Meninges, Ventricles and Functions of Nervous System

3-Coverings of Brain
- **Meninges**: Dura mater, Arachnoid and Pia mater cover, just like brain, Spinal Cord.
- Dura Mater = tough mother, outermost covering having venous sinus in it
- Arachnoid = vascular spidery covering, middle covering
- Pia mater = delicate mother is in contact with brain
- Outside dura mater epidural space is filled with fat and network of veins. Dura mater is not fused with bone outside.

Main Cavities of Brain
- Lateral Ventricles are present in cerebral hemispheres
- 3rd ventricle is present in Diencephalon
- 4th ventricle is present in Medulla
- Mid-Brain does not have a ventricle but a narrow duct Cerebral Aqueduct that joins 3rd and 4th ventricles

Functions of main parts of Brain:

**Cerebrum**
- Receives and interprets sensory inputs
- Controls voluntary and skilled muscle activity
- Functions in cognitive and emotional processing

**Diencephalon**
- Thalamus is main relay switch of brain
- Controls Autonomic NS
- Regulates body temperature, water balance, food intake
- Regulates hormone activity by controlling pituitary gland

**Limbic System**
- Functional brain and controls emotional response and helps to form and recall memories

**Cerebellum**
- Highest center for body balance, posture and smooth muscle movements

**Medulla Oblongata**
- Conduction pathway between higher centers of brain and spinal cord
- Regulates heart beat, breathing, vomiting and coughing

**Pons**
- Conduction pathway between cerebellum and cerebrum

**Midbrain**
- Cerebral peduncles link medulla oblongata and cerebrum
- Superior colliculi control visual reflexes and inferior colliculi control auditory reflexes

**Reticular Formation**
- 2nd important functional part of brain
- Maintains cerebral cortex alertness
- Regulates skeletal and visceral muscle activity