also found in medulla oblongata.
- 14 **(c)**
Static equilibrium refers to orientation of the body (mainly head) relative to gravity. Untricle and saccule are considered to be sense organs of static equilibrium, while three semi-circular canals maintain dynamic equilibrium.
- 15 **(c)**
The ears perform two sensory functions, hearing and maintenance of body balance
- 16 **(c)**
Neurons are excitable cells because their membrane are in a polarized state. Different types of selectively permeable channels are present on the neural membrane. When a neuron is not conducting any impulse, *i.e.*, resting, the axonal membrane is comparatively more permeable to potassium ion (K^+) and nearly impermeable to sodium ion (Na^+).
- 18 **(c)**
The receptors for the sense of taste are found in taste buds, mostly located in tongue. These receptors are called gustatoreceptors. Most of the taste buds are located within papillae that extends down into the epithelium of the tongue

- 19 **(b)**
Pons Varolii is situated in front of the cerebellum below the midbrain and above the medulla oblongata. It consists of nerve fibres and from pons bridge between the two hemispheres of the cerebellum.
- 20 **(d)**
Red, green and blue lights.
Both (a) and (b), *i.e.*, cones and rods

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