Keywords:-

Nervous system - Consists of the central nervous system and the peripheral nervous system.
Central nervous system (CNS) - Consists of the brain and the spinal cord and is the origin of all complex commands and decisions.
Peripheral nervous system (PNS) - Sends information to the central nervous system (CNS) from the outside world, and transmits messages from the CNS to muscles and glands in the body.
Somatic nervous system - Transmits information from receptor cells in the sense organs to the central nervous system (CNS). It also receives information from the CNS that directs muscles to act.
Autonomic nervous system (ANS) - Transmits information to and from internal bodily organs. It is ‘autonomic’ as the system operates involuntarily (i.e. it is automatic). It has two main divisions: the sympathetic and parasympathetic nervous systems.
Endocrine system - One of the body’s major information systems that instructs glands to release hormones directly into the bloodstream. These hormones are carried towards target organs in the body.
Gland - An organ in the body that synthesises substances such as hormones.
Hormones - Chemical substances that circulate in the bloodstream and only affect target organs. They are produced in large quantities but disappear quickly. Their effects are very powerful.
Fight or flight response - The way an animal responds when stressed. The body becomes physiologically aroused in readiness to fight an aggressor or, in some cases, flee.
Adrenaline - A hormone produced by the adrenal glands which is part of the body’s immediate stress response system. Adrenaline has a strong effect on the cells of the cardiovascular system stimulating the heart rate, contracting blood vessels and dilating air passages.
Neuron - The basic building blocks of the nervous system, neurons are nerve cells that perceive and transmit messages through electrical and chemical signals.
Sensory neurons - These carry messages from the PNS (peripheral nervous system) to the CNS (central nervous system). They have long dendrites and short axons.
Relay neurons - These connect sensory neurons to other sensory or relay neurons. They have short dendrites and short axons.
Motor neurons - These connect the CNS (central nervous system) to effectors such as muscles and glands. They have short dendrites and long axons.
Synaptic transmission - The process by which neighbouring neurons communicate with each other by sending chemical messages across the gap (the synaptic cleft) that separates them.
Neurotransmitter - Brain chemicals released from synaptic vesicles that relay signals across the synapse from one neuron to another. Neurotransmitters can be broadly divided into those that perform an excitatory function and those that perform an inhibitory function.
Localisation of function - The theory that different areas of the brain are responsible for different behaviours, processes or activities.
Motor area - A region of the frontal lobe involved in regulating movement.
Somatosensory area - An area of the parietal lobe that processes sensory information such as touch.
Visual area - A part of the occipital lobe that receives and processes visual information.
Auditory area - Located in the temporal lobe and concerned with the analysis of speech-based information.
Broca’s area - An area of the frontal lobe of the brain in the left hemisphere (in most people) responsible for speech production.
Wernicke's area - An area of the temporal lobe (encircling the auditory cortex) in the left hemisphere (in most people) responsible for language comprehension.

Functional recovery - A form of plasticity. Following damage through trauma, the brain’s ability to redistribute or transfer functions usually performed by a damaged area(s) to other, undamaged area(s).

Hemispheric lateralisation - The idea that the two halves (hemispheres) of the brain are functionally different and that certain mental processes and behaviours are mainly controlled by one hemisphere rather than the other, as in the example of language (which is localised as well as lateralised).

Split-brain research - A series of studies which began in the 1960s (and are still ongoing) involving epileptic patients who had experienced a surgical separation of the hemispheres of the brain. This allowed researchers to investigate the extent to which brain function is lateralised.

Functional magnetic resonance imaging (fMRI) - A method used to measure brain activity while a person is performing a task that uses MRI technology (detecting radio waves from changing magnetic fields). This enables researchers to detect which regions of the brain are rich in oxygen and thus are active.

Electroencephalogram (EEG) - A record of the tiny electrical impulses produced by the brain’s activity. It consists of characteristic wave patterns, the EEG can help diagnose certain conditions of the brain.

Event-related potentials (ERPs) - The brain’s electrophysiological response to a specific sensory, cognitive, or motor event can be isolated through statistical analysis of EEG data.

Post-mortem examinations - The brain is analysed after death to determine whether certain observed behaviours during the patient’s lifetime can be linked to abnormalities in the brain.

Biological rhythms - Distinct patterns of changes in activity that conform to cyclical time periods. Biological rhythms are influenced by internal body clocks (endogenous pacemakers) or by external changes to the environment (exogenous zeitgebers).

Circadian rhythm - A type of biological rhythm subject to a 24-hour cycle, which regulates a number of body processes such as the sleep/wake cycle and changes in core body temperature.

Infradian rhythm - A type of biological rhythm with a frequency of less than one cycle in 24 hours, such as menstruation and seasonal affective disorder.

Ultradian rhythm - A type of biological rhythm with a frequency of more than one cycle in 24 hours, such as the stages of sleep.

Endogenous pacemakers - Internal body clocks that regulate many of our biological rhythms, such as the influence of the suprachiasmatic nucleus (SCN) on the sleep/wake cycle.

Exogenous zeitgebers - External cues that may affect or entrain our biological rhythms, such as the influence of light on the sleep/wake cycle.

Sleep/wake cycle - A daily cycle of biological activity based on a 24-hour period (circadian rhythm) that is influenced by regular variations in the environment, such as the alternation of night and day.

Excitation - When a neurotransmitter, such as adrenaline, increases the positive charge of the postsynaptic neuron. This increases the likelihood that the neuron will fire and pass on the electrical impulse.

Inhibition - When a neurotransmitter, such as serotonin, makes the charge of the postsynaptic neuron more negative. This decreases the likelihood that the neuron will fire and pass on the electrical impulse.
FUNCTIONAL MAGNETIC RESONANCE IMAGING (FMRI)
Changes in blood oxygenation and flow due to brain activity. Brain area more active=consumes more oxygen, to meet demand blood flow towards active area=haemodynamic response. 3d image produced shows which area active. Important implications for understanding localisation.

ELECTROENCEPHALOGRAM (EEG)
Measures electrical activity within brain by electrodes fixed to scalp by skull cap. Scan represents brainwave patterns generated from action of neurons, providing account of brain activity. Arrhythmic patterns=neurological abnormalities.

EVENT-RELATED POTENTIALS (ERPs)
Scientific, clinical applications general measure of brain activity. Statistical averaging techniques, extraneous brain activity from original EEG recording filtered out leaving only responses related to specific stimulus/performance. ERP remains. Research revealed different forms how relate to cognitive processes such as attention and perception.

POST-MORTEM EXAMINATIONS
Analysis of brain following death. Likely of people with rare disorder/experienced unusual deficits in mental processes/behaviour during lifetime. Areas of damage investigated, establishing cause if affliction suffered. May involve comparison with neurotypical brain in order to view difference.